



2024 MIDD Report

Macomb Interceptor Drainage District (MIDD)

Candice S. Miller

Macomb County Public Works Commissioner



Pictured: "Light at the end of the tunnel" - watching the first piece of HOBAS pipe being installed down the pipe at the Segment 5 Sewer Rehabilitation Project



No More Sinkholes!

Final phases of major construction projects along 15 Mile Road

Construction has reached the very important, final major phase of the two major construction projects along 15 Mile Road.

While these projects have taken longer than expected due to manpower, supply chain and weather issues that other industries have also had to deal with, the alternative – another major infrastructure collapse like the one that occurred in late 2016 – would be much more costly and disruptive to the area in terms of road closures and sewer service.

At “Segment 5”, the new, permanent pump station inside the 60-foot-deep shaft that was excavated west of Schoenherr Road in Sterling Heights, was completed. Nearly 6,000 tons of sediment was painstakingly removed from the 11-foot-diameter concrete pipe that is the last major stretch of unreinforced concrete of the

MIDD installed in 1972 and carries the sanitary sewage from almost 600,000 people from 11 of Macomb County’s communities that comprise the MIDD district. Installation of HOBAS – the impervious glass fiber-reinforced polymer pipe – began in mid-February. In total, approximately 360 “sticks” will be lowered by crane one at a time down the shaft to “slip line” 7,000 feet of the 15 Mile interceptor to shield the interior of the pipe from corrosive hydrogen sulfide gas created by the flow of raw sewage. Where the pipe transitions to a narrower, 8-foot-diameter stretch, 1,300 lineal feet will be spray-lined with a geo-polymer coating.

Segment 5 is a \$30 million project that will not require an increase in sewer rates for the MIDD communities. The project is funded in

NO MORE SINKHOLES, CON'T.

part with the \$12.5 million lawsuit settlement paid to the MIDD after the MIDD board chaired by Macomb County Public Works Commissioner Candice S. Miller sued three contractors whose mistakes while working in the Oakland-Macomb Interceptor sewer to the west caused conditions that eventually led to the 2016 sinkhole, and by the American Rescue Plan Act funds.

Further east, at the “Segment 6” project at 15 Mile near Garfield Road, the amount and density of sediment and debris was much more than expected. Following a walk-through inspection and any necessary grouting, slip lining of 1,300 feet of the interceptor is slated to commence in April, weather permitting.

Completion of Segment 5 and Segment 6 is expected by late summer 2024, weather permitting.

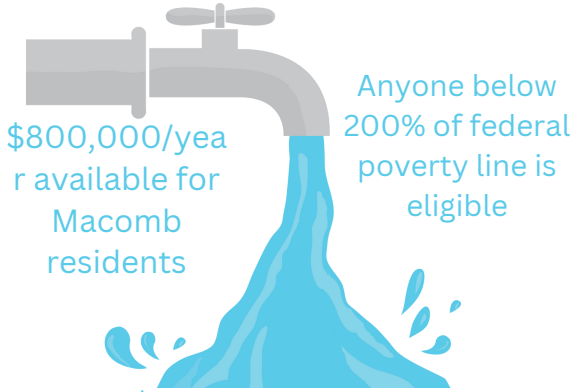
“Our team sincerely appreciates the patience shown by homeowners and businesses in the area,” Commissioner Miller said.





Water Residential Assistance Program

TAKE CONTROL OF YOUR WATER AND SEWER BILL WITH WRAP!



\$800,000/year available for Macomb residents

Anyone below 200% of federal poverty line is eligible

Up to \$100/month in bill credits, \$2,400 for unpaid bills and \$2,000 for plumbing assistance

To find more information, and to see if you qualify, call Macomb Community Action at 586-469-6464 or visit mca.macombgov.org

Drop Shaft Rehabilitations

The FY25 budget includes \$3.9 million for rehabbing and relining nine sewer shafts based on recent inspection data. The work will include the spray lining or cured in place pipe lining to rehabilitate the drop manholes and connecting sewer pipe.

New Sewer Lining Projects Planned

Our inspection program identified key areas of need across the MIDD drainage system. The area with the highest need is approximately 4,400 linear-feet of 5-foot diameter pipe in the 15 Mile Interceptor, from east of Segment 6 to Groesbeck Highway. That stretch has extensive degradation of the interior of the concrete pipe and in several locations the rebar is exposed. \$10 million is included in the budget for this project.

About 2,300 linear feet of pipe in the North Gratiot Interceptor needs to be lined to guard against further degradation from sewer gas. The diameter varies between 36 inches and 48 inches. \$2 million is budgeted for this project.

Keeping Rate Increases Minimal

Since taking office seven years ago, Public Works Commissioner Candice S. Miller and the Macomb Interceptor Drainage District board that she chairs has held wastewater rates to only necessary, modest increases.

For the FY25 that starts July 1, 2024, the MIDD budget increased \$2.6 million (2.8%), to a total of \$97.5 million. That's the sixth consecutive year the average charge adjustment is less than 3%.

Great Lakes Water Authority and Oakland Macomb Interceptor District costs account for two-thirds of the total MIDD budget. Because Commissioner Miller has successfully secured federal, state and county funds for MIDD projects, no new project debt was needed. That has resulted in lower rate adjustments. Before Commissioner Miller took office in 2017, the annual rate hikes were regularly double-digit increases. Through diligent cost analysis, budgeting, refinancing of bonds and competitive bidding of infrastructure projects, the overall cost impact to the MIDD communities has been well below inflation.



“The biofilter will greatly improve the air in that area which has been dealing with periodic nuisance odor from raw sewage for many years,” Macomb County Public Works Commissioner Candice S. Miller said.

Biofilter on 15 Mile Road west of Garfield Road

Odor & Corrosion Control

Work to mitigate odors and reduce corrosive, hydrogen sulfide gas that cause degradation of the interior of concrete sewer pipes was recently completed on one project and continues on three others.

- The startup of the new Chemical Injection Odor and Corrosion Control System at the North Gratiot Pump Station in Chesterfield Township occurred on March 4, 2024. This system will reduce hydrogen sulfide in the North Gratiot Force Main and downstream in the Lakeshore Interceptor.
- The existing Biofilter on 15 Mile, west of Garfield Road, in Fraser, has been converted from an open bed of woodchips to an enclosed biofilter with an engineered carbon media that will more efficiently remove hydrogen sulfide gas from the sewer. The upgraded facility is expected to be operational this spring.
- In Macomb Township, at 21 Mile and Garfield, construction of the new facility is well underway. The new facility includes an enclosed chamber with engineered carbon media and a small utility building to house the facility’s mechanical, electrical and controls equipment. This site is expected to be completed in July 2024.
- In Clinton Township, at the existing Clintondale Pump Station, work is on going to install a new carbon media facility that will mitigate odor and corrosion in the wet-well of the pump station and the sewer pipe immediately upstream. This work is expected to be completed this summer.



Using Artificial Intelligence for Sewer Inspections

The Macomb County Public Works Office has introduced the use of artificial intelligence to improve the inspection and maintenance of the MIDD system.

Data from visual inspections that was collected in 2021 and 2023 were analyzed by an AI program, and the condition of the sewers at many locations was scored and used to create a 3-D model.

Previous inspection recommendations showed two portions of the MIDD were in immediate need of lining. This same data was run through the program, called Sewer AI, and showed that those areas did not require immediate lining and could be pushed back within the MIDD's long-term capital improvement plan.

MCPWO engineering staff reviewed and agreed with the new assessment, resulting in a short-term savings of \$4 million. Sewer AI also confirmed the need to line a section of the North Gratiot Interceptor, and the 15 Mile Interceptor east of Segment 6 to Groesbeck Highway.

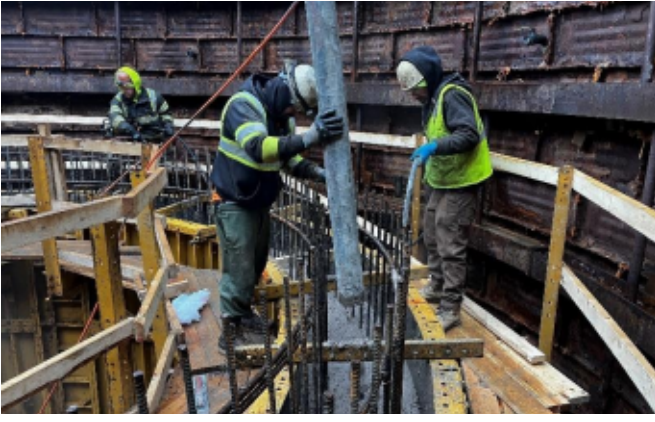
Macomb County Public Works staff is also training on the operation of a new drone that can be flown not only in our large interceptors, but also in narrower areas to collect inspection data that will be coded by AI and put into a database resulting in better quality inspections while also saving money.

“We’re excited about the use of AI for our department’s purposes because we’re using cutting-edge technology to save time and money and to get the most detailed information about the condition of our sewer systems,” Public Works Commissioner Candice S. Miller said.



8.5 Mile Drain Inspection

OMIDD Update



Several major upgrades, such as a new biofilter, HVAC and standby generator upgrades have been completed at the Northeast Pump Station in Detroit. The other ongoing upgrades at the Northeast Pump Station, include new sanitary pumps and motors, new electrical switchgear and transformers, as well as other critical equipment. It's all part of a very extensive, multi-year capital improvement program directed by the Oakland Macomb Interceptor Drainage District Board (OMIDD). The cost for these projects is included in the MIDD budget.

There are two other projects involving the rehabilitation of sections of the 7-mile stretch of the North Interceptor – East Arm that carries sewage from the 23 OMIDD communities, the 11 MIDD communities plus the 12 communities in Oakland County.

There is an upcoming Odor & Corrosion Control project which includes upgrades to an existing facility at Dodge Park and Utica Roads in Sterling Heights and a new facility at Dodge Park and Sorrento in Sterling Heights. The project will be issued for bids this Spring and construction will start late summer or early fall. Like the MIDD, the facilities will mitigate the nuisance odors emitting from the system and protect the concrete pipe from hydrogen sulfide induced corrosion. This is part of a multi-year collaboration between the MIDD and OMIDD.

MIDD Wastewater Master Plan Update

The first county-wide Wastewater Master Plan in decades was started several years ago and is now complete.

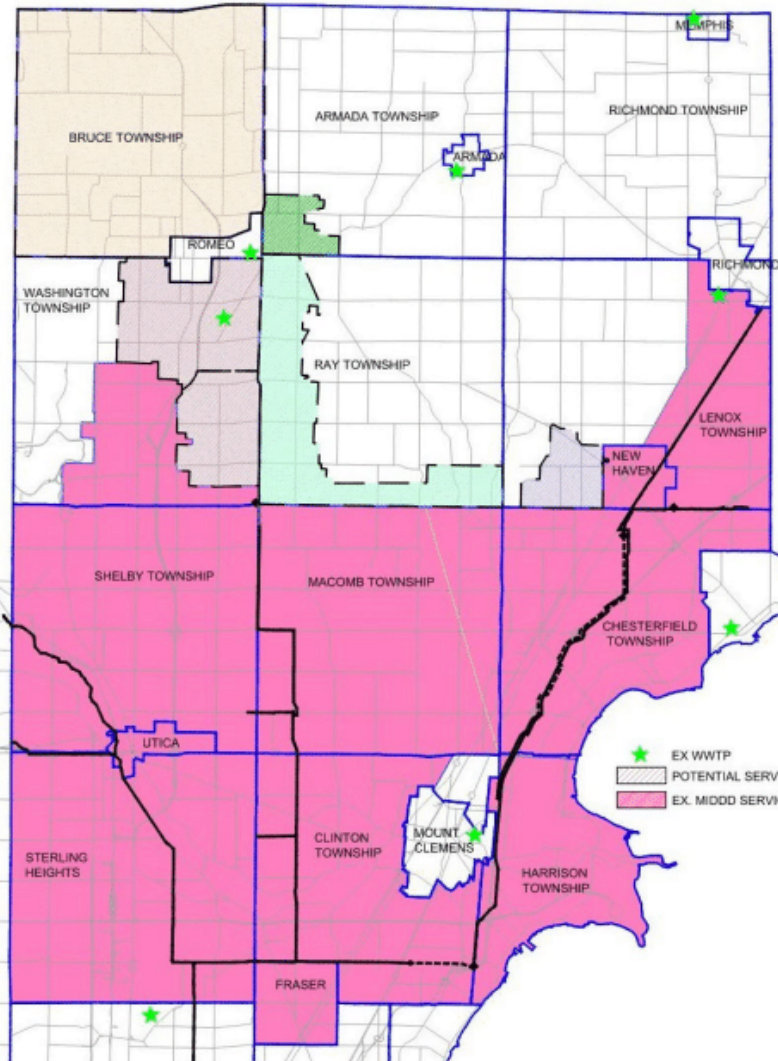
The plan was needed to ensure that our underground infrastructure continues to be a critical component of current and potential future economic activity, while also protecting the environment. The current and future sewer needs of each community were determined with input from local officials.

The plan was originally expected to take 18 months to complete, but we subsequently added several additional options for potentially service to our northern communities. The plan balances the needs of communities in the southern part of Macomb County, and those to the north.

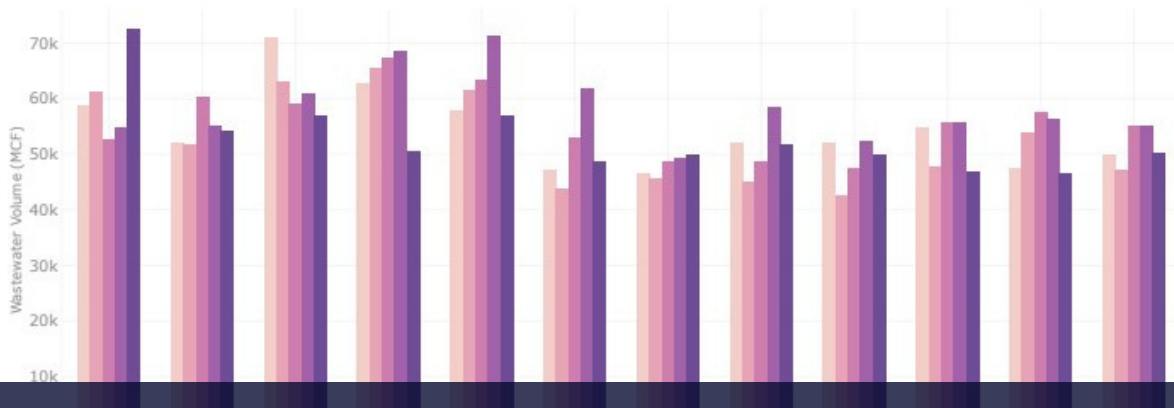
The plan finds that with continued future infrastructure rehabilitation over the next 25 years -- continued inspections, grouting, pipe lining, and corrosion control facilities -- there is enough total flow capacity to serve current and future customers through 2045. Importantly, no community's flow capacities have been decreased. In fact, most community capacity limits have increased.

“The master plan will allow us to best serve our communities by ensuring we have the infrastructure necessary to continue to enhance the quality of life we all enjoy here in Macomb County and to serve as a critical component of economic prosperity for this and future generations,” Macomb County Public Works Commissioner Candice S. Miller said.

Figure 4.2 – Potential Service Area



Community	Proposed Maximum Allowable Flow (cfs)
Chesterfield Township	39.66
Clinton Township	104.40
Fraser	21.70
Harrison Township	28.49
Lenox Township	11.64
Macomb Township	43.00/48.00
New Haven	6.40
Shelby Township	61.00
Sterling Heights	139.60
Utica	7.90
Washington Township	10.00/15.00/24.00



Go With The Flow: Meter Dashboard Available to Community Leaders

Thirty sanitary sewer outlet meter facilities maintained by the Macomb County Public Works Office allow officials from the communities in the Macomb Interceptor Drain Drainage District to view the data that's used to calculate billing of sewer service.

These facilities monitor and collect data on the sewage volumes on a continuous basis. A cloud-based meter data management tool -- called ACE -- allows municipal finance administrators, elected officials, wastewater and DPW officials to view the data on a user-friendly dashboard. Previously, they would have to wait for Public Works staff to download the data and provide it in a spreadsheet.

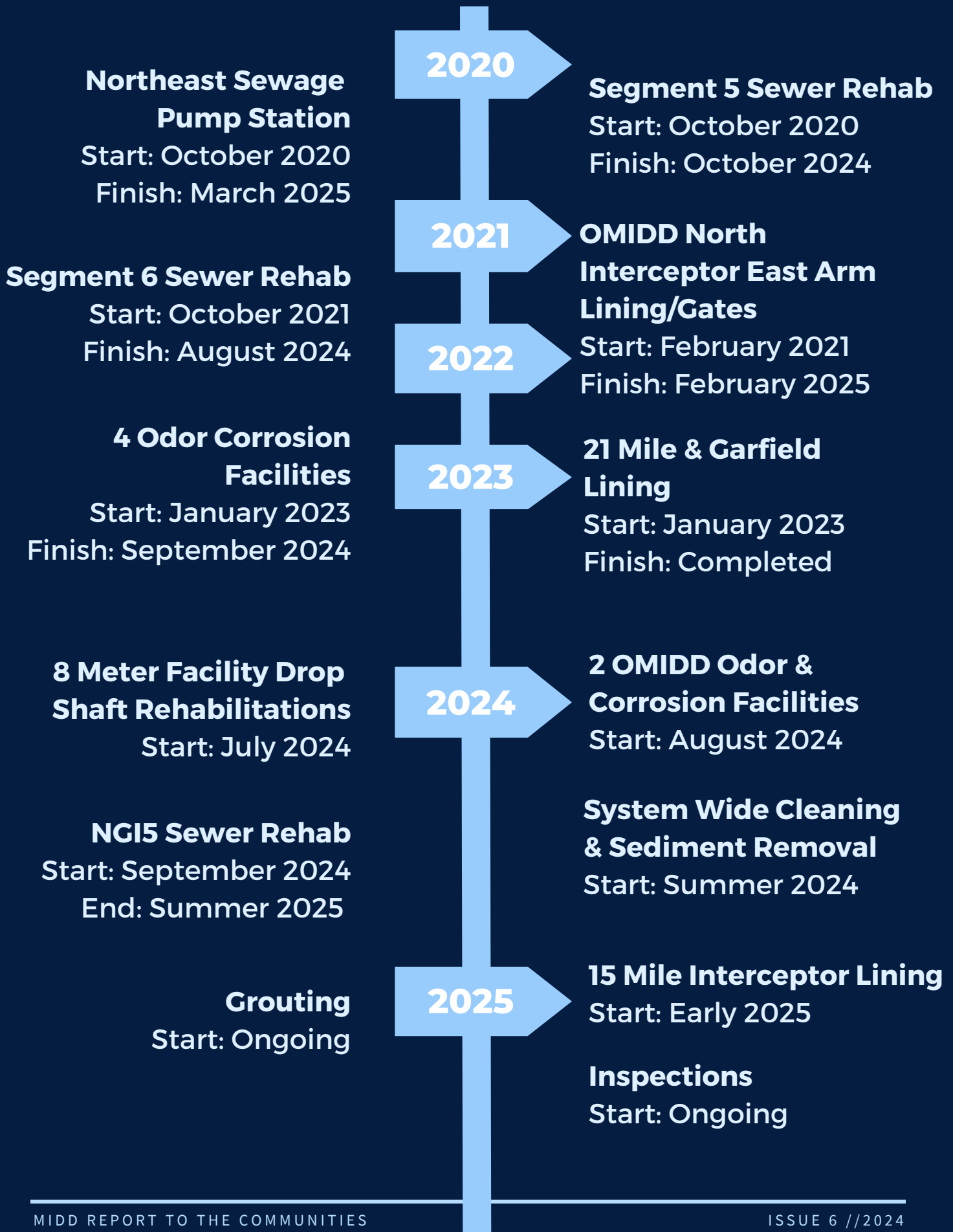
Data from rain gauges is also included in the dashboard. An analysis of sewage flow and rainfall totals can determine whether there is any infiltration of ground water into the sanitary system. Infiltration of storm water increases the amount of flow measured by the meters and increases cost to the local community.

COMMUNITY DASHBOARD IS INTENDED TO PROVIDE A QUICK LIVE SNAPSHOT OF COMMUNITY SANITARY SEWAGE FLOW METERS:

KEY FEATURES INCLUDE:

- 24-HOUR INTERACTIVE TREND OF ALL SANITARY SEWAGE FLOW METERS.
- DAILY AND HISTORIC RAINFALL TOTALS
- DATA QUALITY (SANITARY SEWAGE FLOW METER UPTIME PERCENTAGE)
- 24-HOUR ANALYTICS ON LOW, NORMAL AND HIGH FLOWS
- 90-DAY CERTIFICATION HISTORY; AS REVIEWED AND CERTIFIED BY MCPWO

MIDD Projects Timeline





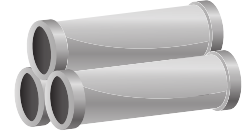
MIDD By The Numbers



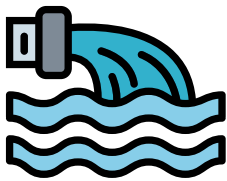
11 Communities Served



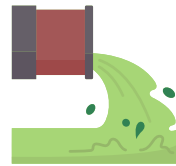
600,000 Residents & Businesses Served



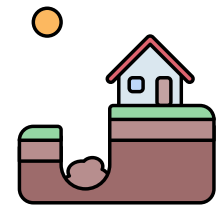
29 Miles of Interceptor



2.2 Billion Cubic Feet Annual Flow Volume



ZERO Sanitary Sewer Overflows since 2016



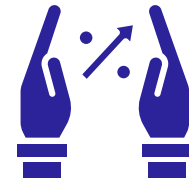
ZERO Sinkholes since 2016



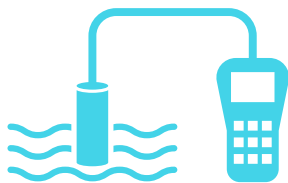
31 Billing Flow Meters



\$12.4 Million in Savings from Refinancing Bonds



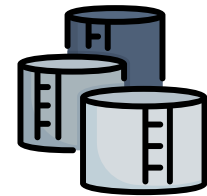
2.8% Avg. Annual Rate Adjustment since 2017 vs. 15% Annual Increases from 2010-2016



43,000 SCADA Remote Sensors



Contractors spent 259 days working in underground pipe in 2022



12 billion gallons of flow stored & safely released while workers present underground



17 Employees



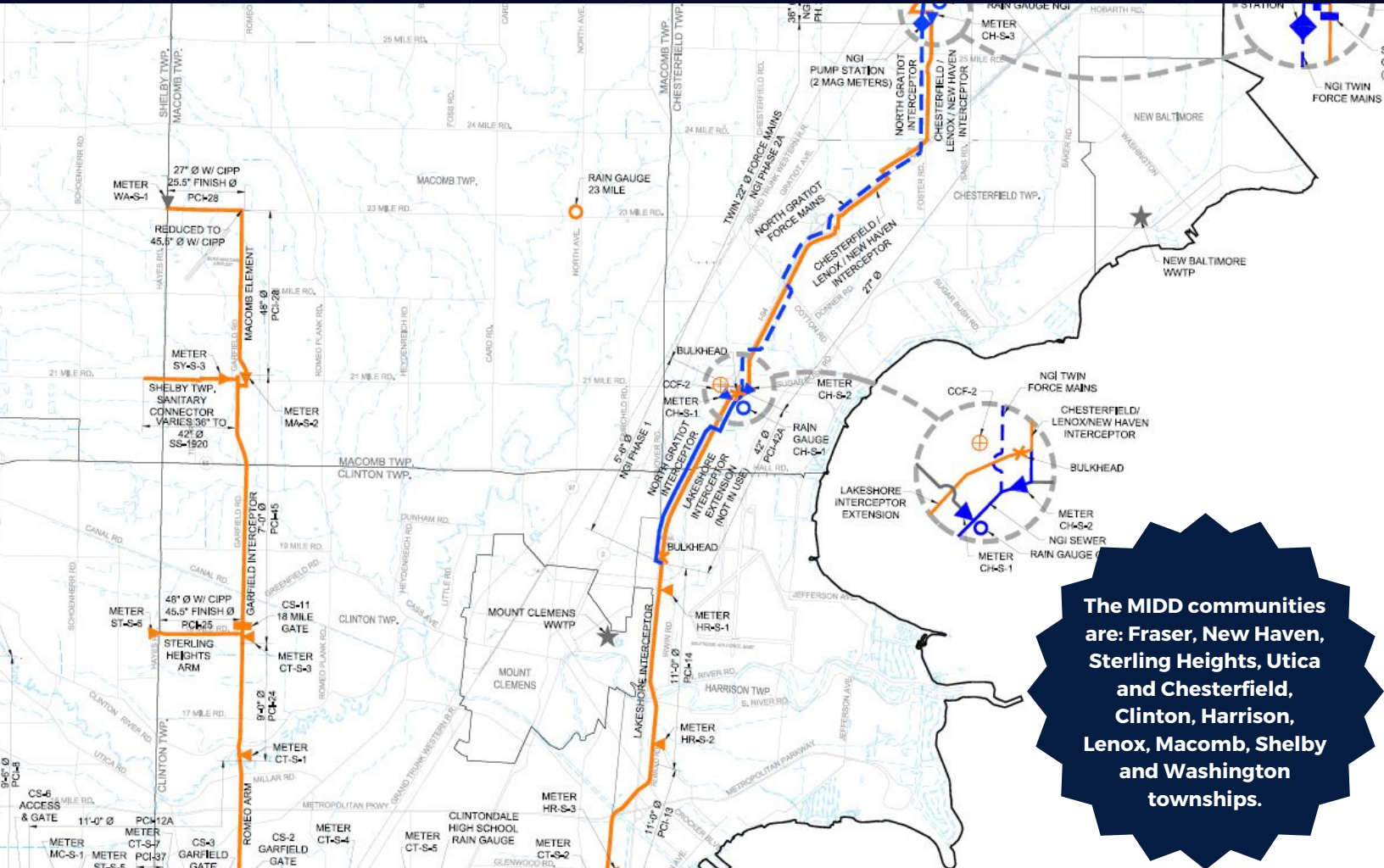
21 Rain Gauges



784 Manholes

REPORT A POLLUTER: 24-Hour Toll Free Emergency Hotline 1-877-679-4337

If a discharge is detected in a Macomb County drain, please contact the Macomb County Public Works Office.



The MIDD communities are: Fraser, New Haven, Sterling Heights, Utica and Chesterfield, Clinton, Harrison, Lenox, Macomb, Shelby and Washington townships.

Macomb County Public Works Office
Commissioner Candice S. Miller

21777 Dunham
Clinton Township, MI 48036

586-469-5325

public.works@macombgov.org

Report a Polluter: 24-Hour Toll Free
Emergency Hotline
1-877-679-4337

