

PIPELINE

MICHIGAN ASSOCIATION OF COUNTY DRAIN COMMISSIONERS

MANAGING MICHIGAN'S WATER RESOURCES SINCE 1899

2020 WINTER CONFERENCE
TEASER

GIS MAINTENANCE SUPPORTS
VALUABLE INVESTMENT

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PRESIDENT'S MESSAGE

JOE BUSH

Ottawa County Water Resources Commissioner



The holiday season is fast approaching us and will be here before we know it. Homes will be decorated soon, the kitchens will be filled with familiar and comforting smells, all while we gather with family and friends in this very special time of the year.

I often reflect on how I really do feel like my job is a gift. All of the people involved with the MACDC are like that extended family – the great part is that I the chance to see many of you twice a year at our conference, if not more than that from various interactions. That is more than I see some of my own personal family!

I just want to encourage you all to see your job as a gift. Sure, there are times where each of our jobs are not wrapped up in a perfectly wrapped shiny package, but having the opportunity to work with others in improving our state's waterways is quite a gift. Just like how we ask our various family members opinions of a purchased gift for a special someone, we, as drain commissioners and others, ask our colleagues for advice on various projects, brainstorm on new thoughts/ ideas, and even vent about tasks that are not going as planned.

There are some gifts that require some pretty creative wrapping. It might be an obscure shape or just is too big to fit in any box available. Many of our jobs also require some pretty creative thought processes. It takes a team to work through how to see the project through to completion and it takes such a large team of individuals from across the board in order for it to be wrapped up to be called a completed project. Just remember, that the support is near, our family can help us work through various projects with advice on what has worked in the past and what hasn't. The project might require assistance on how to

wrap it up, but it is amazing that one phone call might just be the one conversation that can help move the project forward.

When gifts are unwrapped, the receiver is either ecstatic because it is just what they wanted, or disappointed because they were hoping for something else. Sometimes our projects are like that as well with the constituents who are on the receiving end of our completed drain projects. They might fall into the category that the project is JUST what they wanted, they are singing your praises because it is what they were hoping for. Others, they may have wanted something totally different, or nothing at all. Just remember, that these "gifts" that we have completed for these constituents are completed because they are needed, and it is what is best, even if they don't realize it. Remember, you may not receive a huge 'thank you' every time, but that is okay as we are the professionals and know what is best...just like receiving that package of underwear in the stocking – it is what is needed, it may not be the best gift to receive, although, some people can't wait to receive the new pair placed in their stocking or gift box.

I hope that each of you finds some extra downtime to spend with family and friends during this holiday season. Eat that extra slice of pie, visit for the extra 10 minutes, go for that winter drive in the freshly fallen snow. Rest, rejuvenate, and don't forget to carefully unwrap each and every gift that you may receive, whether it be in the physical gifts or the gifts that come in each day that we are blessed to have.

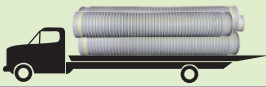
Grateful to be your MACDC President,

Joe Bush

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DELIVERIES



OF TRUCKS* 14

- HP Storm uses less trucks
- Self unloading - no lifting required



OF TRUCKS* 49

- RCP uses more trucks
- Machinery required to unload

* Based on 5,000 feet of 30" diameter pipe.

STAGING

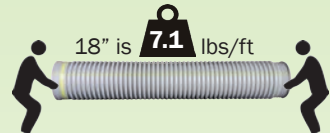


- HP Storm is able to be stacked high
- Nest smaller diameters



- RCP stacks two high

STRINGING



- HP Storm can be moved quicker
- Handle safer



- RCP is moved two at a time
- Requires machinery

INSTALLATION

A typical project with 5,000 ft specified on the plans will net you:

- 25 days using HP Storm (56 days with RCP)
- 250 joints using HP Storm (625 joints with RCP)



**30" HP Storm:
Installation Rate
of 200 ft per day***



**30" RCP:
Installation Rate
of 88 ft per day***



*Data compiled from RSMeans

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Michigan Association of County Drain Commissioners 121st Annual Winter Conference

SCHEDULE AT A GLANCE

Tuesday, February 11

- 1:30 - 3:30 PM **Legislative Meeting**
Gilmore Boardroom
- 3:30 - 5:00 PM **Board of Directors Meeting**
Gilmore Boardroom
- 12:00 - 6:00 PM **Exhibitor Set-up**
Kalamazoo Room

Wednesday, February 12

- 8:00 AM - 2:00 PM **Exhibitor Set-up**
Kalamazoo Room
- 10:00 AM **Registration Opens**
Kalamazoo Pre-Function
- 12:00 PM **Lunch on your own**
- 1:10 PM **Call to Order and Welcome**
Arcadia Ballroom
- 1:15 - 3:00 PM **Educational Sessions**
Arcadia Ballroom
- 3:00 - 3:30 PM **Break/View Exhibits**
Kalamazoo Room
- 3:30 - 5:00 PM **Educational Sessions**
Arcadia Ballroom
- 6:00 - 7:00 PM **Reception/View Exhibits**
Kalamazoo Room
- 7:00 - 8:30 PM **Strolling Dinner/View Exhibits**
Kalamazoo Room
- 8:30 PM **After Dinner Activities**

Thursday, February 13

- 7:30 - 9:00 AM **Breakfast**
The Morning Dish
- 8:30 AM **Exhibit Area Open**
Kalamazoo Room
- 9:15 - 10:30 AM **Educational Sessions**
Arcadia Ballroom

Thursday, February 13 cont.

- 10:30 - 11:00 AM **Break/View Exhibits**
Kalamazoo Room
- 11:00 - 12:15 PM **Educational Session**
Arcadia Ballroom
- 12:15 - 2:15 PM **Lunch/2020 Awards Program**
Arcadia Ballroom
- 2:15 - 3:15 PM **Educational Sessions**
Arcadia Ballroom
- 3:15 - 3:45 PM **Break/View Exhibits**
Kalamazoo Room
- 3:45 PM **Exhibitor Tear-down**
Kalamazoo Room
- 3:45 - 4:45 PM **Educational Sessions**
Arcadia Ballroom
- 4:45 PM **Associate Member Meeting**
Arcadia Ballroom
- 6:00 - 7:00 PM **Reception**
Arcadia Ballroom
- 7:00 PM **Dinner**
Arcadia Ballroom
- 8:30 PM **After Dinner Activities**
Euchre Tournament

Friday, February 14

- 7:30 - 9:30 AM **Breakfast**
The Morning Dish
- 9:30 AM **MACDC District Meetings**
Arcadia Ballroom
- 10:00 AM **Business Meeting/
Committee Reports**
Arcadia Ballroom
- 11:00 AM **Adjourn**

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CONFERENCE SESSIONS

Wednesday, February 12

1:15 - 2:00 PM Michigan Water, There is a Geologic Story, but What is the Other Story?

John A. Yellich, Michigan Geological Survey

Michigan has recently seen how precipitation amounts have changed throughout many areas of the State. Annual water totals have increased each year since the drought of 2012-13. There are vast areas that are now considered a wetland, when previously it was just a high organic flat lowland area that produced quality crops from the organic rich soil. However this and other areas have seen high water levels before, but they may not have been in our life time, but the remnants are there. This includes inland lakes and streams that are now higher and maybe flowing continuously. What has that increase in water done to established structures and infrastructure in many areas of Michigan?

High groundwater has caused impacts to both residential and commercial infrastructure that was built to what was to be the projected "high" groundwater levels, not recognizing that in many areas there were high water tables along shorelines in many lakes hundreds of years ago. This evidence was generally obliterated by farming or developments that came in the last 100 years, hence there is no record to project this current water table and how much higher it may progress.

More importantly, society has made changes and the lands have responded to precipitation, not totally because of the precipitation, but because of what has changed on the surface of areas and regions. Interior lakes and streams are locally seeing greater flows and impacts, including the Great Lakes with higher levels. This is not just because of the greater amount of overall precipitation, which is caught and flows to the lakes. Much of the change is because we have more impermeable surfaces (roads, houses, buildings, parking lots, etc.) today versus 100 years ago and water is not being naturally absorbed into the ground, but is being diverted to the surface features. Sure we have stormwater controls, but the impacts began many years ago, not recently. We have tried, but the water equation is not equal.

2:00 - 2:30 PM What's App?

Jamie Burton, Hubbell, Roth and Clark, Inc.

Tim Inman, Spicer Group Inc.

Brian Jonckheere, Livingston County Drain Commission

This session will introduce the newest evolution of "The Wheel" in the form of an app, which will provide a mobile application for drain commissioners and their staff which will provide regulatory requirements for drain related projects under Part 301 of the drain code. We anticipate that this app will be a significant aid in increasing compliance with Part 301 requirements.

2:30 - 3:00 PM Legislative Update

Deena Bosworth, Michigan Association of Counties

MACDC lobbyist Deena Bosworth will discuss the bills that have been introduced this legislative session that affect the work of county drain offices.

3:30 - 4:15 PM Agreements, Permits, and Recordings: Paperwork a Necessary Evil

Stacy Hissong and Cole Hedrick, Fahey Schultz Burzych Rhodes PLC

This presentation will include a a discussion about when it is appropriate to enter an agreement or a permit for drain impacts (work, extensions, branches, encroachments). It will also cover what and when to record documents with the register of deeds.

4:15 - 5:00 PM Recent Climatic Trends in the Great Lakes Region

Jeff Andresen, Michigan State University

The Great Lakes region has become warmer and wetter in recent decades. In particular, both the frequency and intensity of heavy precipitation events has increased. This presentation provides a descriptive overview of these changes and as well as some potential regional impacts including infrastructure.



Michigan Association of County Drain Commissioners 121st Annual Winter Conference

CONFERENCE SESSIONS cont.

Thursday, February 13

9:15 - 9:45 AM Bond and Note Financing under the Drain Code

Laura M. Bassett and Roger A. Swets, Dickinson Wright PLLC
This session will provide an overview of procedures and recommendations for financing drain projects, including long-term borrowings, short-term and interim note borrowings, and maintenance financing. The session will include discussion of the differences between bonds and notes, timing considerations, and state law and federal tax law requirements for financing drain projects.

9:45 - 10:30 AM PFAS: The Michigan Experience

Teresa Seidel, EGLE
Michigan is leading the way in identify PFAS in the environment. This presentation will identify what Michigan has done to date, where more effort is needed and help the audience understand how PFAS may impact their work.

11:00 - 11:30 AM Automated SESC Planning, Permitting and Inspection

Luke O'Brien, P.E., Spicer Group Inc.
SESC permit management can be overwhelming for many drain offices. Utilizing the newest mobile apps and web tools available from ESRI allows drain offices to proactively and efficiently meet the state requirements for SESC permit administration. Example workflows from permit creation to inspection and reporting will be illustrated from various counties.

11:30 AM - 12:15 PM Islands of the Great Lakes

Loreen Niewenhuis, Author & Adventurer
In this presentation, Niewenhuis will take you to islands in each of the five Great Lakes. In words, photos, and video, you'll explore the geology of the largest system of freshwater lakes in the world and why there are tens of thousands of islands in the Great Lakes basin. She'll reveal how these islands are diverse in both geological underpinnings and in the life forms existing on the islands.



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2:15 - 2:45 PM A Different Approach to Drainage
Rod Creager, P.E., P.S., Fulton County, Ohio Engineer's Office
 How Ohio handles drains, drain maintenance and assessments. A discussion of the history of the Drainage Laws in Ohio and how Ohio Counties carry out drainage improvements and perform ditch maintenance.

2:45 - 3:15 PM Trenchless Drilling Lessons Learned - Failures and Geotechnical Prevention
Aaron Reed, P.E. and Brad Ewart II, P.E., SME
 We will explore real-world trenchless failures and their causes from a geotechnical perspective. We will also discuss how typical trenchless installation failures can be prevented, and the tools and data used to assist a design and construction team in the installation of trenchless crossings, such as private, MDOT, and railroad crossings.

3:45 - 4:15 PM Refunding Debt Post 2018 Tax Reform
Kari L. Blanchett, PFM Financial Advisors, LLC
 Despite the limitations on refinancing opportunities which resulted from the federal tax reform of 2018, the recent interest rate environment has provided additional non-traditional opportunities to refinance debt to save your taxpayers and ratepayers money. The session will review the refinancing options available to municipalities since the tax reform was enacted.

4:15 - 4:45 PM Young Professionals Group MACDC
Tanner Kragebrink, P.E. & Troy Andrews, P.E., Wade Trim
 This presentation will provide an overview and benefits of establishing a Young Professionals Group (YPG) in your organization. A Case Study of Wade Trim's YPG will be presented, including the framework, goals, implementation and successful outcomes of the YPG.



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GIS MAINTENANCE SUPPORTS VALUABLE INVESTMENT

By: Cassandra Verras, GIS Specialist, Giffels Webster

In 2002, voters approved the Great Lakes Water Quality Bond, which authorized \$1 billion in bonds to be sold for water pollution control projects. Of this, \$450 million was allocated to the Stormwater, Asset Management, and Wastewater (SAW) program. Statewide, municipalities and public works departments have benefited greatly from the SAW program, as it allowed their organizations' operations to transition from a cumbersome and incomplete paper archive system to a comprehensive digital model. Geographic Information Systems (GIS) became one of the most common ways to spatially view and manage assets.

Millions of dollars were allocated through this program to provide municipalities with the means to update or buildout a GIS to accurately depict their existing infrastructure and associated data. When used correctly this tool adds significant value; however if a GIS is not properly implemented and maintained it can cause frustration, errors and doubt among users.

Implementing a maintenance program can help communities ensure the funds leveraged through the SAW program, or any other funding, are used to keep a GIS a productive and useful asset.

To implement a successful maintenance plan, there are four key areas to consider:

1. **Schema:** Will data requirements likely evolve over time? How are real world phenomena being represented?
2. **Users:** Who are the users and how are they using or viewing the data? Who is responsible for maintaining the GIS?
3. **Funding:** How is the maintenance being funded? Are developers responsible?
4. **The Future:** How can the GIS be maximized? What additional features would you like to use down the road? How will the system be used in the future?

SCHEMA: THE INVISIBLE STRUCTURE

A database schema is one of the most important elements for a GIS, serving as the organizational structure where all data is preserved. While a schema can evolve over time, it is important to be forward thinking in its original structure to reduce the pain of future maintenance. Following the process of discovery and investigation required to go from a paper archive to a digital model, the schema should be re-evaluated to reflect key findings.

Typically, those tasked with building the GIS are not the end users. Consultants and contractors responsible for building a schema and its associated documentation should consider transparency and incorporating added protections to prevent errors and confusion for end users. The associated documentation should include setup details, domains, and subtypes to serve as a data roadmap. Dedication of time for thoughtful planning and discussion during this phase is important.

Vetted examples of schemas can be found online through trusted sources, such as ESRI's ArcGIS Solutions for Local Government. Also, the Michigan Infrastructure Council (MIC) was created as a result of the 21st Century Infrastructure Commission and is working toward creating statewide standards. These are great starting points, if not final solutions.

SETTING USERS UP FOR SUCCESS

If the end-user group is not involved in creating the GIS, providing documentation outlining data usage and user roles is a recommended practice. By assessing the end user's individual skill level against the user's expected role, it can be better determined what materials are needed to accomplish this new expectation. User error with data entry and/or manipulation can greatly increase the complexity of maintenance.



Education materials for future employees are of equal importance. Planning and having documentation that can train a new employee without needing an expert to come on-site for individual training is one way to improve efficiency.

FUNDING TO SUPPORT MAINTENANCE

While the GIS is being developed, municipalities can proactively identify funding sources for ongoing maintenance. Setting up a small budget dedicated to routinely updating the system keeps maintenance cost effective and prevents a GIS that has been neglected from needing an overhaul.

Many communities have successfully added a GIS-related developer fee to private developments. These fees fund the addition of private developments to a municipal GIS.

LOOKING TO THE FUTURE

A GIS is a robust solution. It is malleable and can optimize operations by implementing new software add-ons. Having insight into how the system better serves your community will help to identify additional software needed. The longer a GIS is integrated into a workflow, the easier it will become to identify these opportunities. As a part of an effective maintenance structure, routine evaluations must be scheduled to conduct reviews and to stay abreast of software releases.

CONCLUSION

The SAW program empowered communities to visualize their infrastructure through the use of GIS and track individual assets using spatial asset management software, but the work does not end here. As infrastructure changes, a GIS must change to reflect it. Through the SAW program, Michigan communities both large and small have the means to implement and utilize this technology. To ensure Michigan communities stay technologically current, these systems must be maintained and updated. Committing to a maintenance structure will ensure the support needed to make certain this valuable investment does not become just another outdated system of record, but instead will assist Michigan in realizing all the benefits of GIS.





STAYING “SAFE” IN THE DRAINS!

By: Dan Heaton, Communications Manager, Macomb County Public Works Office

The Macomb County Public Works Office is all about keeping the drains safe – but finding a safe in the drains was more than a bit unexpected. During routine work in November removing woody debris on the Plumbrook Drain, which traverses about 4 miles through the state’s 4th most populated city, Sterling Heights, MCPWO staff found this old safe, which clearly had been opened in an unorthodox manner. The safe, which stood about 3 feet tall, appeared to have had a whole cut in the door with a blowtorch. The safe was in a remote part of



the drain and there was no indication how long the safe had been there. MCPWO contacted the local police department as a precaution, but there was no known case of a missing safe in recent police files. The safe only contained mud and muck -- no treasure. “This certainly goes down as the most unusual discovery in the drains so far this year and brought a bit of unexpected excitement to a routine job,” commented Commissioner Candice S. Miller. “When we tell our crew to be safe as they are out working in the drain, we certainly didn’t have this in mind!”

Get to Know Clark Hill



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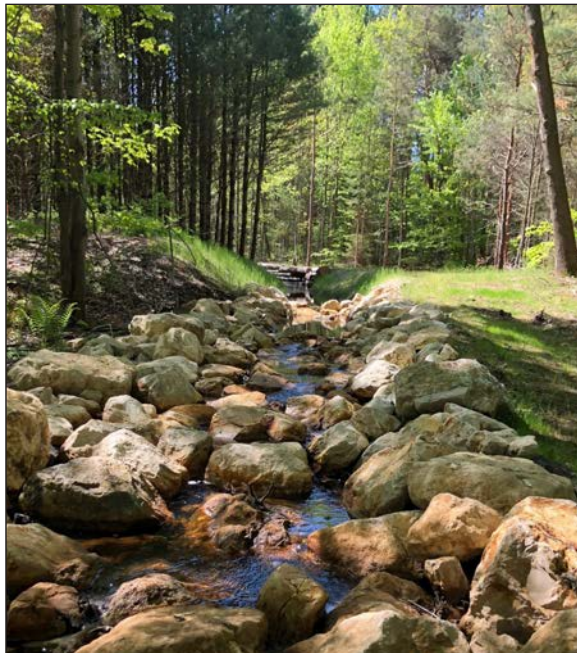


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MICHIGAN'S SALTY WATERS

**By: Christe Alwin, Municipal Separate Storm Sewer System (MS4) Program Coordinator
Water Resources Division, Department of Environment, Great Lakes, and Energy**

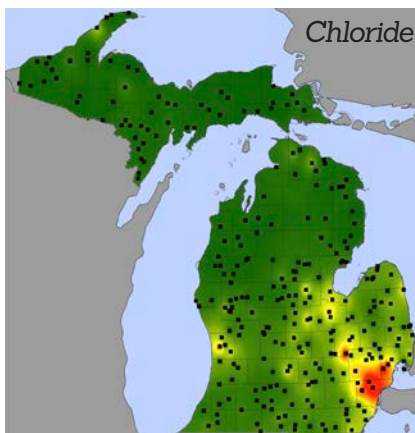
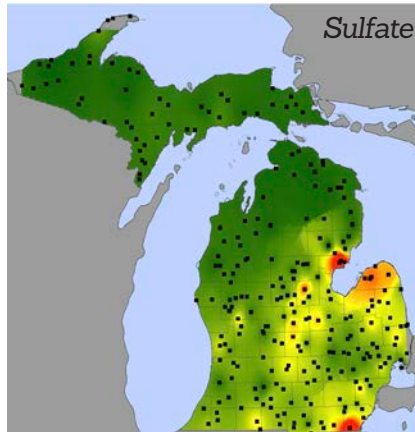
The early start to winter weather this year meant an early start to managing ice and snow for safe winter travel conditions. Road agencies can implement various strategies to promote public safety, including removing snow from the roadway, applying brine ahead of winter weather events, and salting at temperatures to optimize effectiveness. These strategies coupled with the cost of salt have helped to reduce salt use while continuing to provide safe travel conditions for the public. Although road salt use has tripled since the 1970s (United States Geological Survey), road agencies have reduced salt application rates from 500 pounds per lane mile to 250 pounds per lane mile in recent years (County Road Association of Michigan). However, when snow and ice melt, the remaining salt on the road washes into wetlands, lakes, and streams, often through storm sewers. The salt from managing winter travel conditions combines with other salt discharges resulting in concentrations that may impact the quality of Michigan's waters.

The Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, has been monitoring chloride and sulfate levels in surface waters since 2005. Chloride and sulfate are salts that are toxic components of total dissolved solids (TDS). Elevated levels of chloride and sulfate can be harmful to fish and other aquatic life and can also negatively affect infrastructure. Mapping of the EGLE stream monitoring data identified areas of the state with elevated chloride and sulfate levels and the scope of the water quality concerns.

In addition to EGLE's instream monitoring, chloride and sulfate have been monitored as part of TDS effluent limitations in National Pollutant Discharge Elimination System (NPDES) permits.

When developing TDS effluent limitations, the source of TDS is evaluated for controllability. Industries may be able to limit TDS as part of production while a municipal wastewater treatment plant may receive uncontrolled sources of TDS, such as discharges from residential water softener use. The controllability evaluation is necessary to comply with Michigan's Water Quality Standard (WQS) for TDS; however, with TDS accounting for all dissolved solids, the potential water quality impact specific to the elevated levels of chloride and sulfate was not able to be addressed. To address these concerns, water quality criteria were developed for chloride and sulfate in August 2019. The water quality criteria for each parameter were developed using Rule 57 of the WQS with consideration of recent aquatic toxicity data. To move forward with implementing these criteria,

EGLE staff formed a workgroup and invited representatives from a range of sectors having the potential to discharge chloride or sulfate to surface waters. The sectors represented on the workgroup include drinking water treatment, wastewater treatment, road agencies, food processors, mining operations, and drain commissioners. Mr. Joe Bush, Ottawa County Water Resources Commissioner, and Ms. Stacy Hissong, Michigan Association of County Drain Commissioners, are member representatives for the stormwater sector. The goal of the



Heatmaps identifying chloride and sulfate levels from EGLE surface water sampling (2005-2014). The black squares identify sampling locations. The color gradient identifies the highest concentrations in red and transitions to the lowest concentrations in dark green.

workgroup is to collect input from the various sectors to inform a plan to implement the chloride and sulfate water quality criteria in NPDES permits starting in October 2020.

The first meeting of the workgroup was held in September 2019 and focused on understanding existing sources of chloride and sulfate discharges to surface waters. The potential for salt discharges to designated county drains, both open and closed, was discussed. Mr. Bush shared the challenges of chloride discharges to county drains from unregulated sources. For example, commercial parking lots can be excessively salted to address liability concerns even though a lesser amount of salt applied may be protective of public safety. The workgroup discussed the potential for source reductions from the commercial sector through voluntary certifications or new regulations and road agencies through proper salt storage, calibrated salt spreaders, staff education, and optimizing salt applications. Additionally, chloride impacts to stormwater infrastructure was discussed and the need to consider chloride discharges as part of detention basin and green stormwater infrastructure design.

The workgroup agreed that public education is needed to realize reductions. For road agencies, the public needs to understand the balance between clean water and safe winter travel conditions. A homeowner may not know whether a water softener is needed when a home is connected to a municipal water supply. Public education across the sectors will be discussed as part of the workgroup meetings.

The workgroup will discuss chloride and sulfate

MORE SALT
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30° Normal winter conditions

20° **CAUTION** Salt takes longer to work and **ROADS REFREEZE FASTER**

10° **EXTREME CAUTION** **ROADS REFREEZE EVEN FASTER** Ice melts very slow

0°

When salt is used at these lower temperatures, it may cause wet pavement to refreeze

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discharges associated with municipal wastewater, industrial wastewater, and stormwater runoff during the next meetings. Input from workgroup members will be used to inform the development of the implementation plan by EGLE staff with an expected completion date of September 2020. For more information on this effort, contact Christe Alwin, EGLE, WRD at alwinc@michigan.gov.

The Michigan Department of Transportation provides public education to inform residents of the limitations of salt application during certain temperatures.

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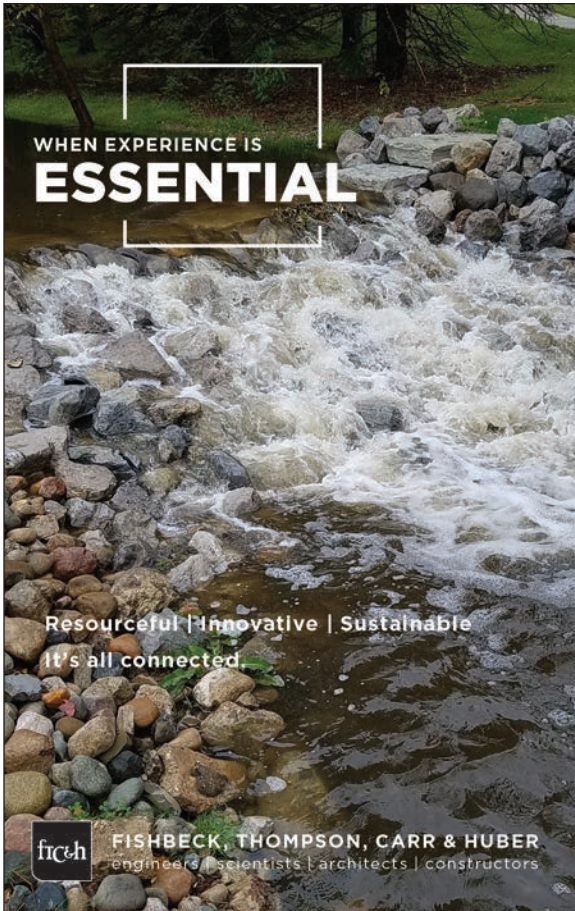
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Michael Gregg (left) with Director McDowell (right)

MICHAEL GREGG RECOGNIZED FOR 40 YEARS OF SERVICE

The Michigan Department of Agriculture and Rural Development (MDARD) recently recognized Michael Gregg for 40 years of service at its annual Employee Awards Ceremony.

The ceremony was attended by Governor Whitmer who acknowledged Michael's and two other colleagues years of service. Director McDowell presented Michael with a plaque for his years of dedication.

Michael joined the MDARD in 1979 after serving 4.5 years with the Ingham County drain commissioners office. He has been MDARD's Intercounty Drain Program Manager since 1985

and he and his staff have administered hundreds of drainage infrastructure projects of all sizes and types possible under the Drain Code.

Michael has a Bachelor and Master of Science degrees from Michigan State University in Resource Development with a minor in Agricultural Economics.

He has served on a variety of interagency policy committees, is an active Life Member of the Michigan Association of County Drain Commissioners and represents MDARD on the Executive and Legislative Committees.



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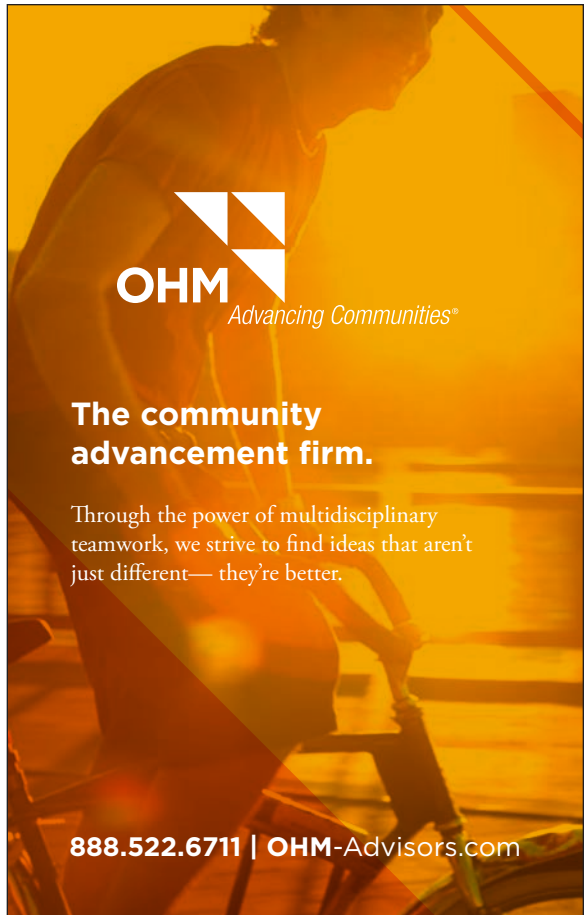
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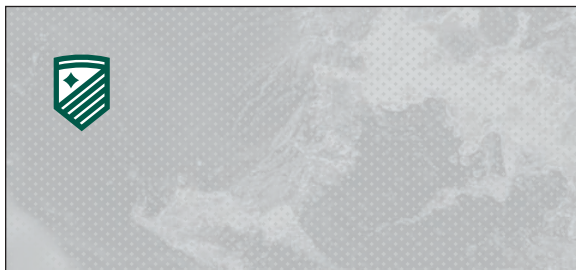


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FEBRUARY 12 – 14, 2020

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Radisson Plaza Hotel, Kalamazoo


APRIL 27 – 30, 2020


MTA Conference & Expo
Grand Traverse Resort, Acme Township

AUGUST 19 – 21, 2020

MACDC Annual Summer Conference
Mission Point Resort, Mackinac Island

Editor's Note: to place your event on this calendar, contact us at 517.484.9761.





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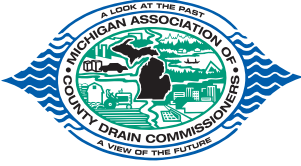
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