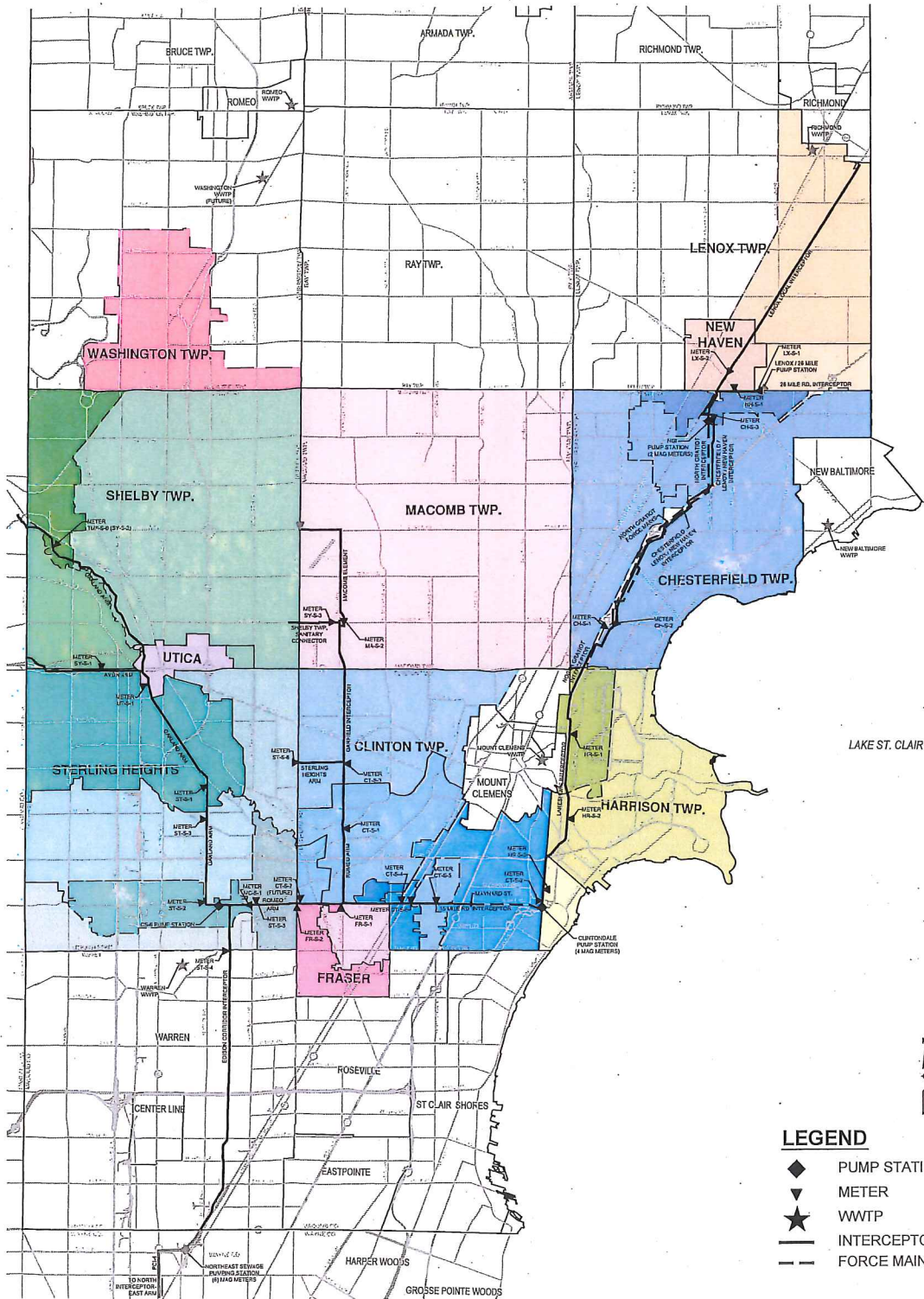


MACOMB INTERCEPTOR DRAIN
INTRA-COUNTY DRAINAGE BOARD
MARCH 9, 2020
10:30 A.M.
AGENDA

	Page
1. Call of meeting to order and roll call	
2. Approval of Agenda for March 9, 2020	
3. Approval of Minutes for February 10, 2020	3
4. Public Participation	
5. Project Updates – Stephen Downing	
6. Property Sale Update – M59/Garfield Road – Tamara Keskeny	6
7. Segments 3, 4, 7 through 10 Sewer Rehabilitation Options Analysis Recommendation – Stephen Downing	7
Motion: To approve the proposal from FK Engineering in the amount of \$84,000 to perform a segment by segment options/cost analysis of the remaining portions of the MID interceptor.	
8. SCADA Storage Area Network Replacement Project Recommendation - Stephen Downing	15
Motion: To approve the proposal from Access Interactive in a not-to-exceed amount of \$106,354 for replacement SCADA Storage Area Network hardware and installation (\$45,732 MIDD share).	
9. Consideration for approval of invoices (see attached)	22
10. Financial Report – Bruce Manning	24
11. Adjourn	

MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT



- LEGEND**
- ◆ PUMP STATION
 - ◇ METER
 - ★ WWTP
 - INTERCEPTOR
 - - - FORCE MAIN



Candice S. Miller
 MACOMB COUNTY PUBLIC WORKS COMMISSIONER

fiqh
 UPDATED: FEBRUARY 2017

An adjourned meeting of the Intra-County Drainage Board for the **MACOMB INTERCEPTOR DRAIN** was held in the Office of the Macomb County Public Works Commissioner, 21777 Dunham, Clinton Township, Michigan, on February 10, 2020, at 10:35 A.M.

PRESENT: Candice S. Miller, Chair
Robert Mijac, Member
Bryan Santo, Member

ALSO PRESENT: Veronica Klinefelt, Macomb County Board of Commissioners; Vince Astorino, Operations & Flow Manager, Brian Baker, Chief Deputy, Stephen Downing, Construction & Maintenance Manager, Bruce Manning, Financial Manager, Tom Stockel, Construction Engineer, Kellie Kource, Drain Account Specialist, Karen Czernel, Deputy, Dan Heaton, Communications Manager, Macomb County Public Works; Chris Dilbert, New Haven Supervisor; Jim Kelly, Meadowbrook Insurance

The meeting was called to order by the Chair, Candice Miller. A motion was made by Mr. Santo, supported by Mr. Mijac to approve the agenda as presented.

Adopted: YEAS: 3
NAYS: 0

Minutes of the meeting of January 13, 2020 were presented. A motion was made by Mr. Santo, supported by Mr. Mijac to approve the minutes as presented.

Adopted: YEAS: 3
NAYS: 0

The meeting was opened to public participation, then closed, there being no comments from the public.

Mr. Baker updated the Board that we were able to save \$4.2 million versus the originally estimated \$3.2 million on the MIDD Bond refinancing.

A motion was made by Mr. Mijac, supported by Mr. Santo to receive and file the update by Mr. Baker.

Adopted: YEAS: 3
NAYS: 0

Mr. Astorino updated the Board that Segment 5 grouting is in the final stretch at the last manhole moving into the Edison corridor. We are working on the grouting plans for the remaining portions of the system and should be a smooth transition into the next phase.

Mr. Downing updated the Board that the engineering design for Segment 5 rehabilitation is progressing. The final construction plans and specifications have been given to EGLE and we are moving through the rest of the submittal and approval process for the SRF requirements. The design is within budget and on track to go out to bid in March and begin construction in August or September. We had a construction kick off meeting for our drop shaft rehabilitation projects. Work is scheduled to start this month.

A motion was made by Mr. Mijac, supported by Mr. Santo to receive and file the project update by Mr. Astorino and Mr. Downing.

Adopted: YEAS: 3
NAYS: 0

Mr. Baker updated the Board that the Resolution allows for non-petition maintenance and authorizes us to coordinate the SRF financing with Miller Canfield and our financial advisor. We will go out to bid on the Segment 5 construction project in March.

A motion was made by Mr. Mijac, supported by Mr. Santo to approve the resolution authorizing the non-petitioned maintenance and coordination of low interest SRF funding for the Segment 5 Rehabilitation Project.

Adopted: YEAS: 3
NAYS: 0

Mr. Downing updated the Board that we have been working with Meadowbrook Insurance Agency regarding the Owner Controlled Insurance Program. It wraps multiple projects into one policy versus the conventional method of multiple contractors having their own insurance policies and where costs are passed onto the owner. That process can become complicated, so we are looking at an opportunity between Eight and One-Half Mile Relief Drain and Macomb Interceptor Drain to pull together a group of four projects in a wrap up policy. Worker's compensation is the only thing that we cannot include. The RFP will clearly state that no duplicating insurance is required with our contractors and our contract terms and conditions will be updated.

A motion was made by Mr. Mijac, supported by Mr. Santo to approve the Board Chair to enter an agreement with Meadowbrook Insurance Agency to provide the described services for the Owner Controlled Insurance Program.

Adopted: YEAS: 3
NAYS: 0

Mr. Astorino updated the Board on the areas that will be repaired on Segment 6. A RFP package for engineering services was sent out at the end of 2019 and NTH and FK Engineering submitted proposals and FK Engineering is who we recommend the contract be awarded.

A motion was made by Mr. Santo, supported by Mr. Mijac to award FK Engineering to begin work on Segment 6 at a cost of \$371,440.

Adopted: YEAS: 3
NAYS: 0

The Chair presented the invoices totaling \$5,119,796.22 to the board for review and approval.

A motion was made by Mr. Mijac, supported by Mr. Santo to approve the invoices as presented.

Adopted: YEAS: 3
NAYS: 0

A motion to receive and file the financial report given by Mr. Manning was made by Mr. Mijac and supported by Mr. Santo.

Adopted: YEAS: 3
NAYS: 0

There being no further business, it was moved by Mr. Santo, supported by Mr. Mijac, that the meeting of the Macomb Interceptor Drain Board be adjourned.

Adopted: YEAS: 3
NAYS: 0

The meeting was adjourned at 11:00 a.m.



Candice S. Miller, Chair
Macomb County Public Works Commissioner

STATE OF MICHIGAN
COUNTY OF MACOMB

I certify that the foregoing is a true and correct copy of proceedings taking by the Intra-County Drainage Board for the Drainage District shown on the attached set of minutes, on February 10, 2020 the original of which is on file in the Public Works Commissioner's Office. Public notice of the meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1975, including, in the case of a special or rescheduled meeting or a meeting secured for more than 36 hours, notice by posting at least 18 hours prior to the time set for the meeting.



Candice S. Miller, Chair
Macomb County Public Works Commissioner

DATED: 2/10/20



To: Macomb Interceptor Drain Drainage Board

From: Tamara Keskeny, Property Manager

Date: February 28, 2020

RE: Update for 45345 Garfield Road, PIN 08-32-300-018

The Purchase Agreement for the M.I.D.D.D. owned parcel located at 45345 Garfield Road was terminated by Al Mansour on February 19, 2020.

Commissioner Miller would like to list said parcel with a Commercial Real Estate Broker for the asking price of 3.7 million dollars.

The parcel has been listed on the Macomb County Website and LoopNet at the asking price of 3.5 million dollars. The main reason to increase the asking price is to cover the cost of substantial commission rate. The increase in the asking price would help the potential profit to be at or around the same as the previous asking price.

Ben Aloia is looking into attaining a list of several potential Brokers for Commissioner Miller to review.



Candice S. Miller

Public Works Commissioner
Macomb County

To: Macomb Interceptor Drain Drainage District Board Members

CC: File

From: Vincent Astorino, Operations & Flow Manager

Date: February 27, 2020

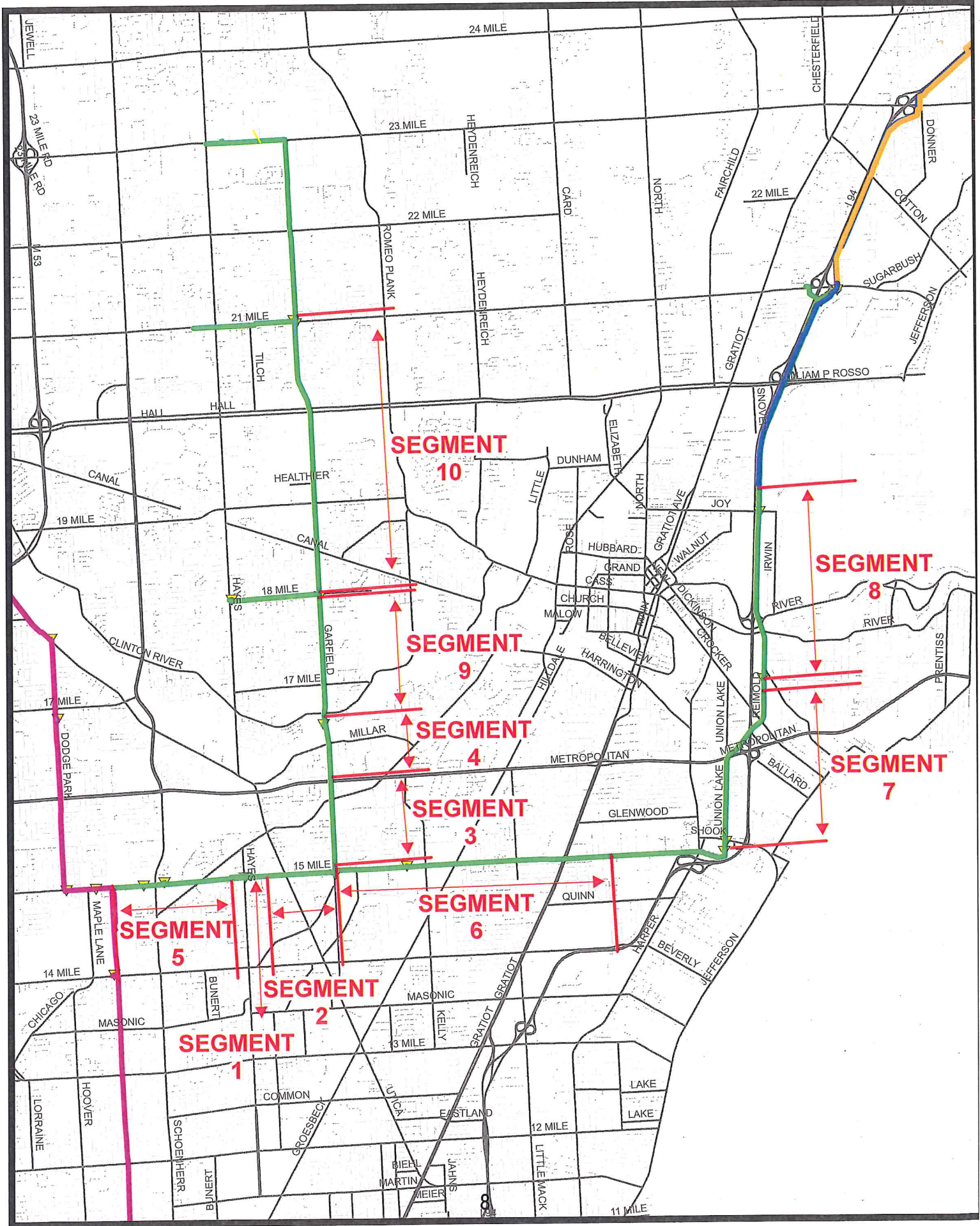
Subject: Segments 3, 4, 7 through 10 Sewer Rehabilitation Options Analysis Recommendation

The Macomb County Public Works Office (MCPWO) has been working to layout options for rehabilitation across the Macomb Interceptor Drain (MID) interceptors. In 2017, the first SRF project plan was developed for suggested repairs within the Romeo Arm which consisted of Segments 1-5. Then in 2018, Segments 6-10 were developed for a new SRF project plan after the findings of the 2017 system-wide inspection. Total projected cost for all projects was \$271,370,000 and was scheduled to be completed over a 16-year period.

MCPWO has already completed repairs of Segment 1 (2016 sinkhole) and Segment 2 (interceptor upstream of 2016 sinkhole to CS-3) which were not included in the above cost estimate as they were handled as an emergency repair. Segment 5 is nearing completion of design and will be out to be bid soon and Segment 6 was just awarded for design. Before starting design of Segments 5 and 6, MCPWO engaged FK Engineering Associates (FKE) to perform a sewer rehabilitation options analysis of those segments to ensure that the right repair option was being selected. Segment 5 concluded that structural lining of that segment was the lowest cost and risk option. For Segment 6, MCPWO staff came up with new operational controls within the system which has drastically reduced the cost of that repair option.

MCPWO would now like to engage FKE to perform a segment by segment analysis of the remaining portions of interceptor to determine the best option for repair. The SRF project plans that were developed recommended one option for all of the MID interceptors which essentially was to structurally line them. This option may not be the best option and due to the high cost of this it is prudent that the MIDDD perform value engineering on the remaining segments to ensure that funds are being allocated properly to repairs across the system.

It is the recommendation of MCPWO staff to approve the proposal from FKE in the amount of \$84,000 to evaluate the remaining SRF segments and provide MCPWO staff with their recommendations. This cost is in line with their Segment 5 review costs which were \$17,900 and for this FKE will be looking at 6 different segments of interceptors.



FK Engineering Associates

Excellence in Infrastructure and Underground Engineering



30425 Stephenson Hwy
Madison Heights, MI 48071

February 27, 2020

Ms. Candice Miller
Chairperson, Macomb Interceptor Drain Drainage District
21777 Dunham Road
Clinton Township, Michigan 48036

Attention: Mr. Vincent Astorino – Operations & Flow Manager

RE: Proposal for Segments 3, 4, 7 through 10 – Sewer Rehabilitation Options Analysis
PCI-12A (Romeo Arm Interceptor), Clinton Township, MI

Dear Mr. Astorino,

In accordance with recent discussions and correspondence, FK Engineering Associates (FKE) is pleased to present this proposal for performing an options analysis and development of conceptual designs for rehabilitation of the PCI-12A (Romeo Arm Interceptor) – Segments 3, 4, 7, 8, 9, and 10 (six separate sections total). These separate sections are shown for reference on Figure No. 1. The following sections present our project understanding, qualifications and project experience, detailed scope of services, project deliverables summary, schedule, and associated professional fees and terms.

Project Understanding

As a continuation of rehabilitation efforts associated with the PCI-12A Interceptor, MIDDD is requesting a proposal to accomplish the following project goals:

1. Segments 3, 4, and 7 through 10 risk analysis of lining vs. grout & maintenance only
2. Segments 3, 4, and 7 through 10 present worth life-cycle cost analysis of lining vs. grout & maintenance only options. This is to be a 20-year projection.
3. A review of repair alternatives and the associated capital and 20-year present worth life-cycle cost estimates.
4. Development of concept-level rehabilitation drawings.

These goals were established by MIDDD representatives based on existing historical information, past rehabilitation measures implemented within the MID and OMID systems including within the PCI-12A reach, and recent discussions with various other professionals. The end product of the noted goals is to provide a clear repair approach along with concept-level drawings as necessary to define a feasible design (or designs) for the repairs and/or continued maintenance.

Such drawings will be appropriate for defining a recommended cost-effective concept for establishing a stable, reliable MID.

FKE Qualifications

Design and maintenance of large diameter sanitary tunnels is challenging, especially when considering the history of the MID tunnel. To best meet this challenge, FKE offers a unique combination of local geotechnical knowledge supported by national expertise. In addition to local tunnel expertise, we are currently performing tunnel design and/or tunnel rehabilitation engineering in Ohio, Indiana, North Carolina, South Carolina, Texas, Wisconsin, Kentucky, Ontario, and Georgia (among others).

Throughout our history, FKE has performed hundreds of tunnel and shaft designs throughout North America, with most including tunnel rehabilitation aspects. Our large tunnel and rehabilitation design abilities, including the planning and execution of "Rehabilitation Options Analyses" are best supported by the following recent and on-going local projects:

- **GLWA DB-226 – Detroit River Interceptor (DRI) Rehabilitation:** FKE is the lead engineering firm for the \$50 million design/build effort to inspect, assess, design, and implement rehabilitation repairs within the entire DRI (nearly 13 miles of tunnel), which will include many of the same challenges associated with this project. This project has included a comprehensive options analysis, that has examined overall pros, cons, and life-cycle costs for rehabilitation of the DRI.
- **OMID-GLWA Northwest Interceptor/NESPS Transfer and Options Analysis:** FKE was the facilitator of the transfer discussions, including various options for financing and future rehabilitation needs. Related to this effort, FKE was part of the panel that evaluated numerous lining and repair options for the 17-foot diameter NWI Tunnel.
- **GLWA CON-149 – Northwest Interceptor (NWI) Trinity Emergency Repair:** FKE performed emergency inspection services followed by emergency design for a severely distressed reach of the NWI in Detroit, Michigan. Key aspects of the work included an options analysis for the work, followed by design for internal tunnel support, chemical grouting, cement grouting, dewatering, sludge and debris removal, flow control, and construction observation services.
- **GLWA CS-168 – Various Outfall Tunnels:** FKE services include detailed assessments of over 25 existing interceptor outfall tunnels, comprehensive options analysis and VE review, followed by design for flow control and associated coordination, preparation of a basis of design, establishing repair criteria, development of repair alternatives, design of the repairs, and construction engineering.
- **OMID Segments 1 through 4:** FKE has served as the program manager and overall project manager (as a sub to another firm), throughout the OMID repair program. The OMID program manager, Fritz Klingler, developed the approach for options analysis that lead to an estimated \$10 million savings to the project. Our services performed range

- from underground interceptor engineering including PACP inspections and geotechnical investigations to rehabilitation design (grouting and lining) and construction engineering.
- **Detroit Windsor Tunnel** – Annual Condition Assessments and related rehabilitation design evaluations, costing, and related considerations.
 - **2016 PCI-12A Interceptor Collapse Repair** – Lead Geotechnical Engineer for the recovery design and sewer rehabilitation and lining efforts upstream of the collapse.
 - **2018 PCI-12A (Romeo Arm) Interceptor Segment 5 Rehabilitation Options Analysis** – As part of continuing rehabilitation efforts within the PCI-12A Interceptor, FKE compiled, reviewed, analyzed, and developed various interceptor rehabilitation approaches in order to identify the leading/ most-feasible rehabilitation approaches for consideration by MIDDD.

FKE has extensive knowledge and experience within the multiple MID reaches, including recent confined space entries (CSEs) within Segment 5 downstream of the 2016 collapse area, and geotechnical investigations and analysis during the 2016 collapse recovery efforts including Data Reports on the collapse area, and the subsequent CCTV and MASW investigations throughout the MID reaches.

Scope of Services

The following information presents our scope of services to meet the goals of the Segments 3, 4, 7, 8, 9, and 10 Life-Cycle Cost Analysis as discussed under Project Understanding.

Task 1 - Available Document Compilation & Review

Based on our prior and on-going experience with MID System, we understand the volume of historical information that is available and have already reviewed and/or compiled much of this information. This information will be critical to address past approaches and the resulting method successes (or lack thereof) for consideration under Task 2. The deliverable for this task will include a summary memo documenting this information.

Task 2 – Lining & Grouting Analysis

Conduct analysis to develop and define the specific scope for various state-of-the-art lining and grouting options. For each option, we will consider flow control options and requirements, in-sewer work-time requirements, surface access issues, sediment and debris removal requirements, and other limitations specific to the different reaches of the MID sewer system. The lining and grouting options to be considered will include (but not be limited to):

- Long term inspection and maintenance program (without lining);
- Spot repairs (chemical and cementitious grouting approaches);
- Slip lining options including GFRPMP (Hobas) or similar;

- Other lining technologies including Channel-line (GRP) segments, “Quake-wrap” (carbon fiber) lining, Permaform 3S panels, invert lining, and more;
- Spray-on structural lining including materials including EcoCast (used on several local applications), Mainstay ML72/DS5, Saurereisen Restocrete F-120, Permaform MS-10000 (used during PCI-12A Emergency Repair), SewperCoat HS (used on OMID C4), SpectraShield (used on OMID C6), SewerGard (used in the SY-S-3 and MA-S-2 meter pits), and others.

On the basis of evaluation of the above options with respect to the specific limitations and issues for Segments 3, 4, and 7 through 10, we will develop a “short list” of options for further consideration. This may include specific technologies or categories of technology that show promise for a particular application. Under this task we will also investigate options and limitations for debris removal and examine flow control options necessary for each of the considered lining and grouting options.

Task 3 – Risk Registry

Under this task, we apply the research from Tasks 1 and 2 to develop a “risk registry” that will consider various risks associated with lining versus grouting & maintenance. We will rate the severity of the risks, rate the likelihood, and consider how to mitigate those risks. This information will be used to “balance” the options, such that all options can be considered with respect to each other, with an understanding of the relative risk and potential costs related to that risk. The deliverable for this task will include a Risk-Registry table and memo providing background, summary, explanation of risks, and discussion of mitigation approaches.

Task 4 - Present Worth Life-Cycle Cost Analysis

For each of the short-listed options (grouting/maintenance, and lining options), we will develop concept-level sketches, including all major items and steps of construction. On the basis of these concept-level design sketches, we will perform a present worth life-cycle cost analysis, considering the relevant cost for all work necessary to accomplish the option. For each option, this will include consideration and costs for flow control requirements, in-sewer work-time requirements (i.e., efficiency and productivity of installation), surface access issues, sediment and debris removal requirements, and other limitations specific to the aforementioned reaches of the MID sewer system. We will also consider warranty options available for various types of linings, and the related potential future costs where long-term warranties are not offered. Further, we will evaluate and include value-added options for flow control.

Our present worth life cycle cost analysis will be based on a 20-year projection, although we will also evaluate 30, 40, and 50-year options based on our developed capitol and

O&M costs. Evaluation of these longer projections will be useful in comparison of some products that have projected life beyond 20 years.

Task 5 - Repair Alternatives Array Analysis – Preliminary Reports

We will prepare a preliminary report for each segment that discusses the results of Task 3 and 4 in the form of a Repair Alternatives Array Analysis. This report will present the concept-level drawings and discuss pros and cons of the various considered options, in consideration of the potential risks and projected present worth life cycle costs. We intend to also discuss alternatives for sediment removal and flow control alternatives as they relate to the tunnel rehabilitation alternatives presented. This preliminary report will address technical feasibility, reliability, constructability, regulatory concerns, permitting concerns, and other issues as appropriate.

Task 6 – MIDDD Workshop #1

We will facilitate and conduct a workshop with MIDDD representatives for each segment to discuss findings and recommendations conveyed under Task 5. The intent of this workshop will be to generate a consensus on the appropriate rehabilitation approach for each segment of the MID system.

We will prepare a Power-Point presentation and provide background materials for review by the MIDDD decision-makers. We will perform a second Workshop for each segment if necessary, to come to consensus.

Task 7 – Final Report and Concept Drawings

On the basis of the Workshop, we will develop a Final Report that summarizes the options considered, the analysis applied to each option, life cycle cost analysis, and details of the recommended option. This report will provide a “Basis of Design (BOD)” for future repairs to Segments 3, 4, and 7 through 10, appropriate for inclusion in a future Request for Proposal (RFP).

Based on the established recommendations presented in the Final Repair Alternatives Array Analysis Report, we will further develop conceptual rehabilitation drawings for the final option. These drawings will provide a feasible approach for the intended rehabilitation, while providing a reliable basis for the generation of concept-level construction costs. We envision the following steps:

- Initial draft of concept-level drawings. These drawings will include the desired rehabilitation approach (or approaches), while also addressing major project components like existing debris removal, anticipated flow control measures, tunnel access, etc.
- We will hold MIDDD Workshop #2 to present and discuss the concept drawings.
- Update concept drawings based on MIDDD Workshop results and issue.

Deliverables

We anticipate the following project deliverables:

- Summary Memo of available documents
- Risk Registry/Memo
- Present Worth Life-Cycle Costs Analysis Comparison Chart/Memo
- Preliminary Repair Alternatives Array Analysis Report
- Final Repair Alternatives Array Analysis Report for each segment including Rehabilitation Concept Drawings

Schedule

We are prepared to start work on this project immediately upon your notice to proceed. As we have discussed, we will meet with you to prioritize and develop a schedule that fits your needs.

Professional Fees & Terms

We propose to perform the services outlined in this proposal for a lump sum fee of **\$84,000**. We appreciate this opportunity to present this proposal for a Segment 5 – Life-Cycle Cost Analysis. We will be honored to provide service to the Macomb Interceptor Drain Drainage District should we be selected.

Sincerely,

FK Engineering Associates



Zachary F. Carr, P.E.
Vice President



Fritz J. Klingler, P.E.
President



Candice S. Miller
Public Works Commissioner
Macomb County

To: 8 ½ Mile Relief Drain Drainage District Board Members
MIDD Diversion Drainage District Board Members

CC: File

From: Vincent Astorino, Operations & Flow Manager

Date: March 2, 2020

Subject: SCADA Storage Area Network Replacement Project Recommendation

The Macomb County Public Works Office (MCPWO) maintains the Supervisory Control and Data Acquisition (SCADA) system for all of the wastewater districts and some of the stormwater facilities. This system provides real-time updates of what is happening in the field and provides operators the ability to remotely take control of an asset and control how it operates. As part of this system, MCPWO has been collecting life-cycle replacement funds to handle the replacement of critical components to the SCADA system when they are due.

The first project that MCPWO is bringing forward for replacement of SCADA components is the Storage Area Network (SAN). The SAN is responsible for reliably hosting and backing up all of the virtual servers within the SCADA system. In order to be reliable and meet performance requirements they must have a very powerful and redundant internal hardware setup. This equipment was chosen for its performance and scalability while remaining cost effective. The existing SAN hardware has reached the end of its useful life and is out of support and storage capacity. The upgrade will be performed one datacenter at a time which will allow the system to continue running uninterrupted during the process.

MCPWO would like to have the company Access Interactive perform this work as they are already under contract with MCPWO and were selected because they are highly skilled and already have an excellent working knowledge of the MCPWO SCADA system. Their cost for this implementation is only \$5,000 which is reasonable. The main cost to this upgrade is for equipment which is at \$101,354 and the equipment comes with 5-years of support from Dell. Access Interactive is a Dell government approved contractor and receives government rates for Dell products. They are also an approved contractor for this type of work for Clinton Twp. and Sterling Heights to name a couple.

During the 19-20 budget cycle MCPWO pulled forward the life-cycle funds to be used as expenditures for the 8.5 Mile Relief Drain Drainage District (8.5 Mile), Martin Sanitary Diversion Drainage District (MSDDD), and Southeast Macomb County Wastewater Disposal System (SEMCWDS). This was not done for the Macomb Interceptor Drain Drainage District (MIDDD) but the funds are ready in life-cycle reserves.

This cost is a shared cost between all districts as it is directly related to the main servers. The cost for this replacement will be broken down as follows:

Drainage District	Budgeted Life-Cycle Amount to Date	Replacement Cost Breakdown	Funds Remaining
MIDDD	\$227,400	\$45,732.22	\$181,667.78
8.5 Mile	\$138,050	\$34,299.17	\$103,750.83
OMIDDD	Direct Bill	\$14,889.56	N/A
MSDDD	\$17,415	\$6,859.83	\$10,555.17
SEMCWDS	\$11,610	\$4,573.22	\$7,036.78

MCPWO staff is recommending to move forward with this work to Access Interactive in the total NTE amount of \$106,354. Costs will be broken to each district as allocated as above.

Attachment: Access Interactive Quote dated 2-14-2020



Macomb County Public Works Office

**Storage Area Network (SAN)
Replacement Project**

Dell MHEC Contract: MHEC-07012015

Contract Code: 99AGZ / 77AGV

(Please refer to the above contract # on all Purchase Orders)

Prepared by:

access*i*nteractive

Bill Fedak
Randall Hudack

March 3rd, 2020

Solution Synopsis

The proposed application performance solution provides a scalable, secure, cost effective storage foundation for Macomb County Public Works.

These components are:

- Dell EMC SCv3020 SAN
- Dell EMC SC5020 SAN
- Deployment

Dell EMC SCv3020 SAN

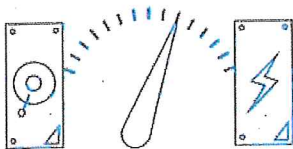
Unprecedented advantage at this price point

Why should budget constraints limit your access to state-of-the-art storage technology? The new SCv3000 Series arrays pack more advanced capabilities in an entry-level hybrid solution than ever before, helping even the smallest companies compete effectively against larger, more expensive deployments.

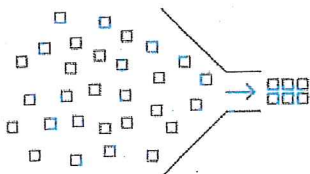


SCv3000 starting cost is among the lowest in the industry – but don't let the price fool you! This array punches well above its weight, offering a unique combination of features designed to accelerate business outcomes for budget-conscious customers.

Great hybrid performance



“0-100% Flash” architecture powers over 270,000 max IOPS, >19,000 MB/sec bandwidth, and 1PB raw capacity per array* – more than enough headroom to handle multiple demanding workloads.



Self-optimizing architecture

Automate your cost savings to extract more value from fewer, less expensive drives. Multi-tier Data Progression, RAID tiering and Intelligent Compression actively reduce both initial and lifecycle costs.

Dell EMC SCv3020 Storage Array with 5-Year Support: \$34,726.00

120TB raw SAS HDD storage capacity (20 x 600GB)

Qty	Description
1	SCv3020 3Ux30 Drive Storage Array
1	SCv30X0 Dual Controller Components
1	SC, SFP+, 4-port, Mezz Card
1	SC, SFP+, 4-port, Mezz Card
1	IO, 12G SAS, 4port, PCI-E, Full height
1	IO, 12G SAS, 4port, PCI-E, Full height
1	SHIP,SCV3020,DAO
1	Dell SC Storage Reg Label
1	Storage Center Core Software Bundle, Base License
1	SSN License
1	Total Feature Bundle, Software License (Includes: All Optional Licenses in Module 1661)
1	Redundant Power Supply, 1378W, C20
1	Rack rail, 2Us, Static
1	SC Bezel
1	Dell Hardware Limited Warranty
1	ProSupport Plus Mission Critical: 4-Hour 7x24 Onsite Service with Emergency Dispatch,3 Years
1	ProSupport Plus Mission Critical: 4-Hour 7x24 Onsite Service with Emergency Dispatch,2 Years Extended
1	ProSupport Plus Mission Critical: 7x24 HW/SW Technical Support and Assistance,5 Years
1	Thank you for choosing Dell ProSupport Plus. For tech support, visit //www.dell.com/contactdell
1	Dell Limited Hardware Warranty Extended Year(s)
1	On-Site Installation Declined
1	ProSupport for Software: 7X24 Total Feature Bundle, 5 Years
1	US Order
8	Dell Networking, Transceiver, SFP+, 10GbE, SR, 850nm Wavelength, 300m Reach
20	SC, 600GB, SAS, 12Gb, 15K, 2.5", HDD
10	Hard Drive Filler 2.5in; single blank
2	Power Cord, 125V, 20A, NEMA 5-20 to C19, 10 feet

Dell EMC SCv5020 SAN

Crank up the performance, crank down the cost

SC5020 makes storage cost savings automatic with a modern architecture that optimizes your data center for economics while delivering transformational SSD, HDD or hybrid performance.

- Data Progression – Achieve IOPS goals with the least expensive mix of storage media, even as performance needs evolve
- Deduplication & Compression – Dramatically reduce the raw capacity required to store your data
- RAID tiering – Eliminate manual provisioning, increase efficiency and utilization
- Federation – Simplify multi-array environments with quick and seamless data movement, plus proactive load balancing assistance via Live Migrate and Volume Advisor
- ProSupport Services – Reduce deployment costs with remote installation options that ensure your project goes right the first time.
- Persistent software licensing – Future-proof your investment, minimize the cost of upgrades and expansions

Dell EMC SC5020 Storage Array with 5-Year Support: \$66,628.00

144TB raw SSD storage capacity (12 x 12TB)

Qty	Description
1	SC5020 3Ux30 Drive Storage Array
1	SC5020 Enclosure Assembly
1	Rack rail, 2Us, Static
1	SC, SFP+, 4-port, Mezz Card, Qty 2
1	Redundant Power Supply, 1378W, C20
1	SHIP,SC5020,DAO
1	Dell SC Storage Reg Label
1	SC Bezel
1	I/O,12GSAS,4P,PCI,Full height, QTY 2
1	SSN License
1	Storage Center Core Software Bundle, Base License
1	Total Feature Bundle, Software Lic
1	ProSupport for Software: 7X24 Total Feature Bundle, 5 Years
1	US Order

1	Dell Hardware Limited Warranty
1	ProSupport Plus: Mission Critical 4-Hour 7x24 Onsite Service with Emergency Dispatch, 2 Years Extended
1	ProSupport Plus: Mission Critical 4-Hour 7x24 Onsite Service with Emergency Dispatch, 3 Years
1	ProSupport Plus: Mission Critical 7x24 HW / SW Tech Support and Assistance, 5 Years
1	Dell Limited Hardware Warranty Extended Year(s)
1	On-Site Installation Declined
1	Thank you for choosing Dell
8	Dell Networking, Transceiver, SFP+, 10GbE, SR, 850nm Wavelength, 300m Reach
1	Power Cord, 125V, 20A, NEMA 5-20 to C19, 10 feet
1	Power Cord, 125V, 20A, NEMA 5-20 to C19, 10 feet
12	Storage Center Drive Certificate
12	SC, 960GB, SAS, 12Gb, RI SSD, 2.5" HD
18	Hard Drive Filler 2.5in, single blank.

Pricing Summary

Qty	Item	Unit Price	Extended
1	Dell EMC SCv3020 Storage Array with 5-Year Support <i>Dell MHEC Contract: MHEC-07012015</i> <i>Contract Code: 99AGZ / 77AGV</i>	\$34,726.00	\$34,726.00
1	Dell EMC SC5020 Storage Array with 5-Year Support <i>Dell MHEC Contract: MHEC-07012015</i> <i>Contract Code: 99AGZ / 77AGV</i>	\$66,628.00	\$66,628.00
1	Professional Services: Installation, Deployment and Configuration	\$5,000.00	\$5,000.00

TOTAL: \$106,354.00

Quote Valid for 30-Days. Prices Subject to Change with Notice Depending on Current Market Conditions. Shipping charges not included. Terms: Net 30. 25% Restocking Fee Applied to Project Costs for Returned Merchandise. UPS not included.

Authorized Signature: _____ Date: _____

Printed Name: _____ Purchase Order No: _____

Funding Source	Apportionment	Manager	Vendor	Amount	Invoice Detail	Project Summary	Project Balance
Macomb Interceptor Drain	Chapter 20 Chesterfield - 7.1724% Clinton - 21.1566% Fraser - 4.0713% Harrison - 6.2117% Lenox - .9496% Macomb - 14.1023% New Haven - .8184% Shelby - 9.9387% Sterling Heights - 31.1032% Utica - 1.6497% Washington - 2.8262%	Baker Astorino Astorino Manning Astorino Astorino Manning Astorino Astorino Astorino Astorino Astorino Astorino Astorino Downing Astorino Baker Downing Astorino Astorino Astorino Astorino Astorino Astorino Astorino Astorino Astorino	Aloia & Associates, P.C.	\$ 674.50	Invoice #19316 - 1.1.20	General Counsel - December 2019	
			Anderson, Eckstein & Westrick	\$ 2,151.50	Invoice #125089 - 1.27.20	Engineering Oversight - MIDD System Grouting	\$ 435,858.00
			Aquasight	\$ 50,000.00	Invoice #00541 - 9.30.19	On-Boarding Fees 5 of 5	
			Bank of New York Mellon, N.A.	\$ 481,226.77	Invoice #20-087 - 2.4.20	Various SRF Debt	
			CH2M Hill Engineers, Inc.	\$ 17,167.34	Invoice #707997CH0136 - 1.31.20	Odor & Corrosion Study	\$ 46,981.31
			City of Mt. Clemens	\$ 15,133.54	Invoice #28001245 - 2.6.20	Sewage Flow - January 2020	
			County of Macomb	\$ 429,279.08	Invoice #AR200156 - 2.7.20	4th Quarter Personnel/Operating Expenses	
			Doetsch	\$ 240,164.15	Invoice #71117 - 1.31.20	Emergency Grouting - Segment 5	
			DTE Energy	\$ 500.00	Invoice #90172717 - 3.14.14	Electrical Service for Pump	
			DTN, LLC	\$ 759.75	Invoice #5688713 - 1.24.20	Storm Sentry	
			Fishbeck	\$ 5,102.00	Invoice #389448 - 2.3.20	Wastewater Master Plan	\$ 548,882.45
			FK Engineering Associates	\$ 48,685.75	Invoice #17-134-020 - 12.1.19 - 1.31.20	Oversight - Segment 5 Grouting As-Needed	\$ 23,041.11
			FK Engineering Associates	\$ 172,727.38	Invoice #19-134-003 - 12.1.19 - 1.31.20	Segment 5 Engineering Design	\$ 343,785.65
			Fishbeck	\$ 3,746.50	Invoice #389440 - 2.3.20	GLWA Assistance through 1.24.20	
			KHVPP, PLC	\$ 11,925.00	Invoice #43876 - 2.10.20	Contracts, Ray & Shelby Township Agreement	
			Keith Lumma	\$ 763.80	Invoice #20-076 - 2.5.20	HOBAS Factory Tour	
			Macomb County Department of Roads	\$ 976.21	Invoice #301458 - 12.5.19	Fuel 11.30.19	
			Macomb County Department of Roads	\$ 797.94	Invoice #301482 - 1.14.20	Fuel 12.31.19	
			Macomb County Department of Roads	\$ 1,196.87	Invoice #301508 - 2.7.20	Fuel 1.31.20	\$ 45,768.14
			METCO Consulting Services	\$ 9,985.28	Invoice #1717-12	Flow Control Services	
Verizon	\$ 626.73	Invoice #9846961617 - 1.23.20	Monthly Services - 12.24.19 - 1.23.20				
Verizon	\$ 1,056.08	Invoice #9846961617 - 1.23.20	Monthly Services - 12.24.19 - 1.23.20				
Wade Trinn	\$ 590.00	Invoice #2017085 - 1.31.20	As-Needed Services	\$ 82,458.34			
Weingartz	\$ 9,643.56	Invoice #10533557-00 - 1.27.20	Kubota Machine - Equipment Fund to Reimburse \$8,000				
Biofilter		Astorino	De-Cal, Inc.	\$ 513.20	Invoice #WO9191764-1 - 9.13.19	Backflow Certification	

Funding Source	Apportionment	Manager	Vendor	Amount	Invoice Detail	Project Summary	Project Balance
Clintondale P.S.		Astorino	Clinton Township Treasurer	\$ 2,933.43	Invoice #20-070 - 1.31.20	Water and Sewer - 12.23.20 - 1.28.20	
		Astorino	Cummins Bridgeway	\$ 1,573.23	Invoice #S6-39584 - 2.5.20	Generator Repair	
		Astorino	Cummins Bridgeway	\$ 948.51	Invoice #S6-39688 - 2.6.20	Generator Repairs	
		Astorino	Cummins Bridgeway	\$ 1,378.11	Invoice #S6-39689 - 2.6.20	Generator Repair	
		Astorino	De-Cal, Inc.	\$ 513.20	Invoice #W09191764-2 - 9.13.19	Backflow Certification	
		Astorino	DTE Energy	\$ 27,601.44	Invoice #20-071 - 2.4.20	Monthly Electric - 1.3.20 - 2.3.20	
		Astorino	Kennedy Industries	\$ 3,100.00	Invoice #616321 - 2.10.20	Preventative Maintenance	
		Astorino	McNaughton-McKay Electric	\$ 799.64	Invoice #20239337-00 - 1.13.20	Filter Fans	
		Astorino	McNaughton-McKay Electric	\$ 820.49	Invoice #20241200-00 - 1.13.20	Filter Fans	
		Baker	Aloia & Associate, P.C.	\$ 8,391.25	Invoice #19320 - 1.1.20	MIDD vs. Inland, Jay Dee, Metco	
		Baker	KHVPP, PLC	\$ 64,849.00	Invoice #43875 - 2.10.20	Water Hammer Lawsuits	
		Baker	N1 Discovery, LLC	\$ 4,510.00	Invoice #N1D4688 - 1.31.20	Water Hammer Lawsuits - Data Storage	
		Baker	N1 Discovery, LLC	\$ 5,430.00	Invoice #N1D4714 - 1.31.20	Water Hammer Lawsuits - Data Storage	
		Downing	TBM Property Management LLC	\$ 750.00	Invoice #436 - 2.1.20	Pipe Storage Rent January - March 2020	
Meters		Astorino	\$ 544.37	Invoice #20-049 - 1.22.20	Monthly Electric - 12.20.19 - 1.21.20		
NGI		Astorino	\$ 1,452.46	Invoice #20-069 - 1.30.20	Monthly Electric - 12.31.19 - 1.29.20		
		Astorino	\$ 948.50	Invoice #S6-39688 - 2.6.20	Generator Repairs		
OMID		Downing	\$ 4,585,548.67	Invoice #SDS0006982 - January	Sewer Disposal		
SCADA		Astorino	\$ 960.00	Invoice #WPF2077 - 1.27.20	Firewall		
		Astorino	\$ 8,030.00	Invoice #51548757 - 1.31.20	SCADA Standards Development & Communications Study	\$ 349.36	
		Astorino	\$ 1,106.72	Invoice #INV000101693 - 2.14.20	SCADA Maintenance	\$ 26,426.25	
		Astorino	\$ 1,239.73	Invoice #WV15269 - 2.13.20	Cisco Learning - SCADA		
		Astorino	\$ 4,849.00	Invoice #389461 - 2.3.20	Wastewater Master Plan	\$ 119,480.00	
SEMSD		Astorino	\$ 28,687.74	Invoice #20-072 - 2.4.20	Various SRF Debt		
SRF		Manning	\$ 6,262,358.42				
Total							

Budget to Actual
MIDDD
As of Feb 29, 2020 = 67%

DESCRIPTION	2020 FINAL BUDGET	ENCUMBERED	ACTUAL	REMAINING BUDGET	PCT UTILIZED
REVENUE ACCOUNTS					
GLWA-OMID	46,904,696		31,300,283	15,604,413	66.7%
OMID O&M	8,121,888		5,414,600	2,707,288	66.7%
Settlement			522,116	(522,116)	100.0%
Reimbursements	200,000		264,308	(64,308)	132.2%
PY Revenue-Fund Balance	9,610,000			9,610,000	0.0%
Washington Twp Meter Project	250,000			250,000	0.0%
Reimb-Local Communities	10,927,799		7,285,192	3,642,607	66.7%
Interest	300,000		202,885	97,115	67.6%
Total Revenue Accounts	76,314,383	-	44,989,383	31,325,000	59.0%
EXPENSE ACCOUNTS					
GLWA-OMID	46,904,696		31,300,283	15,604,413	66.7%
OMID O&M	8,121,888		5,414,600	2,707,288	66.7%
Public Works Wastewater Disposal Division	1,721,123		799,874	921,249	46.5%
Office Operations/Insurance	322,800		95,320	227,480	29.5%
SCADA	196,634		148,920	47,714	75.7%
Engineering					
GLWA Assistance	20,000		20,187	(187)	100.9%
Washington Township meter	500,000			500,000	0.0%
Data Review-Aquasight	240,000		200,000	40,000	83.3%
Contribution to Segment 5 Construction/Repairs	3,850,000			3,850,000	0.0%
15 Mile Interceptor Design East of Garfield (Seg 6)	1,000,000		3,220	996,780	0.3%
Seg 5 Engineering Design	1,000,000		286,081	713,919	28.6%
Drop Shaft Repairs(MA-S-2),CT-S-2, HR-S-2, ST-S-5,UT-S-1)	5,750,000		25,300	5,724,700	0.4%
System wide odor and corrosion study	350,000		190,397	159,603	54.4%
SY-S-1 & SY-S-2 Meter Rehab	1,200,000		33,035	1,166,966	2.8%
Meter Dye Dilution Testing/As needed	100,000			100,000	0.0%
Saw Grant			25,561	(25,561)	100.0%
McMARS Operations	50,000		5,760	44,240	11.5%
Aquasight Operations	50,000		50,000	-	100.0%
As Needed FTCH	50,000		6,643	43,357	13.3%
As Needed CH2M	70,000		20,394	49,606	29.1%
As needed FK Engineering	55,000		229,696	(174,696)	417.6%
As Needed Wade Trim	45,000		15,104	29,896	33.6%
As Needed Metco	70,000		104,232	(34,232)	148.9%
As Needed Applied Science	70,000			70,000	0.0%
Emergency Grouting			1,503,583	(1,503,583)	100.0%
Wastewater Master Plan/Contract Capacity	500,000		136,245	363,755	27.2%
Legal Services	500,000		349,513	150,487	69.9%
Clintondale PS O&M	345,000		269,871	75,129	78.2%
NGI O&M	330,000		49,111	280,889	14.9%
Meters O&M	415,000		189,860	225,140	45.7%
CS-3 O&M	226,000		280	225,720	0.1%
Biofilter O&M	277,500		116,639	160,861	42.0%
Contribution Life Cycle Reserve	171,700			171,700	0.0%
Interceptor O&M	1,000,000			1,000,000	0.0%
Stormwater Pump Stations	65,800		43,867	21,933	66.7%
Sewage Disposal Charges - Mt. Clemens	200,000		100,000	100,000	50.0%
Debt Service - Revenue Bonds	546,242		364,161	182,081	66.7%
Total Expense Accounts	76,314,383	-	42,097,736	34,216,647	55.2%

	O&M Balance 6/30/2019	O&M	Total 2/29/2020
Cash - Operating	25,896,373	2,891,647	28,788,020
Accounts Receivable			0
Assets			0
Liabilities			0
Revenues		44,989,383	44,989,383
Expenditures		42,097,736	42,097,736
Equity*	25,896,373		28,788,020

Detail of 2019 Equity*

Projected reserve at 6/30/2019(No Land Sale)	12,180,673
Projected Engineering Reserve	9,610,000
Projected Sinkhole Surplus	3,400,000
Life Cycle Reserve	705,700