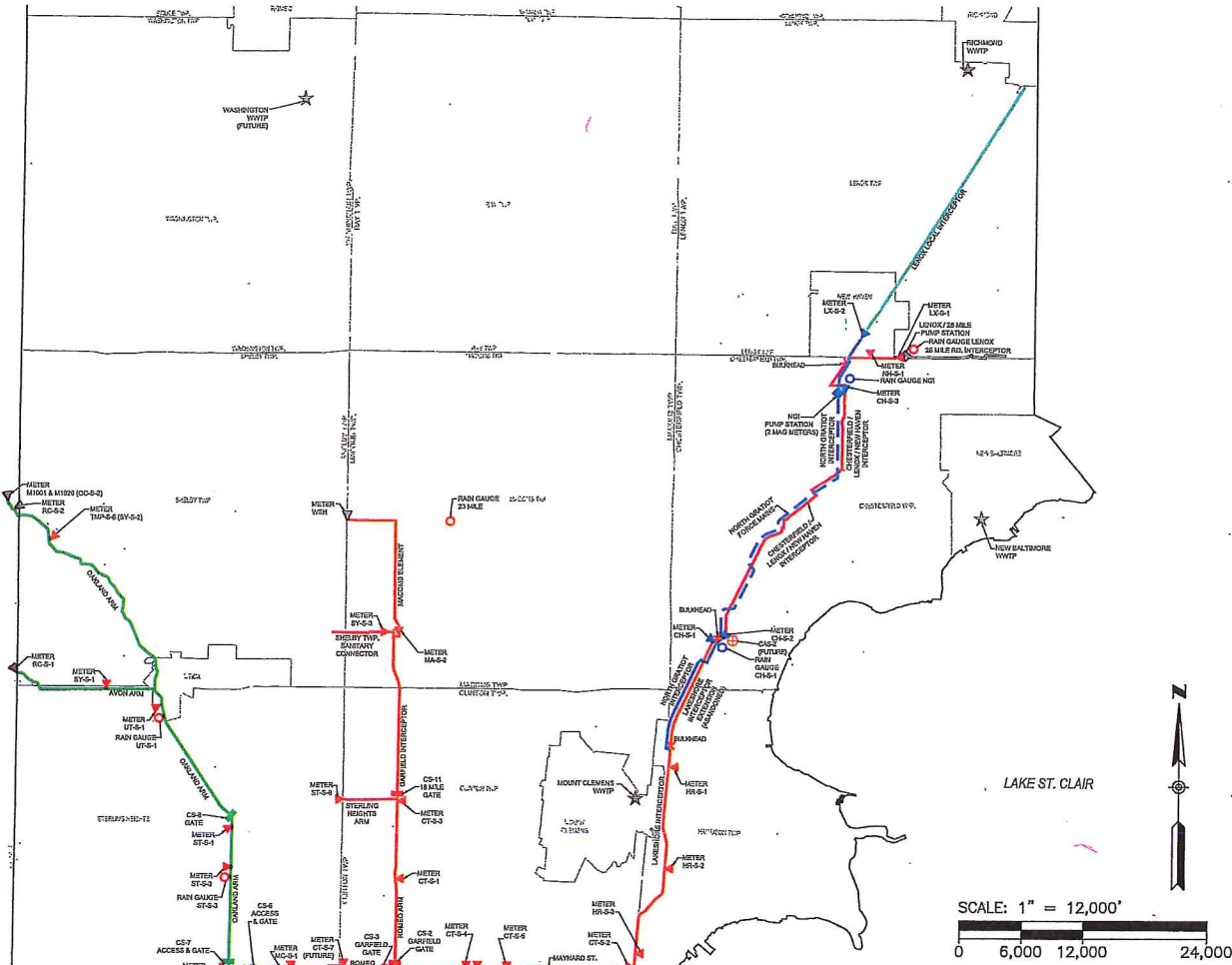


Miller
Santo
Tocco

MARTIN SANITARY DIVERSION DRAIN
INTRA-COUNTY DRAINAGE BOARD
DECEMBER 10, 2018
10:00 A.M.
AGENDA

	Page
1. Call of meeting to order and roll call	
2. Approval of Agenda for December 10, 2018	
3. Approval of Minutes for November 19, 2018	3
4. Public participation	
5. SAW Grant Update – Vince Astorino	5
6. Consideration for approval of invoices (see attached)	12
7. Financial Report – Bruce Manning	13
8. Adjourn	

MACOMB COUNTY WASTEWATER SYSTEMS



LEGEND

- MACOMB COUNTY WASTEWATER DISPOSAL DISTRICT (MCWDD)**
 - MCWDD METER
 - MCWDD INTERCEPTOR
 - RAIN GAUGE
- MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT (MIIDD)**
 - CLINTONDALE PUMP STATION
 - MID METER
 - MID CONTROL STRUCTURE
 - MID INTERCEPTOR
 - MID FORCE MAIN
 - BIOFILTER FACILITY
 - CHEMICAL ADDITION STATION
 - RAIN GAUGE
 - REDUCED SEWER DIAMETER
- NORTH GRATIOT INTERCEPTOR DRAIN DRAINAGE DISTRICT (NGIDD)**
 - NGI PUMP STATION
 - NGI METER
 - NGI INTERCEPTOR
 - NGI FORCE MAIN
 - RAIN GAUGE
- NORTH GRATIOT INTERCEPTOR - LENOX LOCAL DRAIN DRAINAGE DISTRICT (NGILDD)**
 - LENOX LOCAL INTERCEPTOR
- OAKLAND-MACOMB INTERCEPTOR DRAIN DRAINAGE DISTRICT (OMIDD)**
 - CS-8 PUMP STATION
 - OMID METER
 - OMID CONTROL STRUCTURE
 - OMID INTERCEPTOR
 - REDUCED SEWER DIAMETER
- 1/2 MILE RELIEF DRAIN DRAINAGE DISTRICT**
 - CHAPATON WEST PUMP STATION
 - CHAPATON RETENTION TREATMENT BASIN
 - CHAPATON CANAL CONTROL GATE
 - 1/2 MILE INTERCEPTOR
 - RAIN GAUGE
- MARTIN SANITARY DIVERSION DRAINAGE DISTRICT (MSDDD)**
 - MARTIN DRAIN RETENTION TREATMENT BASIN
- OTHER SYSTEMS**
 - PUMP STATION
 - METER
 - WWTP
 - INTERCEPTOR

Candice S. Miller
 MACOMB COUNTY PUBLIC WORKS COMMISSIONER



An adjourned meeting of the Intra-County Drainage Board for the **MARTIN SANITARY DIVERSION DRAIN** was held in the Office of the Macomb County Public Works Commissioner, 21777 Dunham, Clinton Township, Michigan, on November 19, 2018, at 10:36 A.M.

PRESENT: Candice S. Miller, Chair
Bryan Santo, Member
Kathy Tocco, Member

ALSO PRESENT: Robert Leonetti, Robert Mijac, Macomb County Board of Commissioners; Harold Haugh, Commissioner-Elect; Karen Czernel, Deputy, Vincent Astorino, Operations and Flow Manager, Evans Bantios, P.E., Construction and Maintenance Manager, Jeff Bednar, P.E., Environmental Resources Manager, Bruce Manning, Financial Manager, Dan Heaton, Public Relations Manager, Tamara Keskeny, Manager Real Property, Anthony Lewis, Community Services Manager, Barbara Delecke, Administrative Services, Macomb County Public Works (MCPW); Chris Dilbert, President, Village of New Haven

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

Adopted: YEAS: 3
NAYS: 0

Minutes of the meeting of October 15, 2018 were presented. A motion was made by Ms. Tocco, supported by Mr. Santo 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.

The SAW Grant completion date is November 30, 2018 with the draft report due today from Anderson, Eckstein & Westrick, Inc. (AEW). The completion of the SAW Grant has been a slow process. Mr. Astorino will investigate if we can get a deadline extension.

A motion was made by Mr. Santo, supported by Ms. Tocco to receive and file the project updates given by Mr. Astorino.

Adopted: YEAS: 3
NAYS: 0

The Chair presented the invoices totaling \$40,154.50 to the board for review and approval.

A motion was made by Mr. Santo, supported by Ms. Tocco to approve the invoices as presented, with the exception of the AEW invoice for \$30,870. This invoice will be held until the project is complete.

Adopted: YEAS: 3
NAYS: 0

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

Adopted: YEAS: 3
NAYS: 0

There being no further business, it was moved by Ms. Tocco, supported by Mr. Santo, that the meeting of the Martin Sanitary Diversion Drain Board be adjourned.

Adopted: YEAS: 3
NAYS: 0

The meeting was adjourned at 10:47 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 taken by the Intra-County Drainage Board for the Drainage District shown on the attached set of minutes, on November 19, 2018, 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: 11/20/18

9530.bd

Stormwater, Asset Management, and Wastewater (SAW)

Wastewater Asset Management Plan

Executive Summary

Overview

The Martin Sanitary Diversion Drainage District, located in the City of St. Clair Shores, owns a Retention Treatment Basin which services areas directly tributary to the Martin Drain in the Cities of Roseville and St. Clair Shores. Macomb County Public Works Office (MCPWO) maintains and operates MSDDD's assets.

MCPWO was awarded a grant to investigate and evaluate the MSDDD wastewater assets. With \$325,016 in funding from the State including a 10% local match, the intent of this Wastewater Asset Management Plan was to identify assets, establish a level of service, determine relative criticality, analyze capital investments and ensure long-term funding strategies in order to preserve the longevity of MSDDD assets.

Wastewater Asset Inventory

Asset data was compiled from engineering plans, MSDDD operational plans, correspondence from MCPWO representatives, and field inspections. The data was then consolidated into a computerized maintenance management system and asset management plan software, called NEXGEN. There are 361 major assets owned by the MSDDD that are included in this evaluation and can be categorized as follows:

1. Martin RTB
 - Ventilation
 - Gates
 - Piping

- Vaults, Chambers, Wet Wells and Miscellaneous Buildings
2. Martin Service Building
 - Sampling System
 - Disinfection System
 - Flushing System (Obsolete)
 - 300 kW Indoor Building Generator
 3. Martin Chlorine Storage Building
 - Two Magnetic Transfer Pumps and Motors
 - Two Sodium Hypochlorite Storage Tanks

Condition Assessment

A condition assessment was performed on an asset by asset basis, considering key elements for each particular asset class. Of these unique tangibles for each asset class, a weighting factor was assigned for each item considered and converted to an overall 1 to 5 rating scale. Whereby 1 indicates new or excellent condition and 5 indicates imminent failure. The below table summarizes the condition of all assets investigated. For simplistic purposes, the condition assessments listed in the below table were rounded to the nearest whole number. On average, the condition assessment rating for the MSDDD was 2.55.

Informal Nonmenclature	Condition Assessment Rating	No. of Assets (Each)	Percentage
Excellent	1	0	0%
Good	2	149	41%
Fair	3	159	44%
Poor	4	14	4%
Failure	5	1	0%
Not Assessed		38	11%
Total		361	100%

Note, assets that were not assessed primarily pertain to the obsolete flushing system for the Martin RTB.

Level of Service

MCPWO defined level of service as cost effectively improving the condition and reliability of the Drainage District. As a result, MCPWO hopes to safeguard public health and the environment, meet MDEQ requirements for effluent discharge loading limits, operate the system to reduce the number of discharges to the minimum necessary, and maintain the equipment and assets at a level that meets customer and regulatory needs and requirements. AEW believes that this can be achieved with continual monitoring, necessary maintenance and rehabilitation of the MSDDD assets as outlined in accordance with the recommended Capital Improvement Plan and NEXGEN maintenance schedule, as provided on the MCPWO’s NEXGEN’s website.

Criticality Analysis

Assets were then analyzed to determine their Probability of Failure (POF) and Consequence of Failure (COF). Both the probability of failure (POF) and consequence of failure (COF) are analyzed on a 1 to 5 rating scale. Whereby for POF, 1 indicates new or excellent condition and 5 indicated failure or imminent failure and whereby for COF, 1 indicates an insignificant disruption and 5 indicates a catastrophic disruption.

An assets likelihood to fail was determined by analyzing two factors: the physical condition of an asset and useful expended life of an asset. An 80% to 20% weighting scale was then applied to convert back to a 1 to 5 scale. The following table displays the thought process for determining POF.

Probability of Failure Rating	Condition Assessment (80% of Total)	Useful Life Expended (20% of Total)
1	Excellent (ACI = 1)	Percent of Useful Life: <60%
2	Good (ACI = 2)	Percent of Useful Life: 60-80%
3	Fair (ACI = 3)	Percent of Useful Life: 80-90%
4	Poor (ACI = 4)	Percent of Useful Life: 90-100%
5	Failure (ACI = 5)	Percent of Useful Life: 100%

$$POF = 0.8 * Condition\ Assessment + 0.2 * Useful\ Life\ Expended$$

An assets COF was determined by analyzing six factors: 1) the impact on the collection process, 2) financial impact, 3) safety concerns, 4) environmental/regulatory impacts, 5) disruption to the community and 6) required response time. The impact on the sewer collection process was decided to be 1.25 times more critical than the five other factors, therefore a 20%, 16%, 16%, 16%, 16%, 16% weighting scale was applied prior to converting to an overall 1 to 5 scale. The table below displays the thought process for determining consequence of failure.

Consequence of Failure Rating	Process Impact (20% of Total)	Financial Impact (16% of Total)	Safety (16% of Total)	Environmental / Regulatory Impact (16% of Total)	Disruption to the Community (16% of Total)	Required Response Time (16% of Total)
1	No impact on process	Insignificant (\$1-\$10,000)	No injury	100% compliance with permits	No disruption	>8 hours
2	Potential process upset	Minor Cost (\$10,000-\$500,000)	Minor injury requiring no medical treatment with no lost time	Localized and minimal impact on the environment and ecosystem	Minor Disruption	4 to 8 hours
3	Loss of redundancy	Moderate Cost (\$500,000-\$1,000,000)	Minor injury requiring treatment off-site or lost time	Techincal violation, but no enforcement action	Sporadic service disruptions	2 to 4 hours
4	Process shutdown	Significant Cost (\$1,000,000-\$10,000,000)	Severe Injury to employees or public	Violation with minor enforcement action	Short term impact but substantial disruption	1/2 hour to 2 hours
5	Mission Critical - Unable to accomplish mission	Major Cost (>\$10Million)	Loss of Life	Enforcement action with fines or ACO	Long term impact; area-wide disruption	1/2 hour

$$COF = 0.2 * Process Impact + 0.16 * Financial Impact + 0.16 * Safety + 0.16 * Env. Impact + 0.16 * Disruption to the Community + 0.16 * Required Response Time$$

The POF of an asset takes into account the condition rating while the COF takes into account the size, location, and surrounding. POF and COF scores were determined for each asset and then multiplied together resulting in the Business Risk Exposure (BRE) score, also known as the criticality score. The BRE score is used to prioritize what assets are most critically in need of repair. Any asset with a BRE score of 16 or greater is considered critical by the MDEQ.

It was found that the MSDDD had two assets that scored over 16 points when analyzing assets critical to sustained performance. Both assets are recommended to be replaced in the Five Year Capital Improvement Plan. The following table summarizes the poorest BRE ratings found for the MSDDD.

NEXGEN Asset Name	Asset Description	Business Risk Exposure (1-25)
MAR-RTB-MDV-G-MD1	4'x2' Martin Drain Dry Weather Gate 1, North	18.6
MAR-RTB-MDV-G-MD2	4'x2' Martin Drain Dry Weather Gate 2, South	18.6
MAR-RTB-G-IN1	9'x5' Martin RTB Influent Sluice Gate 1, East	14.2
MAR-RTB-G-IN2	9'x5' Martin RTB Influent Sluice Gate 2, West	14.2
MAR-RTB-G-EF1	9'x5' Martin RTB Effluent Sluice Gate 1, East	14.2
MAR-RTB-G-EF2	9'x5' Martin RTB Effluent Sluice Gate 2, West	14.2
MAR-RTB-MDV	Martin Drain Vault (Under Bon Heur St)	13.8
MAR-RTB-HTC-MD-IN	Manhole at Influent to Martin Drain	12.6
MAR-RTB-HTC-MD-EF	Manhole at Effluent to Martin Drain	12.6
MAR-RTB-HTC-NE	Manhole Access to RTB - Northeast	12.6
MAR-RTB-HTC-N	Manhole Access to RTB - North	12.6
MAR-RTB-HTC-NW	Manhole Access to RTB - Northwest	12.6
MAR-RTB-HTC-SW	Manhole Access to RTB - Southwest	12.6
MAR-RTB-HTC-S	Manhole Access to RTB - Southwest	12.6
MAR-RTB-HTC-SE	Manhole Access to RTB - Southeast	12.6
MAR-RTB-HTC-E	Manhole Access to RTB - East	12.6
MAR-SB-CRANE-RTB	Equipment Crane for RTB, 4 Ton Capacity	12.0
MAR-RTB-MDV-HTC-EQP-1	2.5'x3' Neenah Model No. R-6665-3MH, North	11.8
MAR-RTB-MDV-HTC-EQP-2	2.5'x3' Neenah Model No. R-6665-3MH, South	11.8
MAR-RTB-PIPE-D-2	NaOCl Disinfection Pipe, 2" PVC	10.5
MAR-SB-TRNF	Main Transformer, Outside	10.4
MAR-RTB-GA-DWTR	Martin RTB Dewatering Gate Solenoid	10.1
MAR-RTB-RTB	8.6 Million Gallon Martin RTB	10.0

Revenue Structure

The legal formation of the MSDDD was governed by Public Act 40 of 1946, Chapter 20 Drain Apportionments. The original construction of the Martin RTB was funded through federal grants and issued bonds. The bond payments were apportioned based on the contributing servicing areas of the participating entities according to the Final Order of Apportionment approved by the Drainage Board on March 8, 1963. The apportionments are as follows:

Martin Sanitary Diversion Drainage District – Executive Summary
Macomb County Public Works Office
21777 Dunham Road
Clinton Township, Michigan 48036
(586) 469-5325
Brian Baker - MCPWO, brian.baker@macombgov.org

SAW Grant No. 1411-01
AEW Project No. 0211-0172

Entity	Apportionment
St. Clair Shores	21.90669%
Roseville	78.09331%

Since the Drainage District is necessary for public health and serviced entities are in agreeance with the original apportionments, there are no gaps in the funding structure. Projects identified in the Capital Improvement Plan will be annually incorporated into the budget for approval by the District Board.

Capital Improvement Plan

Based on the condition assessment and criticality analysis, the following capital improvement plan has been prepared. The estimated rehabilitation, replacement, and associated costs included in the five (5) year Capital Improvement Plan (CIP) are shown below. The plan will be updated annually with the MSDDD's budget. A twenty year capital improvement plan has also been completed and is included in the complete Wastewater Asset Management Plan.

Fiscal Year	Projects	Project Cost ¹	Total Project Costs
2019-20	Design for Upgrades to RTB Blower and Ductwork ²	\$ 106,090	\$ 1,324,331
	CCTV of Dewatering Line and Influent/Effluent Box Culverts ³	\$ 2,582	
	Replace RTB and Dewatering Ultrasonic Level Sensors, LS 380 & 390	\$ 5,305	
	Chlorine Storage Building Repairs ⁴	\$ 21,218	
	Service Building Repairs ⁴	\$ 42,436	
	Rehabilitation of RTB Equipment Crane ⁵	\$ 63,654	
	Design for Replacement of Dewatering Accumulator and Motor Starter ⁶	\$ 90,840	
	Replace N-Con Sampler	\$ 9,548	
	Install Permanent Gates for New Flushing System ⁸	\$ 795,675	
Upgrades to Disinfection System ⁷	\$ 186,984		
2020-21	Upgrades to RTB Blower and Ductwork ²	\$ 437,091	\$ 840,034
	Replace 1 Chlorine Storage Tank Level Sensor and Storage Tanks Flow Meter	\$ 24,586	
	Replacement of Dewatering Accumulator and Motor Starter ⁶	\$ 374,259	
	Design of Miscellaneous Sewer Repairs as a result of 2019-20 CCTV Investigations ³	\$ 4,098	
2021-22	Design for Replacement of RTB Equipment Hatch	\$ 5,628	\$ 241,984
	Replace Electrical Disconnects for Overflow Sampling Pumps and Sampling Pumps (4 total)	\$ 45,020	
	Replace Groundwater Sump Pump in Old Basement	\$ 28,138	
	Replace Overflow and Sampling Pumps, Motors and Valves	\$ 16,883	
	Miscellaneous Sewer Repairs as a result of 2019-20 CCTV Investigations ³	\$ 16,883	
Design for Replacement of Martin Drain Vault ⁹	\$ 129,434		
2022-23	Cleaning of Electrical Components ¹⁰	\$ 20,867	\$ 682,639
	Design for Replacement of Dewatering Gate and Solenoid ¹¹	\$ 19,418	
	Replacement of RTB Equipment Hatch	\$ 23,185	
	Replace Chlorine Storage Building Ladders and Fire Extinguishers	\$ 1,449	
	Replace Drop Ceiling in Service Building	\$ 3,478	
	Replace Quarry Tile Floor in Service Building	\$ 9,274	
	Replace Overhead Garage Door in Service Building	\$ 20,287	
	Replace Unit Heaters and Overhead Dampers in Service Building (7 Total)	\$ 20,287	
	Replace Ladders in Service Building	\$ 406	
	Replace Interior and Exterior Lighting Fixtures of Service Building	\$ 19,128	
	Replace Unit Heater Electrical Disconnect in Generator Room of Service Building	\$ 11,593	
Replacement of Martin Drain Vault ⁹	\$ 533,266		
2023-24	Replacement of Dewatering Gate and Solenoid ¹¹	\$ 80,002	\$ 170,600
	Replacement of Interior and Exterior Lighting Fixtures of Chlorine Storage Building	\$ 4,179	
	Replacement of Service Building Roof	\$ 35,822	
	Design for Site Pavement Replacement	\$ 50,598	
5 Year Total			\$ 3,259,588
Note:	¹ Project Costs are based on CY 2018 and include 3% inflation for each subsequent year. ² Upgrades to RTB Blower and Ductwork include installation of additional ductwork and blowers to allow for 6 air changes per hour. The current blower setup is estimated to provide 1 air change per hour. ³ CCTV of the RTB Dewatering Line includes 555 LF of 42" Sewer and 330 LF of 12'x7' box culvert sewer. Design services are estimated at 25% of the approximate repair cost. ⁴ Building Repairs include addressing defects as outlined in August 2018 AEW Report "MSDDDD - Structural Analysis of the Service Building & Chlorine Storage Building". ⁵ Rehabilitation of the RTB Equipment Crane includes sand blasting the crane rail, replacing structural bolts, powder coating the crane rail and replacing the 4 Ton Crane Hoist. ⁶ Replacement of the Dewatering Accumulator and Motor Starter includes the replacement of just those items listed. Replacement of the Dewatering Gate is not included with this project. Design services are estimated at 25% of the approximate replacement cost. ⁷ Upgrades to the Disinfection System are estimated. A study for the Disinfection System is currently being performed by Wade Trim. ⁸ Installation of Permanent Gates for the New RTB Flusing System includes the items outlined in Alternative 1 of AEW's August 2015 Martin RTB Flushing System Evaluation Report. Design services are estimated at 25% of the approximate installation cost. ⁹ Replacement of the Martin Drain Vault consists of replacement of the actual vault and all contents within. Design services are estimated at 25% of the approximate installation cost. ¹⁰ Cleaning of electrical Components includes cleaning the inside of panels, cleaning of terminal connections and greasing of electrical connections within the panel. Applicable for all electrical panels within Martin Service Building and Chlorine Storage Building. ¹¹ Replacement of the RTB Dewatering Gate and Solenoid includes replacement of the hydraulic sluice gate, solenoid and dewatering structures covers. Design services are estimated at 25% of the approximate replacement cost.		

MARTIN SANITARY DIVERSION DRAIN - 12/4/18

Funding Source	Apportionment	Manager	Vendor	Amount	Invoice Detail	Project Summary	Project Balance
Martin Sanitary Diversion Drain	Chapter 20 Roseville - 78.09% St. Clair Shores - 21.91%	Astorino	Anderson, Eckstein & Westrick, Inc.	\$ 30,870.00	Invoice #119464 - 10/11/18 Engineering Services - 8/20/18 - 9/16/18	Asset Inventory, Condition Assessment, CIP	\$47,577.52
	SAW Grant 1411-01 (Closing date 11/24/18)	Astorino	Anderson, Eckstein & Westrick, Inc.	\$ 4,608.00	Invoice #0119728 - 11/1/18 Engineering Services - 9/17/18 - 10/14/18	Asset Inventory, Condition Assessment, CIP	\$ 47,577.52
	SAW Grant 1411-01 (Closing date 11/24/18)	Astorino	DTE Energy	\$ 841.61	Monthly Electric - 10/13/18 - 11/14/18	Personnel Reimbursement - 9/8/18 - 10/5/18	
		Astorino	8 1/2 Mile Relief Drain	\$ 4,109.37	Invoice #P-18-80 - 11/20/18	Personnel Reimbursement - 10/6/18 - 11/2/18	
		Astorino	8 1/2 Mile Relief Drain	\$ 5,180.70	Invoice #P-18-103 - 11/27/18	Personnel Reimbursement - 11/3/18 - 11/30/18	
		Astorino	8 1/2 Mile Relief Drain	\$ 2,033.64	Invoice #P-18-109 - 11/27/18	Personnel Reimbursement - 11/3/18 - 11/30/18	
	SAW Grant 1411-01 (Closing date 11/24/18)	Astorino	METCO Consulting Engineers	\$ 15,368.00	Invoice #1411-5C - 11/28/18 Engineering Services - ending 11/25/18	Asset Management Program Implementation Entering Data in NEXGEN	\$ 25,613.02
		Astorino	TREMCO	\$ 1,200.00	Invoice #95438139 - 11/14/18	Roof Warranty	\$
Total				\$ 64,211.32			

YTD Trial Balance

Fund: Martin Sanitary Diversion

As of Fiscal Period: Oct 1, 2018-Nov 30, 2018

	O&M Balance 9/30/2018	O&M	Total 11/30/2018
Cash - Operating	338,464	327,216	665,680
Accounts Receivable			0
Assets			0
Liabilities		2,262	2,262
Revenues		350,328	350,328
Expenditures		25,374	25,374
Equity	338,464		663,418

NOTES

	Grant	Match	Total
SAW 1411-01	292,514	32,502	325,016
YTD	(249,695)	(27,744)	(277,439)
Remaining	42,819	4,758	47,577