

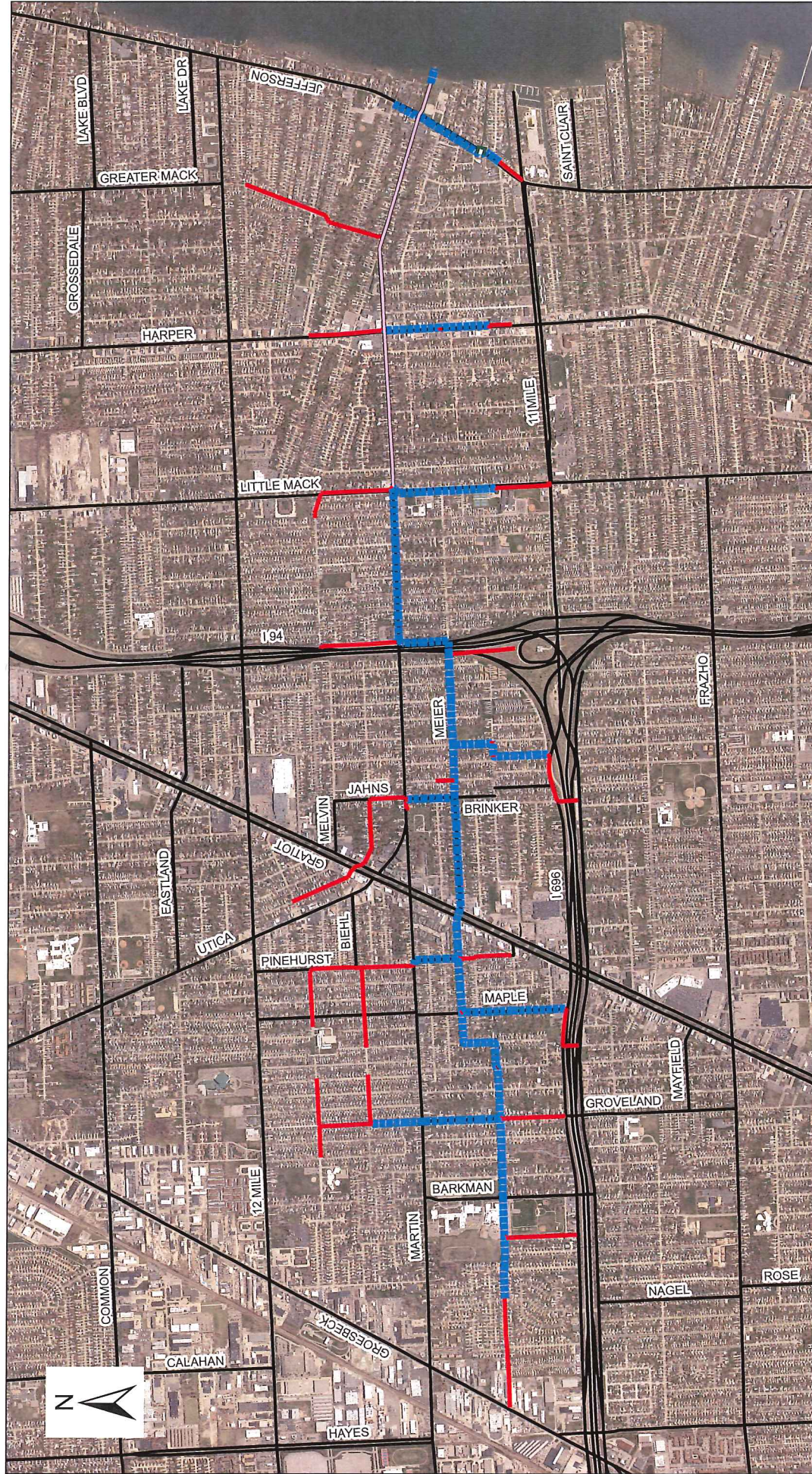
Miller
Santo
Tocco

ELEVEN AND ONE-HALF MILE RELIEF 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. Project Update – Jeff Bednar	5
6. Consideration for approval of invoice (see attached)	9
7. Financial Report – Bruce Manning	10
8. Adjourn	

11 & 1/2 MILE RELIEF DRAIN

ROSEVILLE/ST CLAIR SHORES



Legend

- Enclosed Gravity**
- < 60" Dia
 - ≥ 60" Dia
 - Multiple Pipes
 - Culvert
- Open Channel**
- Ditch
 - Pond



Drain Length (Feet/Miles):
64,387.97 / 12.19



An adjourned meeting of the Intra-County Drainage Board for the **ELEVEN AND ONE-HALF MILE RELIEF DRAIN** was held in the Office of the Macomb County Public Works Commissioner, 21777 Dunham, Clinton Township, Michigan, on November 19, 2018, at 10:28 A.M.

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

ALSO PRESENT: Robert Leonetti, 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)

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

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.

A hydraulic analysis should be done on the drain to determine the impacts of sediment in the pipe beyond a 10-year storm event. A flow monitoring study would determine if there is additional capacity in a wet-weather event to help ease the overflows at the Martin Retention Basin. Staff is currently investigating the location of a pipe that is owned by MDOT within the 11 ½ Mile Relief Drain Drainage District.

The Chair presented the invoices totaling \$20,351.50 to the board for review and approval.

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

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 Mr. Santo, supported by Ms. Tocco, that the meeting of the Eleven and One-half Mile Relief Drain Board be adjourned.

Adopted: YEAS: 3
NAYS: 0

The meeting was adjourned at 10:35 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: 11/19/18

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Stormwater Asset Management Plan

Executive Summary

Intra-County Drainage Board for the Eleven and One-Half Mile Relief Drain
21777 Dunham Road, Clinton Township, MI 48036
Brian Baker, Chief Deputy Macomb County Public Works Commissioner
586.307.8210
SAW Grant Project Number 1133-01

Executive Summary

The Macomb County Publics Works Office (MCPWO), on behalf of the Eleven and One-Half Mile Relief Drain Drainage District (District), was awarded a grant by the Michigan Department of Environmental Quality (MDEQ) under the Stormwater, Asset Management, and Wastewater (SAW) Grant Program to develop a stormwater Asset Management Plan (AMP) for the Eleven and One-Half Mile Relief Drain (Drain). The AMP Report was developed by Fishbeck, Thompson, Carr & Huber, Inc. (FTCH), working closely with MCPWO staff and in accordance with the five MDEQ AMP components:

1. Asset Inventory and Condition Assessment
2. Level of Service (LOS)
3. Asset Criticality
4. Operation and Maintenance (O&M) Strategies
5. Capital Improvement Plan (CIP)

The total eligible cost was \$859,935, less a local match of \$85,994, for a total grant amount of \$773,941.

The objective of an AMP is to meet the required LOS in the most cost-effective manner through proper maintenance of the assets. For MCPWO this includes providing a summary of the condition of the assets within the District, a basis for prioritizing the rehabilitation/replacement of the assets, and an updated O&M program to routinely maintain the assets. The work completed under the SAW Grant included the components described in the following sections.

Asset Inventory

The Drain is an enclosed stormwater system that discharges directly to Lake St. Clair.

The following steps were taken in an effort to locate and identify the system's horizontal and other assets:

1. Update MCPWO's existing Geographic Information System (GIS) database.
2. Utilize and update, as necessary, the existing unique naming convention for the MCPWO assets that incorporate the District.
3. Perform sewer inspections via onsite walkthroughs as well as remote televising to determine the condition of each asset. Incorporate results and findings into the GIS database.
4. Perform manhole surveying and inspections to determine the condition of each structure. Incorporate results and findings into the GIS database.
5. Develop an inventory of District's assets, including critical attribute information, age, remaining useful life, and replacement costs. Incorporate the information into the GIS database.



Stormwater AMP – Executive Summary

Condition Assessment

1. Manhole inspections were performed in 2016 and 2017 by FTCH in accordance with the Manhole Assessment and Certification Program (MACP) standards on the majority (93%) of the manholes in the system. The inspection forms, and the results of the inspections, were incorporated into MCPWO’s GIS database.
2. The storm sewers were remotely closed-circuit television (CCTV) inspected and walked in 2017 by Doetsch Environmental Services in accordance with Pipeline Assessment and Certification Program (PACP) standards. The inspection forms, and the results of the inspections, were incorporated into MCPWO’s GIS database.
3. The results of the inspections indicated:
 - a. The storm sewers are generally in good condition; however, 4 pipe segments have a structural condition rating above 4.00, and 30 pipe segments have an O&M rating above 4.00, with 10 of those segments with an O&M rating of 5.00 due to heavy sediment deposits.
 - The presence of heavy sediment deposits indicated potential Drain capacity issues. FTCH was tasked to develop a hydraulic model of the Drain to assess whether the sediment was creating significant capacity issues.
 - The capacity analysis results indicated the Drain does not have capacity for a 10-year, 24-hour design storm and will experience surface flooding under these conditions. The capacity analysis also revealed the Drain will experience pipe surcharging and surface flooding for the 5-year, 24-hour event, but would not for 1- or 2-year, 24-hour storm events.
 - The sediment analysis results indicated the removal of the sediment will produce very little change in the hydraulic grade line throughout the Drain for the 1-, 2-, 5-, and 10-year, 24-hour storm events.
 - b. The manholes are in good condition as well. There are no manholes with a composite (structural and O&M) rating above 4.0, and only 5 manholes with a composite rating between 3.00 and 4.00.

Level of Service Determination

The MCPWO developed an LOS for the District based on commitments to their customers and the MDEQ, which included:

1. Safeguarding public health and the environment.
2. Operating the system to maintain stormwater conveyance to prevent damage to public and private property and other hazards due to stormwater flooding.

Criticality of Assets

1. Assigned a Probability of Failure (POF) rating for each asset based on the condition of the asset, and its age or remaining life. The rating criteria was different for pipes and manholes as follows:

Pipe Probability of Failure

		Weighting Factor	5	4	3	2	1
			Imminent	Probable	Occasional	Remote	Improbable
POF	Physical Condition	80%	PACP Structural Quick Rating Score (50%) PACP O&M Quick Rating Score (30%)				
	Useful Life Expended	20%	≥ 100%	90-99%	80-89%	60-79%	< 59%



Stormwater AMP – Executive Summary

Manhole Probability of Failure

		Weighting Factor	5	4	3	2	1
			Imminent	Probable	Occasional	Remote	Improbable
POF	Physical Condition	80%	MACP Composite Rating (80%) Assets not inspected were given a Composite Rating Score = 3.00				
	Useful Life Expended	20%	≥100%	90-99%	80-89%	60-79%	< 59%

- Assigned a Consequence of Failure (COF) rating for each asset to reflect its importance to the system and the resulting disruption or difficulty of repair/replacement if failure occurs, based on the following criteria:

Consequence of Failure for Pipes and Manholes

		Weighting Factor	5	4	3	2	1
			Catastrophic Disruption	Major Disruption	Moderate Disruption	Minor Disruption	Insignificant Disruption
COF	Process Impact	25%	Mission critical: unable to accomplish mission	Process shutdown	Loss of redundancy or temporary process upset	Potential process upset	No impact on process
	Financial Impact	25%	Major Cost (> \$250,001)	Significant Cost (\$50,001 - \$250,000)	Moderate Cost (\$10,001 - \$50,000)	Minor Cost (\$1,001 - \$10,000)	Insignificant (\$1 - 1,000)
	Safety	25%	High risk of loss of life	Severe injury to employees or public	Minor injury requiring treatment offsite or lost time	Minor injury requiring no medical treatment with no lost time	Little to no risk of injury
	Disruption to the Community	25%	Long-term impact; area-wide disruption	Short-term impact, but substantial disruption	Sporadic service disruptions	Minor disruption	No disruption

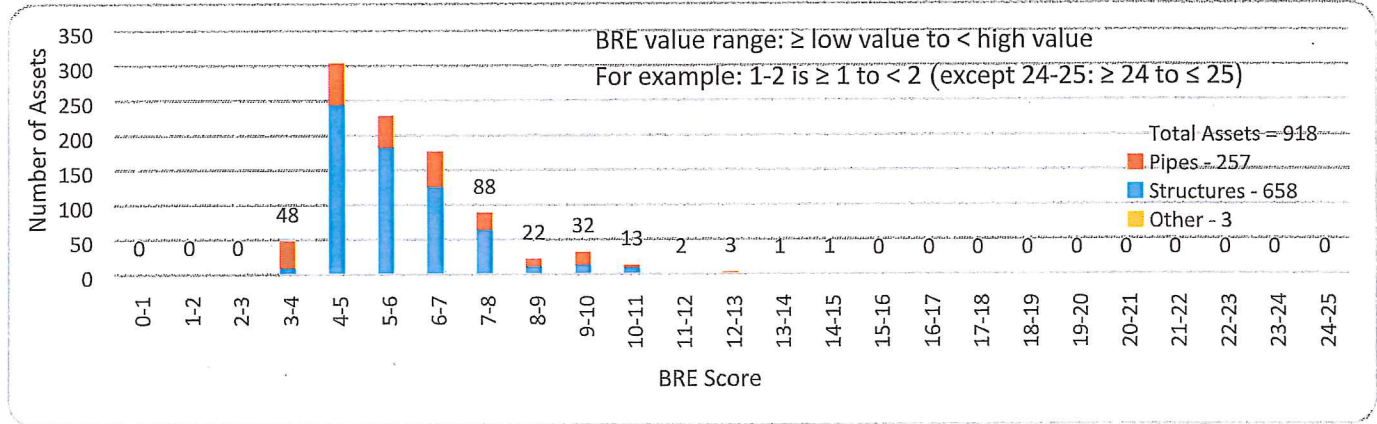
- Multiplied the POF and the COF to compute the Business Risk Exposure (BRE) score for each asset, representing the asset’s criticality on a scale of 1 to 25. The BRE score serves as a tool for prioritizing repair/replacement.

MDEQ guidelines for determining criticality state a BRE score above 16.00 is deemed high and should warrant rehabilitation action. The BRE scores of the Drain assets are presented in the following figure. The sewers and manholes that were inspected all had BRE scores less than 16.00.

MCPWO should monitor the condition of the sewers and manholes during the next round of inspections and update the BRE scores accordingly.

Stormwater AMP – Executive Summary

Overall 11.5 Mile Relief Drain BRE Summary



Operation and Maintenance Strategies

1. Reviewed current preventative maintenance history and system operations.
2. Identified gaps in the preventative maintenance program and in system operations.
3. Developed a revised preventative maintenance program outlining tasks by asset.

Capital Improvement Plan

A 20-year CIP was developed for the District using the results of the condition assessments, the BRE, remaining useful life, and repair/replacement costs. The CIP included:

1. Grouping projects based on work requiring the Drain to be dewatered.
2. A schedule for repair/replacement projects through the year 2037.
3. Anticipated project costs and annual system costs through the year 2037.

Major projects anticipated to begin in the next few years are:

- MCPWO staff to remove debris in Pipe Segment 097M047-097M046.
- MCPWO staff to replace manhole cover at Manhole 097M061.
- MCPWO staff to replace cracked manhole cover at Manhole 097M298.

List of Major Assets

Stormwater Assets:

- 71,506 feet of pipe ranging in size from a 12-inch diameter to a 12- by 14-foot double box system.
- 280 manholes.
- 370 catch basins.
- 5 junction chambers.
- 1 outfall.

ELEVEN AND ONE-HALF MILE RELIEF DRAIN - 12/4/18

<u>Funding Source</u>	<u>Apportionment</u>	<u>Manager</u>	<u>Vendor</u>	<u>Amount</u>	<u>Invoice Detail</u>	<u>Project Summary</u>	<u>Grant Balance</u>
11 1/2 Mile Relief	Chapter 20 State of MI - 15.04% Macomb Co. - 5.79% Roseville - 51.13% St. Clair Shores - 28.04%						
	SAW 1133-01 (Completion 11/30/2018)	Bednar	Fishbeck, Thompson, Carr & Huber, Inc.	\$ 9,462.56	Invoice #378841 - 11/12/18 Engineering Services - ending 11/2/18	Project Management, GIS Coordination/GPS, Manholes & Inspections	\$ 97,900.58
Total				\$ 9,462.56			

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YTD Trial Balance

Fund: 11.5 Mile

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

	O&M Balance 9/30/2018	O&M	Total 11/30/2018
Cash - Operating	380,225	(2,583)	377,642
Accounts Receivable			0
Assets			0
Liabilities		110	110
Revenues		973	973
Expenditures		3,666	3,666
			0
Equity	380,225		377,532

NOTES	Grant	Match	Total
SAW 1133-01	773,941	85,994	859,935
YTD	(673,121)	(74,791)	(747,912)
Remaining	100,820	11,203	112,023