

Appendix C – Asset Management Plan for Stormwater and Wastewater

It's the active practice of managing (operating , maintaining, and upgrading) the physical assets of an enterprise to achieve the maximum benefit from that asset while providing the desired level of service



Asset Management Plan (AMP)

- 1. Asset Inventory**
- 2. Level of Service**
- 3. Critical Assets**
- 4. O&M Strategies**
- 5. Capital Improvement Planning**

Who is eligible

A municipality that has jurisdiction over construction and operation of the system.

Grand Ledge/Oneida Twp.

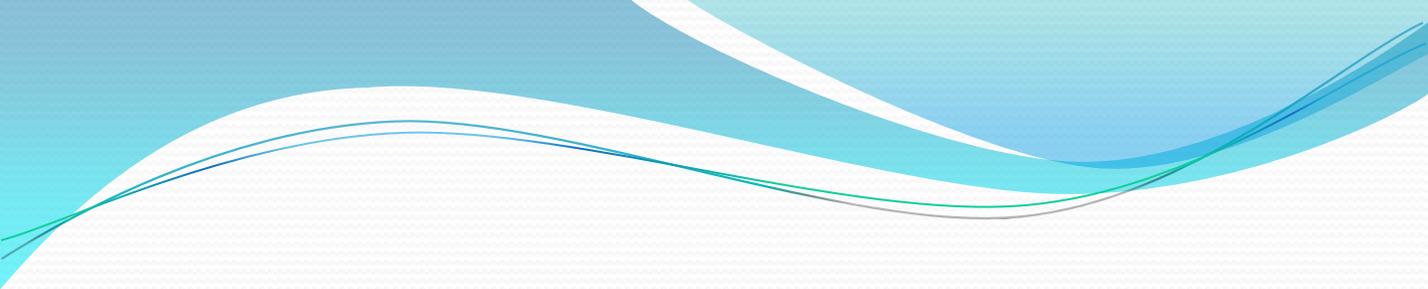
Lansing/Delta Twp./Capitol City Airport Authority.

Grant Eligible

- **AMP/Geographic Information System (GIS) mapping software/hardware/training. Total limits are as follows:**

Service Area Population Limit	Dollar
Less than or equal to 5,000	\$60,000
5,001 to less than or equal to 20,000	\$85,000
20,001 to less than or equal to 50,000	\$110,000
Greater than 50,000	\$160,000

Attach justification when assistance is sought for an applicant with an existing GIS system or for when an exception is being made to the above dollar limits.

- 
- **Asset condition assessment (manhole inventory, cleaning and televising)**
 - **Work done in PACP requirements and by PACP certified personnel.**
 - **Costs based on per foot basis**
 - **Equipment rental costs for cleaning and televising.**
 - **Sewers must be at least 20 years old**

A justification is needed to clean and televise sewers installed or relined within the last 20 years. The limit is to encourage communities to focus on sewers installed or relined prior to 1993.

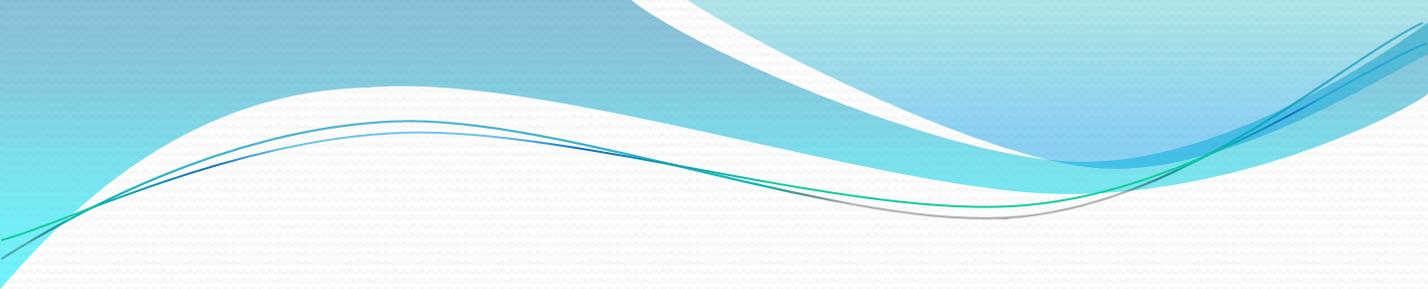
- **Any specific tasks named as a condition of an NPDES permit not identified elsewhere in this guidance**
- **Aerial data collection at the 12-inch resolution when it is purchased from the county or obtained from the state (for GIS purposes only).**
- **Stormwater utility development costs.**

Cross-Sectoring

Section 2504 e (2) (i) states that “The municipality shall coordinate, as feasible, with other infrastructure activities in the same geographic area.” Asset management encourages cross-sector utilization (for water utility, roads, gas, phones, etc.); however grant assistance may only be requested for those costs directly related to the requested asset management grant.

Expectations

- Funds can be used to address any or all of the 5 AMP components; however **after the 3 year grant period** the final product is a **complete and approvable AMP covering all 5 components**.
- The applicant will **need to certify** that all grant activities have been completed at the end of three years.
- For wastewater systems the applicant must **demonstrate significant progress** towards funding the AMP.
- A stormwater funding structure is not required however an **analysis of the costs** to maintain the system and support the AMP is required.



If the wastewater AMP identifies a gap in the current revenue needs to meet expenses, then significant progress must be made toward achieving the funding structure necessary to operate the system. Significant progress is defined as a **5-year plan to eliminate the gap** with a **minimum initial rate increase to close at least 10 percent of the funding gap**. The first rate increase must be implemented within three years of the executed grant.

SAW/NPDES Interface

- Under the SAW grant the asset analysis can involve grouping of asset types, i.e. 50 manholes. Under the NPDES asset management requirements DEQ will require a detailed asset analysis, i.e. manhole 1, manhole 2.... This will have to be done in 1 year for WWTP assets and 3 years for collection system assets.
- For Majors, those with discharges greater than 1 MGD, when the NPDES comes up for renewal the NPDES asset management requirements take effect. NPDES requirements will supersede the SAW asset management requirements. So for example if you get a grant in 2013 and your NPDES permit comes up for renewal in 2015, you can begin with a broad asset analysis in 2014 but in 2015 the NPDES permit requirement for a detailed analysis will come into effect.
- For Minors, it is understood that when their NPDES permit comes up for renewal, asset management will be a part of that permit, however the implementation schedule in the permit will follow that of SAW. If the applicant does not have a detailed asset analysis, the timeframe for completing that requirement will be negotiated with the Permits Section.

CUPSS – Check Up Program for Small Systems

Free, easy to use software

Supported by EPA

For water and wastewater systems

Tutorials, training guidebooks available

www.epa.gov/cupss

Simplified Asset Management Plan

- **Asset Inventory and Criticality**
- **Level of Service**
- **Rate Methodology**
- **Capital Improvement Plan**

Asset Inventory and Criticality

Table 1

Directions

- A. List assets
- B. Enter asset information
- C. To add more assets use insert function and add rows then copy first asset row to new rows to transfer formulas

D. Enter information in highlighted cells

E. Remaining cells will calculate automatically.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Collection Assets	Capacity	Material	Location	Latitude	Longitude	Manufacturer	Tag Number	Original Cost	Replacement Cost	Depreciation Value	Year Installed	Remaining Useful Life in Years	Condition	Probability of Failure	Consequence of Failure	Criticality Factor
Pump #1												0	0	5	5	25
Enter asset												0		5	5	25
Enter asset												0		3	3	9
Enter asset												0				0
Enter asset												0				0
Enter asset												0				0
Enter asset												0				0

If Criticality Factor is greater than 16 cell will turn RED
 If Criticality Factor is greater than 16 [add to GIP table](#)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
Treatment Assets	Capacity	Material	Location	Latitude	Longitude	Manufacturer	Tag Number	Original Cost	Replacement Cost	Depreciation Value	Year Installed	Remaining Useful Life in Years	Condition	Probability of Failure	Consequence of Failure	Criticality Factor
Pump #1												0		5	5	25
Enter asset												0				0
Enter asset												0				0
Enter asset												0		0	0	0
Enter asset												0		0	0	0
Enter asset												0		0	0	0
Enter asset												0				0
Enter asset												0				0
Enter asset												0				0
Enter asset												0		0	0	0
Enter asset												0		5	5	25
Enter asset												0				0
Enter asset												0		2	2	4
Enter asset												0				0
Enter asset												0				0
Enter asset												0				0
Enter asset												0				0

If Criticality Factor is greater than 16 cell will turn RED
 If Criticality Factor is greater than 16 [add to GIP table](#)

N	O	P	Q
Condition	Probability of Failure	Consequence of Failure	Criticality Factor
0	5	5	25
	5	5	25
	3	3	9
			0
			0
			0
			0

If Criticality Factor is greater than 16 cell will turn RED

If Criticality Factor is greater than 16

[add to CIP table](#)

Level of Service Table 4				
		Date of discussion	Decision	Official action
Level of Service Statement				
LOS Determinants*				
NPDES requirements				
Safety				
Security				
Operator certification				
Customer complaints				
Upcoming regulatory changes				
Response time				
Operating Reserves				
Internal versus external funding				
* sample list of determinants				

Rate Methodology Table 5

Directions

- A. To add more line item expenses use insert function and add rows then copy first line item row to new rows to transfer formulas
- B. Enter information in highlighted cells**
- C. Remaining cells will calculate automatically.

(select one)	<<< Click at left and select flow units (million cubic feet or millions of gallons)
0.00	<<< Enter annual billable flow in units selected above
0	<<< Enter typical quarterly flow of single-family home in units selected above
(select one)	<<< Click at left and select the type of fixed units
0	<<< Enter number of fixed units

Calculate Operating Reserve (optional if creating budget for only OM&R)	
\$ 5,000	Total OM&R from Expenditures in table below
\$ 2,500	Targeted Operating Reserve Amount (this is 50% of OM&R)
	<<< Enter amount of cash or equivalents
\$ 2,500	Additional Operating Reserves Needed (If negative number, stop here)
	<<< Enter # of years to accumulate reserves (rule of thumb is 5 years)
\$ -	Annual Contribution To Achieve Targeted Operating Reserve Amount

- 1. Edit budget items below, if needed
- 2. Enter budget amount for each item in highlighted cells
- 3. Under Options 3 and 4, enter percent of entire budget allocated to billable flow (Variable). The remainder is allocated to Fixed.
- 4. Under Option 5, enter percent of each budget item allocated to billable flow. The remainder is allocated to Fixed.
- 5. Click on Capital Improvements tab and Replacement tab to complete those worksheets

Expenditures	Budget	Option 1		Option 2		Option 3		Option 4		Option 5		
		Variable 100%	Fixed 100%	Variable 80%	Fixed 20%	Variable 20%	Fixed 80%	%	Variable 0%	Fixed 0%		
Operation, Maintenance and Repair (OM&R)												
Salaries	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
* Insurance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
* Dental	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
* MERS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
* Medicare	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
* FICA	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
* Disability	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Unemployment Insurance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Postage	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Bank Charges	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Operating Supplies	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Contract Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Telephone	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Dues	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Printing	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Insurance & Bonds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Utilities	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Repairs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Rentals	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
GIS software	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -
Replacement (See Table 4)	\$ 5,000	\$ 5,000	\$ 5,000	\$ 4,000	\$ 1,000	\$ 1,000	\$ 4,000	\$ 4,000	0%	\$ -	\$ -	
Total OM&R	\$ 5,000	\$ 5,000	\$ 5,000	\$ 4,000	\$ 1,000	\$ 1,000	\$ 4,000	\$ 4,000				
Capital Improvement (See Table 6)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -	
Operating Reserves	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -	
Debt Expenses	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -	
Miscellaneous	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%	\$ -	\$ -	
Total Water System Expenses	\$ 5,000	\$ 5,000	\$ 5,000	\$ 4,000	\$ 1,000	\$ 1,000	\$ 4,000	\$ 4,000				

Calculate Rate	Option 1	Option 2	Option 3	Option 4	Option 5
Select flow unit in cell A4	\$ -	\$ -	\$ -	\$ -	\$ -
Enter type of fixed units into cell A7	\$ -	\$ -	\$ -	\$ -	\$ -
Quarterly Bill for single-family home	\$ -				

Replacement Expenses Table 6

- Directions**
- A. List assets to be replaced or rehabilitated
 - B. Determine how long before action must take place
 - C. Enter cost to replace or rehabilitate
 - D. To add more replacement items use insert function and add rows then copy first line item row to new rows to transfer formulas
 - E. Enter information in highlighted cells
 - F. Remaining cells will calculate automatically.

A	B	C	
Projects	Remaining Useful Life in Years	Replacement Cost	Reserve Required Each Year
Pump #1	3	\$ 15,000	\$ 5,000
vactor truck	0	\$ -	\$ -
standby generator	0	\$ -	\$ -
power panel	0	\$ -	\$ -
safety equipment	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Enter asset to be replaced	0	\$ -	\$ -
Total Replacement reserves required in the current year			\$ 5,000
			Click Total to add to Budget

Capital Improvement Project Plan

Table 7

Directions

- A. List projects to be completed
- B. Determine how long before the project must begin
- C. Enter the total projected cost of the project
- D. To add more CIP's use insert function and add rows then copy first CIP row to new rows to transfer formulas
- E. Enter information in highlighted cells
- F. Remaining cells will calculate automatically.

A	B	C	
Projects	Years Until Project Must Begin	Cost	Reserve Required Each Year
rebuild clarifier	3	\$ 15,000	\$ 5,000
extend interceptor	0	\$ -	\$ -
sludge removal	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Enter project	0	\$ -	\$ -
Total Capital Improvement reserve required in the current year			\$ 5,000
			Click Total to add to Budget

Ten Year Budget*

Table 8

Directions

- A. List current year budget expenses
- B. Determine inflation factor
- C. To add more line item expenses use insert function and add rows then copy first line item row to new rows to transfer formulas
- D. Enter information in highlighted cells
- E. Remaining cells will calculate automatically.

INFLATION FACTOR (%) - 5.0 **

EXPENSES	Current Year	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
OPERATIONS & MAINTENANCE										
Salaries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* Dental	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* MERS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* Medicare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* FICA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* Disability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unemployment Insurance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Postage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bank Charges	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Operating Supplies	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contract Services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Telephone	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dues	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Printing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Insurance & Bonds	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Utilities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Repairs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maintenance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rentals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Replacement (See Replacement sheet)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL OM&R EXPENSES	\$0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Capital Improvement (See CIP sheet)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Operating Reserves	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Debt Expenses	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Miscellaneous	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL EXPENSES	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
REVENUES										
User charge Revenue	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Rental Revenue	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Miscellaneous Revenue	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Interest Income	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
TOTAL REVENUES	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
BUDGET SURPLUS/DEFICIT	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

The 10 Year Budget is for estimation purposes only. It is not intended for determining debt funding needs. For a more accurate debt evaluation please seek the services of a financial advisor.

*The annual inflation factor can be found at the following website
<http://www.usinflationcalculator.com/inflation/historical-inflation-rates/>

Disadvantaged Determinations

- **Criteria A**

- **More than 50% of the area served by a proposed sewage treatment works project or stormwater treatment project is identified as a poverty area by the United States bureau of census.**

PERCENTAGE OF FAMILIES AND PEOPLE WHOSE INCOME IN THE PAST 12 MONTHS IS BELOW THE POVERTY LEVEL

		%	%Margin of Error
- All families			
- With related children under 18 years	17.9%		+/- 7.8
- All families			
- With related children under 18 years	28.0%		+/- 15.7

Criteria B

The median annual household income of the area served by a proposed sewage treatment works project or stormwater treatment project is less than the most recently published federal poverty guidelines for a family of 4 in the 48 contiguous United States. In determining the median annual household income of the area served by the proposed sewage treatment works project or stormwater treatment project under this sub-subparagraph, the municipality shall utilize the most recently published statistics from the United States bureau of the census, updated to reflect current dollars, for the community which most closely approximates the area being served by the project.

INCOME AND BENEFITS

Estimate Margin of Error

Median household income (dollars)	28,173
+/-6,016	

APPENDIX F

Disadvantaged Community Status Determination Worksheet

In order to determine the disadvantaged status of a community, the Revolving Loan Section will first look to see if:

- 1) More than 50 percent of the area served by a proposed sewage treatment works project or stormwater treatment project is identified as a poverty area by the United States Census Bureau;
- 2) The median annual household income of the area served by a proposed sewage treatment works project or stormwater treatment project is less than the most recently published federal poverty guidelines for a family of 4 in the 48 contiguous United States. In determining the median annual household income of the area served by the proposed sewage treatment works project or stormwater treatment project, the municipality shall utilize the most recently published statistics from the United States Census Bureau, updated to reflect current dollars, for the community which most closely approximates the area being served by the project.

If no determination can be made by either criteria 1 or 2 then the following information will be used:

1. Is the applicant seeking a planning or design grant? YES NO

If YES, provide the total estimated construction amount \$_____.

2. Annual payment on the existing debt for the wastewater or stormwater system (if applicable):

\$_____.

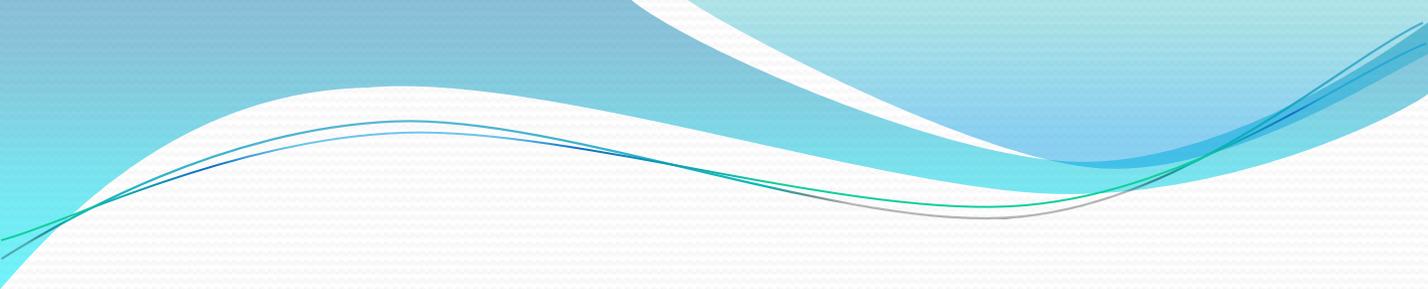
3. Total operation, maintenance and replacement expenses for the wastewater or stormwater system on an annual basis: \$_____.

4. Number of "residential equivalent users" in the system: _____.

If you any questions about this worksheet, then contact Mr. Robert Schneider at 517-388-6466.

Note: If the total estimated construction amount is provided, the result of this determination is temporary until actual bid costs are submitted.

Step 1: Enter amount of total debt for project				Amount of Debt	\$0
Step 2: Enter term up to 20 years				Terms	20
Step 3: Enter present target rate of interest (call DEQ)				Rate	2.00%
Step 4: Enter projected annual OM & R after completion				OM & R	\$221,956
Step 5: Annual debt payment is computed				New annual debt	\$0
Step 6: Total annual cost of system is computed				existing debt	\$141,696
Step 7: Enter total number of system users in service area				Total Annual Cost	\$363,652
Step 8: Annual user cost is computed					
				# of Users	1132
Step 9: Updated State Wide MAHI is:				Annual User Cost	\$321
Step 9: Enter 1990 census median annual household income					
Step 10: Updated MAHI is calculated on Detroit CPI-U to 1997					
Step 11: The percentage of MAHI is computed				Updated MI MAHI	\$49,141
				MAHI - 2010 census	\$28,173
Step 12: If the annual user cost exceeds the percentage of MAHI, the community may qualify as a disadvantaged community				Updated MAHI:	\$29,917
				MAHI Threshold \$	\$299
				Disdavantaged??	YES
Bessemer					
SRF					
pop 1905					
A = No	28.00%	+15.7%	not verifiable		
B = NO	28173				



Bob Schneider
Revolving Loan Section

517-388-6466

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