

Oakland County Water Resources Commissioner
Common to All, SAW Grant No. 1100-01
Wastewater and Stormwater Systems Asset Management Program

Oakland County's office of the Water Resources Commissioner (WRC) owns several systems/facilities and also contracts to operate and/or maintain additional systems on behalf of individual Cities, Villages, and Townships (CVTs). Each entity has a separate fund established to receive any revenues and pay for any expenses that is managed by Oakland County's Fiscal Services department. WRC currently manages 485 separate funds.

WRC applied for and received a grant to further develop its Asset Management Program for its sanitary, combined, and stormwater systems through the Michigan Department of Environmental Quality's (MDEQ) Stormwater, Wastewater and Asset Management (SAW) program. Because the SAW program was funded through monies appropriated for water quality, other WRC infrastructure systems, such as drinking water, were not eligible for funding through the grant.

The individual systems owned and/or operated by WRC received grant funding to develop individual asset management plans specific to a given community/system. The report includes work performed under WRC's Common to All Program grant, which includes a strategic framework to provide standards, guidelines, templates, workflows and other materials for the individual asset management plans. It is also designed to be robust and scalable to allow for drinking water, lake level and other types of systems to be eventually incorporated into the Program through other funding sources.

The WRC has various tools used to manage its assets, including a GIS geodatabase, collaborative asset management system, hydraulic models, condition assessment methods, risk/prioritization models, capacity studies, asset deterioration models, and an operating and capital improvement project prioritization model. These tools are used to guide the short and long-term strategies for WRC to operate the various systems in a sustainable manner that meets the required level of service, with a focus on prioritizing assets that are most critical and being cost-effective.

The following is a summary as required by the grant and includes a brief discussion of the five major AMP components, a list of the plan's major identified assets, and contact information for the grant.

A. Asset Inventory and Condition Assessment:

WRC utilized its existing Geographic Information System (GIS) geodatabase as the primary means to inventory and map the assets in each fund. The geodatabase records the attributes associated with each asset, such as installation date (age), size, material, along with other information need for a given asset type. As part of WRC's Common to All SAW grant, the overall schema of the GIS geodatabase was reviewed and modified to reflect the level of data granularity and attribution required for additional analysis. The geodatabase is part of WRC's Collaborative Asset Management System (CAMS) that allows for maintenance history and costs to be tracked on an asset and/or fund level.

Condition assessment tools and protocols were developed to allow for efficient and consistent recording of asset condition. For sanitary, combined, and stormwater sewer assets, a NASSCO-compliant software program was purchased to store data collected during sewer televising. The data stored can be shared with the existing CAMS system. Inspection work orders were created in the CAMS system to assist with collection and storage of condition assessment data for other types of assets, such as manholes and other collection system structures, and for most vertical asset types, such as pumps, valves, structures, etc.

B. Level of Service:

WRC developed an overall level of service goal that will be used as a starting point for each fund. Considerations into the level of service included compliance to regulations, operation, impact to the public and environment, safety and security, and are included in the overall business risk evaluation.

Common to All Level of Service Goals

	WRC Base Level of Service Goals	Measurables
Financial Viability and Impact	Emergency repairs can be repaired within Utility Reserve Budgets of the system	Exceedances of reserve budgets
Public Confidence/ System Service Impact	Minimal to some loss of service or impact on other services for less than four hours. No sewer system or basement backups. Minor disruption (e.g., traffic, dust, noise).	Number of service interruptions, complaints, and backups
Regulatory Compliance	No state permit violations. Comply with All MDEQ policies.	Number of violations
Safety of Public and Employees	Non-reportable injuries. No lost-time injuries or medical attention required. No impact to public health	Number of injuries and any public health advisories
Redundancy	Comply with 10 State Standards	Number of violations
BRE score	70% of assets have a BRE less than 15	System risk score
Staffing	Staffing levels and training maintained to meet level of service	Number of open positions, annual training hours

The Probability of Failure (POF) and Consequence of Failure (COF) scoring matrices used in the criticality and risk analysis were developed using the strategic LOS guidance. Progress toward the goals are measured through the CAMS analytic data, and is reviewed as part of the annual Long-Range Planning (LRP) process with WRC and its customers.

The level of service work performed as part of the Common to All Program included several other tasks relevant to the strategic operation of the office of the WRC as it relates to optimizing maintenance strategies and management of its various infrastructure systems.

C. Criticality of Assets:

WRC purchased and implemented a new software package (Power Plan AMP, formerly known as Riva) as part of the grant work to assist with prioritization of cost-effective maintenance strategies and capital improvement planning. The software syncs with both the GIS geodatabase and the CAMS systems.

The Decision Support portion of Power Plan uses the asset attribution and maintenance history to estimate the probability of failure and consequence of failure of individual assets, model future asset deterioration, and make recommendations for treatment strategies to cost-effectively extend asset life. The Capital Planning portion of Power Plan provides for creation of projects for rehabilitation and/or replacement of assets in order to manage the overall Business Risk Evaluation (BRE).

The grant work included developing specification sheets for each asset type to define features such as useful life, anticipated failure type, replacement cost, etc. and decision trees that are used to develop maintenance and replacement strategies and evaluate risk against the desired level of service.

D. O&M Strategies and Revenue Structure:

The OCWRC worked with Oakland County's Fiscal Services staff to determine if the current rate structures were sufficient to meet the current needs for the management of the wastewater and stormwater systems, and to plan for any adjustments that may be required to meet anticipated future expenses. The Power Plan software provides estimated annual maintenance and capital needs for each fund, which is then reviewed by WRC staff and the local community. The SAW Grant does not require a review of stormwater system rate structures because most stormwater systems in Michigan do not have a dedicated source of revenue. However, estimated costs are presented for WRC budgetary purposes.

In order to keep the WRC Asset Management Program sustainable into the future, it will require staff time and incur other expenses, such as software licensing. Therefore each fund that participates in the Program will be charged a small annual fee. A budget for the Program was prepared and a demonstration of rate sufficiency was submitted and approved the MDEQ as part of the SAW Grant requirements in October 2016.

E. Long Term Funding/Capital Improvement Plan:

Capital Improvement Plans identify system upgrade, rehabilitation and replacement needs for the future, typically over a period of 20 years, with greater emphasis on the first five years of the plan. Power Plan will be used to model asset deterioration and assist with identifying capital improvement needs for each fund in the near and long term.

F. Contact Information:

A signed Certification of Project Completeness form is enclosed. Contact information for the grantee including name, address, and phone number is included below:

Michael Gingell 1200 North Telegraph Rd Pontiac, MI 48341 248-858-0581	Tim Prince, P.E. 1 Public Works Drive Waterford, MI 48328 248-858-0958	Carrie Cox, P.E. 1 Public Works Drive Waterford, MI 48328 248-858-0958	Dan Mitchell, P.E. 555 Hulet Drive Bloomfield Hills, MI 48302 248-454-6300
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G. Grant Amount:

The total amount of the SAW application was \$2,350,000
With a total SAW grant amount of \$1,929,167
With a match amount provided by Oakland County of \$420,833

Summary of Assets Owned or Managed by OCWRC included in the Common to All AMP:

Act 342 Systems

- Pontiac Sewage Disposal System (Pontiac SDS)
- Walled Lake-Novı (WLN) WWTP
- Evergreen Farmington Sewage Disposal System (EFSDS)
- Huron Rouge Sewage Disposal System (HRSDS)
- Clinton-Oakland Sewage Disposal System (COSDS)

Chapter 20 Drainage Districts

- Clinton River Water Resource Recovery Facility (CRWRRF) Drainage District
- George W. Kuhn Retention Treatment Facility (GWK RTF) Drainage District
- Birmingham Retention Treatment Basin (RTB) Drainage District
- Acacia Park Retention Treatment Basin (RTB) Drainage District
- Bloomfield Village Retention Treatment Basin (RTB) Drainage District
- Pontiac Clinton Relief Drain #1 Drainage District (PCR #1)
- Augusta Drain Drainage District
- Henry Graham Drain Drainage District
- Edwards Relief Drain Drainage District

City, Village and Township (CVT) Systems

The followings systems are local systems that serve an individual CVT. WRC has entered into contracts with the local community to operate and/or maintain these systems. WRC acts as a contractor to the CVT for management of these local systems.

- City of Walled Lake
- Village of Beverly Hills
- City of Orchard Lake Village
- City of Novi
- City of Bingham Farms
- Oxford Township
- City of Keego Harbor
- Village of Franklin
- Royal Oak Township
- Oakland Township
- City of Farmington Hills
- Commerce Township

Additional Systems

The following systems are under the jurisdiction of other chapters of the Drain Code, or other regulatory authorities.

- Oakland-Macomb Interceptor Drainage District (OMID.)
- Oakland County Campus Facilities
- Other WRC Drains

The following is a summary of sanitary, storm and combined sewerage system assets currently in the OCWRC GIS geodatabase. While the inventory of collection system assets (sanitary, storm and combined sewers and associated structures) is nearly complete, it is anticipated the count of vertical assets (located at facilities such as pumping stations, RTBs and treatment plants) will increase as those inventories are completed as part of the individual systems' asset management plans:

SUMMARY OF ASSETS IN OCWRC GIS GEODATABASE:

Collection System Sewers by Material:

Sewer Assets by Material	Length (FT)	Segment Count
ABS Truss	122,853	686
Asbestos Cement	4,489	18
Brick or Block	8,221	33
C-14	116,753	544
Cast Iron	11,876	64
Clay or VCP	1,523,320	7,011
Concrete	34,856	149
Corrugated Metal	8,747	20
Ductile Iron	155,410	707
HDPE	473,961	2,584
Non-reinf Concrete	240,816	1,143
PVC	876,920	4,621
Reinforced Concrete	970,005	4,038
Truss	156,516	786
Unknown	2,902,626	13,074
Grand Total	7,607,368	35,478

Collection System Sewers by Diameter:

Sewer Assets by Diameter	Length (FT)	Segment Count
Non-Circular	30,546	87
Unknown	6,789	68
8" or less	3,844,699	19,984
10" to 15"	1,960,713	9,354
16" to 22"	534,871	2133
24" to 36"	563,614	2188
39" to 48"	268,552	810
54" to 72"	237,917	614
78" to 96"	65,794	127
101" to 120"	47,680	53
132" to 153"	46,193	60
Grand Total	7,607,368	35,478

Collection System Structures:

Structure Type			
Combined	Count	Sanitary	Count
AccessPoint	59	AccessPoint	1,009
Cleanout	14	Cleanout	1,111
FlowRegulator	5	FlowRegulator	22
LiftStation	1	LiftStation	146
Manhole	1,359	Manhole	29,757
Inlet	159	SystemValve	1,373
		GrinderPumpStation	2,596
Grand Total	37,611		

Vertical Assets:

Asset Class	Count
Building & Support Total	535
Electrical and I&C Equip Total	1,284
Piping System Total	71
Treatment Plant Equip Total	1,672
Valve Total	319
Grand Total	3,881



Department of Environmental Quality (DEQ)
Stormwater, Asset Management, and Wastewater (SAW) Grant
Wastewater Asset Management Plan
Certification of Project Completeness

Completion Date 05 / 31 / 2017
(no later than 3 years from executed grant date)

The The County of Oakland (legal name of grantee) certifies that all wastewater asset management plan (AMP) activities specified in SAW Grant No. 1100-01 have been completed and the implementation requirements, per Part 52 of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended, are being met. Section 5204e(3) requires implementation of the AMP and that significant progress toward achieving the funding structure necessary to implement the AMP be made within 3 years of the executed grant.

Please answer the following questions. If the answer to Question 1 is No, fill in the date of the rate methodology approval letter and skip Questions 2-4:

- 1) Funding Gap Identified: Yes or (No)
If No - Date of the rate methodology approval letter: 11 / 09 / 2017
- 2) Significant Progress Made: Yes or No
(The DEQ defines significant progress to mean the adoption of an initial rate increase to meet a minimum of 10 percent of any gain in revenue needed to meet expenses, as identified in a 5-year plan to eliminate the gap. A copy of the 5-year plan to eliminate the gap must be submitted with this certification.)
- 3) Date of rate methodology review letter identifying the gap: _____
- 4) An initial rate increase to meet a minimum of 10 percent of the funding gap identified was adopted on _____

Attached to this certification is a brief summary of the AMP that includes a list of major assets. Copies of the AMP and/or other materials prepared through SAW Grant funding will be made available to the DEQ or the public upon request by contacting:

<u>Carrie Cox P.E.</u>	at <u>1-(248)-470-1314</u>	<u>coxc@oakgov.com</u>
Name	Phone Number	Email



Signature of Authorized Representative (Original Signature Required)

5-10-17
Date

MICHAEL GINGELL, CHAIRPERSON, OAKLAND COUNTY
Print Name and Title of Authorized Representative BOARD OF COMMISSIONERS
April 2017



Department of Environmental Quality
SAW Grant
Stormwater Asset Management Plan
Certification of Project Completeness

Completion Due Date 05 / 31 / 2017
(no later than 3 years from executed grant date)

The The County of Oakland (legal name of grantee) certifies that all stormwater asset management plan (SWAMP) activities specified in SAW Grant No. 1100-01 have been completed and the SWAMP, prepared with the assistance of SAW Grant funding, is being maintained. Part 52 of the Natural Resources and Environmental Protection Act, 1994, PA 451, as amended, requires implementation of the SWAMP within 3 years of the executed grant (Section 5204e(3)).

Attached to this certification is a summary of the SWAMP that identifies major assets. Copies of the SWAMP and/or other materials prepared through SAW Grant funding will be made available to the Department of Environmental Quality or the public upon request by contacting:

<u>Jim Wineka P.E.</u>	at <u>1-(248)-858-1901</u>	<u>wineka.j@oakgov.com</u>
Name	Phone Number	Email

	<u>5-10-17</u>
Signature of Authorized Representative (Original Signature Required)	Date

MICHAEL GINGELL, CHAIRPERSON, OAKLAND COUNTY
Print Name and Title of Authorized Representative BOARD OF COMMISSIONERS