

# Oakland County Department of Information Technology Project Scope and Approach

**Project Name: Collaborative Asset Management System Program      Project ID: D96611DC**

<b>Leadership Group: Land</b>			
<b>Department: Drain Commissioner's Office/Local DPW's/Road Commission for Oakland County</b>		<b>Division: Administration</b>	
<b>Project Sponsor: Kevin Larsen/Scott Oppmann</b>	<b>Date Requested:</b>	<b>PM Customer No. 611</b>	
<b>Request Type:                      <i>New Development</i></b>			
<b>IT Team Name: Land Implementation Services</b>		<b>IT Team No: 9</b>	
<b>Project Manager/Leader: Rochelle Meacham</b>			
<b>Account Number:</b> TBD	<b>Account Description:</b> TBD	<b>Customer Name:</b>	TBD
<b>Grant Funded?</b> Yes <input checked="" type="checkbox"/> No	<b>Mandate?</b>	Yes	<input checked="" type="checkbox"/> No
<b>Mandate Source:</b>			

## **Project Goal**

To implement a Collaborative Asset Management System to standardize countywide infrastructure (water, sewer, storm and roads) and allow Oakland County, and its local governments, to proactively manage assets so that long-term costs associated with the operations and maintenance of critical infrastructure are mitigated.

## **Business Objective**

To implement a web based application for computerized maintenance management system (CMMS), citizen's request management (CRM) and permitting system.

### **Major Deliverables**

- Detailed Project Plans
- Application and/or System Requirements
- End User Hardware and Software Requirements Document
- Technical Design Documents
- Technical Architecture Diagram
- User Acceptance Test Plan
- Implementation Plan
- Service Level Agreement
- Disaster Recovery Toolkit
- Service Center Knowledge Documents

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## **Approach**

- Develop Detailed Project Plan
- Review of current system and participate with vendor conducted needs assessment with customers
- Assist in defining system requirements
- Determine and document system architecture and diagram
- Assess user hardware and software requirements
- Conduct Technical Review
- Order hardware and software if needed
- Develop Implementation Plan
- User Acceptance Test Plan
- Test new system
- Acquire User Acceptance Sign off
- Conduct Change Control
- Assist with User Documentation as necessary
- Create Service Level Agreement, Disaster Recovery Toolkit, Service Center Knowledge Documents
- Assist with initial training of users on new system
- Release new system into production
- Retire disparate systems

## **Benefits**

***See Return on Investment (ROI) Analysis Document***

## **Impact**

**Number of Users**    over 500+

**Divisions**    Drain Commissioners Office  
                  Road Commission for Oakland County  
                  Local Department of Public Works

**Leadership Groups**    Land

## **Risk**

**Business Environment**    HIGH - Project will dramatically change existing business processes or will negatively effect the business environment if implementation is unsuccessful.

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**Technical Environment**    HIGH - New or non-standard technology

**Assumptions**

**Staffing**

- IT Staffing: resources will be available for the hours indicated.
- Other Staffing: additional staffing will be available for participating departments.

**Facilities**

- Project staff and vendor will have access to the Computer Room for the installation and testing of agents and software.

**Technical**

- Vendor selection was completed through a competitive bid and RFP process. The awarded vendor is Azteca.
- Cellular network will be accessible in service areas allowing field staff to access web application remotely.
- ArcGIS Server version of Azteca Cityworks will be ready for deployment phase of implementation.

**Funding**

- Drain Commissioner's Office will be pursuing funding through the Board of Commissioners.

**Priority**

TBD

**Constraints**

- Participants will be available for training and testing of the application.
- Mobile solution technology not viable at deployment.
- Integration with third party applications not successful.

**Exclusions**



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**PROJECT COMPLETION AUTHORIZATION**

<b>Customer Acceptance of Product:</b>	
Title:	Date:
<b>Project Office Review:</b>	Date:

**Size Estimate (+ /- 10% to 50%)**

Type	ID	Task Name	Estimated Hours	Estimated Cost
Phase	000000	PROJECT MANAGEMENT	5,888	\$718,335
Phase	200000	DEFINE BUSINESS REQUIREMENTS	2,400	\$292,800
Phase	300000	DESIGN SYSTEM ARCHITECTURE	2,000	\$244,000
Phase	400000	DEFINE/DOCUMENT TECHNICAL REQUIREM	1,198	\$146,156
Phase	500000	DEVELOP APPLICATION	3,000	\$366,000
Phase	600000	MOVE APPLICATION INTO PRODUCTION	700	\$85,400.
Phase	070000	IMPLEMENTATION	1,500	\$183,000
Phase	080000	POST IMPLEMENTATION SUPPORT	700	\$85,400.
			17,386	\$2,121,091

**Oakland County -- Collaborative Asset Management Program**

Return on Investment

Project Summary

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
<b>Benefits/Savings:</b>							
Tangible Benefits Subtotal:	0	0	0	0	0	0	0
Cost Avoidance Subtotal:	0	0	2,904,000	3,432,000	3,960,000	4,400,000	14,696,000
<b>Costs:</b>							
Development Services Subtotal:	4,606,404	0	0	0	0	0	4,606,404
Hardware Subtotal:	161,200	350,000	0	0	0	0	511,200
Software Subtotal:	701,640	0	250,000	250,000	250,000	250,000	1,701,640
	0	0	0	0	0	0	0
	0	0	0	0	0	0	0
Other Subtotal:	750,000	0	0	0	0	0	750,000
<b>Annual Statistics:</b>							
Annual Total Savings	0	0	2,904,000	3,432,000	3,960,000	4,400,000	14,696,000
Annual Total Costs	6,219,244	350,000	250,000	250,000	250,000	250,000	7,569,244
Annual Return on Investment	(6,219,244)	(350,000)	2,654,000	3,182,000	3,710,000	4,150,000	7,126,756
Annual Costs/Savings Ratio	0.00%	0.00%	8.61%	7.28%	6.31%	5.68%	
<b>Project Cumulative Statistics:</b>							
Cumulative Total Savings	0	0	2,904,000	6,336,000	10,296,000	14,696,000	14,696,000
Cumulative Total Costs	6,219,244	6,569,244	6,819,244	7,069,244	7,319,244	7,569,244	7,569,244
Cumulative Return on Investment	(6,219,244)	(6,569,244)	(3,915,244)	(733,244)	2,976,756	7,126,756	7,126,756
Cumulative Cost/Savings Ratio	0.00%	0.00%	234.82%	111.57%	71.09%	51.51%	51.51%
Year Positive Payback Achieved					Year 5		Year 5
State or Federal Mandate?							
<b>Signatures:</b>							
Benefits Reviewed By Project Sponsor	Date: _____						
Costs (including IT Resources) Reviewed By Information Technology Project Manager	Date: _____						
Costs (including IT Resources) Reviewed By Technical Services Manager	Date: _____						





**Oakland County -- Collaborative Asset Management System Program**

Return on Investment

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
<b>Tangible Benefit:</b>							
<i>Tangible Benefits Subtotal:</i>							
<b>Cost Avoidance:</b>							
Projected O&M savings (sewer infrastructure) from implementation of predictive maintenance system			1,452,000	1,716,000	1,980,000	2,200,000	
Projected O&M savings (water infrastructure) from implementation of predictive maintenance system			1,452,000	1,716,000	1,980,000	2,200,000	
<i>Cost Avoidance Subtotal:</i>			<b>2,904,000</b>	<b>3,432,000</b>	<b>3,960,000</b>	<b>4,400,000</b>	<b>14,696,000</b>
<b>Savings Total:</b>			<b>2,904,000</b>	<b>3,432,000</b>	<b>3,960,000</b>	<b>4,400,000</b>	<b>14,696,000</b>

Oakland County -- Collaborative Asset Management System Program

Return on Investment

Cost Detail

Cost Description	Project Cost Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Cost	Annual Multiplier	Affects Project ROI?							
								Y1	Y2	Y3	Y4	Y5	Y6	Y1	
IT Hours - New Development	Development Svcs			17,386	122	\$ 2,121,092.00		X							2,121,092
OCDC Hours - New Development	Development Svcs			20,036	64	\$ 1,289,717.32		X							1,289,717
<b>Software</b>															
Azteca Cityworks Software - Acquisition	Software					\$ 360,000.00		X							360,000
ESRI and Microsoft Software-Acquisition	Software					\$ 341,640.00		X							341,640
Azteca Annual Software Maintenance	Software					\$ 250,000.00	1.000			X	X	X	X		
<b>Hardware</b>															
Hardware Mobile Device - Acquisition	Hardware			100	3,500	\$ 350,000.00			X						
Server Hardware- Acquisition	Hardware					\$ 161,200.00		X							161,200
<b>Professional Services</b>															
System Integrator - New Development	Development Svcs					\$ 1,195,595.00		X							1,195,595
<b>CVT Data Conversion</b>															
Local Government Infrastructure Data Conversion	Development Svcs					750,000		X							750,000

**Oakland County -- Collaborative Asset Management System Program**  
Return on Investment

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions				
		Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs					
OCDL Hours - New Development	Development Svcs					
<b>Software</b>						
Azteca Cityworks Software - Acquisition	Software					
ESRI and Microsoft Software-Acquisition	Software					
Azteca Annual Software Maintenance	Software		250,000	250,000	250,000	250,000
<b>Hardware</b>						
Hardware Mobile Device - Acquisition	Hardware	350,000				
Server Hardware- Acquisition	Hardware					
<b>Professional Services</b>						
System Integrator - New Development	Development Svcs					
<b>CVT Data Conversion</b>						
Local Government Infrastructure Data Conversion	Development Svcs					



## Oakland County -- Collaborative Asset Management System Program

## Return on Investment

## Assumptions

Date	Assumption Description
03-Dec-07	Because the Collaborative Asset Management System is being funded at the program level, individual organizational savings (labor, technology, equipment, etc.) have not been quantified. Instead, industry standard efficiency gains have been applied to a documented Operations and Maintenance cost for sewer and water infrastructure within Oakland County.
03-Dec-07	According to the US Department of Energy, Energy Efficiency and Renewable Energy Division, the introduction of a predictive maintenance program can reduce future O&M costs by an estimated <b>10%</b> .
03-Dec-07	Oakland County's projected sewer O&M costs were identified in the 2001 SEMCOG study. The 2001 SEMCOG study cited a \$2.8 billion dollar cost regionally over a 28 year period (2001-2030). Oakland County comprises 22% of the regional cost. The cost estimates are in 2001 dollars.
03-Dec-07	O&M savings was derived using the following formula: (Regional O&M Costs) multiplied by .22 (Oakland's % of Region) equals potential cost of sewer O&M within Oakland County. Then, Oakland County's sewer O&M costs were divided by 28 years to arrive at an annual cost for O&M. The O&M cost was then multiplied by .10 (efficiency gained implementing predictive maintenance) to arrive at a savings estimate.
03-Dec-07	Total Sewer O&M savings estimates equal \$2,200,000 annually. Estimated savings are expected to start at 66% in year 3 and climb equally to 100% by year 6.
25-Oct-07	Water O&M savings were estimated using the same formula (sewer O&M savings) and an evaluation of Oakland County households with public water service.
03-Dec-07	Total Water O&M savings estimates equal \$2,200,000 annually. Estimated savings are expected to start at 66% in year 3 and climb equally to 100% by year 6.
03-Dec-07	Mitigated sewer and water O&M costs will continue to accumulate beyond year six of the ROI at a rate of \$4,400,000 per year. Over the life of the SEMCOG Report, this could equate to over \$100 million dollars in mitigated O&M costs.
25-Oct-07	Savings from a predictive maintenance program have only been applied to water and sewer infrastructure within the County. Additional savings are expected when this program is applied to RCOC assets and stormwater infrastructure within the County.
25-Oct-07	Hardware acquisition includes the purchase 9 Servers, field hardware required for ODCD Staff and the setup of a redundant application and database environment at the Troy site.

## Oakland County -- Collaborative Asset Management System Program

### Return on Investment

#### Assumptions

Date	Assumption Description
25-Oct-07	Software acquisition includes the Azteca Server, ESRI and Microsoft licenses necessary to deploy the hosted service.
25-Oct-07	OCDC labor estimates include 20,036 man hours and a total project team of 28. Team members will be assigned to the project for 18 months however, only a percentage of each team members time will be utilized for implementation. OCDC labor estimates reflect an average rate per employee assigned to the project.
25-Oct-07	IT labor estimates include 17,386 Hours and an estimated project team of 6. Team members will be assigned to the project for 18 months - Program Manager, Business Analyst, Application Developer, System Administrator Project Manager, and Infrastructure Support. IT labor estimates reflect the level of effort the third-party implementor will be providing.
25-Oct-07	Data conversion estimates are for the water, sewer and storm data in early adopting communities.
25-Oct-07	Professional service estimates reflect a fix-firm price estimate from a third-party implementor.