Oakland County
Department of Information Technology
Project Scope and Approach

Project Name: Application Development Program Budget **Project ID: D59182AD**

Leadership Group: IT Steering Committee		
Department: Information Technology	**Division:** Application Services	
Project Sponsor: Tammi Shepherd	**Date Requested:** 3/5/18	**PM Customer No.** 182
Request Type: ***New Development*** ***Enhancement*** ***Customer Support*** ***Planned System Maintenance or Upgrade***		
IT Team Name: Application Services	**IT Team No**: 5	
Project Manager/Leader: Stu Smith		
Account Number: 17020	**Account Description:** IT Application Services	**Customer Name:** Application Services
Grant Funded? No	**Mandate?** No **Mandate Source:**	

Project Goal

To improve and refine the development lifecycle standards so that the requirements, development and testing processes continue to be standardized resulting in more efficient services to Oakland County.

Business Objective

To further establish processes and tools so that development projects can leverage standards in order to improve the consistency and quality of products delivered to the County.

Major Deliverables

- Visual Studio upgrade analysis
- Continuous integration and deployment model analysis
- Review outline and processes for automated testing
- HTTP/2 performance test and analysis
- SQL server upgrade feasibility study
  - Upgrading to higher versions of SQL Server (2017 & Greater)
  - Client Tools for SQL server
  - New features of SQL Server 2017
  - SSIS/SSIS in cloud
- API/Microservices/Containers analysis
- SSRS upgrade analysis
- Review RDLC enhancements
- WISP Enhancements - Secure web coding practices analysis
- Outline best practices for development and deployment of high performance web applications
- Oracle upgrade feasibility study
- Review and outline authentication procedures for web services and APIs

- o AWS services and toolsets analysis
- o VC templates upgrade analysis
- o Review SaaS support model strategy
- o Review and prioritize NGINX enhancements
- o EF Core Usage Analysis

Approach

- Develop Detailed Project Plan
- Review current development process and recommend improvements/enhancements to program sponsor.
- Document requirements
- Develop Implementation Plan
- Review with Security and Architecture teams
- Develop new system/process
- Develop User Acceptance Test Plan
- Test new system/process
- Acquire User Acceptance Sign off
- Conduct Change Control
- Develop Documentation, Disaster Recovery Toolkit, Service Center Knowledge Documents
- Train staff on new system/process
- Release new system/process into production

Research & Analysis

Gartner Research Recommendation – Research Conducted; Nothing Found

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users 70

Divisions Application Services

Leadership Groups IT Steering Committee

Oakland County
Department of Information Technology
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Risk

Business Environment Low- Little to no impact to existing business process

Technical Environment Medium – Previously implemented technologies with new aspects and/or new requirements

Assumptions

Staffing

None

Technical

None

Funding

None

Other

None

Priority

Constraints

-

Exclusions

Oakland County
Department of Information Technology
Project Scope and Approach

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PROJECT PHASE AUTHORIZATION

Phase(s):	
Total Estimated Application Services Hours:	
Total Estimated Technical Systems Hours:	
Total Estimated CLEMIS Hours:	
Total Estimated Internal Services Hours:	
IT Application Services Division Manager Approval:	**Date:**
IT Technical Systems Division Manager Approval:	**Date:**
IT CLEMIS Division Manager Approval:	**Date:**
IT Internal Services Division Manager Approval:	**Date:**
IT Management Approval:	
Approved: Yes No	Date:
Reason:	
Project Sponsor Approval:	
Title:	Date:

PROJECT SUMMARY

Authorized Development (see above)	**Hours:**	
Preliminary Estimated Development for Future Phases	**Hours:**	
Grand Total Estimated Development	**Hours: 800**	**Cost: $ 132,000**

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PROJECT COMPLETION AUTHORIZATION

Customer Acceptance of Product:	
Title:	Date:
Project Office Review:	Date:

Application Development Budget - Size Estimate (+/- 10% to 50%) (Read-Only)

	Type	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	**3**	**000000**	**Program Management**	**800**	
4	**Phase**	**001000**	**Research and Development**	**0**	
5				800	

Oakland County -- Application Development Program Budget

As Of: 09/06/2018

Return on Investment Analysis

Project Summary

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Benefits/Savings:							
Tangible Benefits Subtotal:	0	0	0	0	0	0	0
Cost Avoidance Subtotal:	0	0	0	0	0	0	0
Costs:							
Development Services Subtotal:	66,000	66,000	0	0	0	0	132,000
Hardware Subtotal:	0	0	0	0	0	0	0
Software Subtotal:	0	0	0	0	0	0	0
Infrastructure Subtotal	0	0	0	0	0	0	0
Training Subtotal:	0	0	0	0	0	0	0
Other Subtotal:	0	0	0	0	0	0	0
Annual Statistics:							
Annual Total Savings	0	0	0	0	0	0	0
Annual Total Costs	66,000	66,000	0	0	0	0	132,000
Annual Return on Investment	(66,000)	(66,000)					(132,000)
Annual Costs/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Project Cumulative Statistics:							
Cumulative Total Savings	0	0	0	0	0	0	0
Cumulative Total Costs	66,000	132,000	132,000	132,000	132,000	132,000	132,000
Cumulative Return on Investment	(66,000)	(132,000)	(132,000)	(132,000)	(132,000)	(132,000)	(132,000)
Cumulative Cost/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Year Positive Payback Achieved							NO PAYBACK
State or Federal Mandate?							
Signatures:							
Benefits Reviewed By Project Sponsor				Date:			
Costs (including IT Resources) Reviewed By Information Technology Project Manager				Date:			

REV: May 21, 2018

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Annual Multiplier
Reuseable Code will allow for improved efficiency of development	Intangible Benefit					0	
Standards created for consistency between applications will allow for more support coverage within the team & mitigate risk associated with undocumented process	Intangible Benefit					0	
Performance analysis will reduce maintenance and support to application performance	Intangible Benefit					0	
Understanding the opportunity of future business use will improve service to our customers	Intangible Benefit					0	
Research will help us keep abreast of current technology practices to keep our practices up to date	Intangible Benefit					0	
Research will help us determine best practices in application development techniques to ensure our development platform remains consistent with current mobile development strategies	Intangible Benefit					0	
Automation research and PowerShell development will assist with consistency and save effort from automating repeatable tasks	Intangible Benefit					0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI? Y1	Y2	Y3	Y4	Y5	Y6	Potential Savings Extensions Y1	Y2	Y3	Y4	Y5	Y6
Reuseable Code will allow for improved efficiency of development	Intangible Benefit												
Standards created for consistency between applications will allow for more support coverage within the team & mitigate risk associated with undocumented process	Intangible Benefit												
Performance analysis will reduce maintenance and support to application performance	Intangible Benefit												
Understanding the opportunity of future business use will improve service to our customers	Intangible Benefit												
Research will help us keep abreast of current technology practices to keep our practices up to date	Intangible Benefit												
Research will help us determine best practices in application development techniques to ensure our development platform remains consistent with current mobile development strategies	Intangible Benefit												
Automation research and PowerShell development will assist with consistency and save effort from automating repeatable tasks	Intangible Benefit												

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Savings Summary

	Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Tangible Benefit:								
	Tangible Benefits Subtotal:							
Cost Avoidance:								
	Cost Avoidance Subtotal:							
Intangible Benefit:								
	Reuseable Code will allow for improved efficiency of development							
	Standards created for consistency between applications will allow for more support coverage within the team & mitigate risk associated with undocumented process							
	Performance analysis will reduce maintenance and support to application performance							
	Understanding the opportunity of future business use will improve service to our customers							
	Research will help us keep abreast of current technology practices to keep our practices up to date							
	Research will help us determine best practices in application development techniques to ensure our development platform remains consistent with current mobile development strategies							
	Automation research and PowerShell development will assist with consistency and save effort from automating repeatable tasks							

Oakland County -- Application Development Program Budget

Return on Investment Analysis

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
IT Hours - New Development	Development Svcs			400	165	66,000		X	X				
IT Hours - System Maintenance	Development Svcs				165	0							
IT Hours - Customer Support	Development Svcs				165	0							
IT Hours - Planned Maintenance	Development Svcs				165	0							
User Hours - New Development	Development Svcs					0							
User Hours - PTNE/OT	Development Svcs					0							
Contractor Professional Services	Development Svcs					0							
PC System - Acquisition	Hardware				687	0							
PC System - Maintenance	Hardware				2,936	0							
Notebook - Acquisition	Hardware				1,115	0							
Notebook - Maintenance	Hardware				3,024	0							
Tablet Notebook - Acquisition	Hardware				1,421	0							
Tablet Notebook - Maintenance	Hardware				2,800	0							
Laserprinter - Acquisition	Hardware				1,432	0							
Laserprinter - Maintenance	Hardware				1,408	0							
PC Maintenance User Owned	Hardware				2,720	0							
Printer Maintenance User Owned	Hardware				1,264	0							
File Space (100GB)	Hardware		ANN		23	0							
Package Software - Acquisition	Software					0							
Package Software - Maintenance	Software					0							
Business Objects Access	Software					0							
Term Emulation SFTW-Acquisition	Software					0							
Term Emulation SFTW-Maintenance	Software					0							
Server - Acquisition/Upgrade	Infrastructure				8,000	0							
Server - Maintenance	Infrastructure				360	0							
Server Sftwre - Acquisition/Upgrade	Infrastructure				335	0							
Server Sftwre - Maintenance	Infrastructure					0							
Server Rack Mount	Infrastructure				400	0							
Oracle Enterprise Per Processor - Includes Year 1 Maintenance	Infrastructure				21,372	0							
Oracle Enterprise Per Processor - Year 2 and Beyond	Infrastructure				3,432	0							
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure				24,533	0							

Oakland County -- Application Development Program Budget

Return on Investment Analysis

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
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure				20,759	0							
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure				16,985	0							
SQL Server Enterprise - Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure				4,218	0							
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure				6,398	0							
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure				5,414	0							
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure				4,429	0							
SQL Server - Standard Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure				1,100	0							
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				3,506	0							
Websphere Basic Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				701	0							
Websphere ND Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				13,180	0							
Websphere ND Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				2,635	0							
SSL Certificate	Infrastructure				845	0							

Oakland County -- Application Development Program Budget

Return on Investment Analysis

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
Internet Access	Infrastructure				180	0							
Imperva Web Application Firewall (External Web Applications Only)	Infrastructure		ANN		500	0							
App Code Directories on Consolidated IIS Server (Virtual)	Infrastructure		ANN		415	0							
Database (5 GB) on Consolidated SQL Instance Server	Infrastructure		ANN		930	0							
Database Instance (125 GB DB) on Consolidated SQL Server	Infrastructure		ANN		2,395	0							
Database SQL Maint Server	Infrastructure		ANN		834	0							
Database SQL Server Physical	Infrastructure		ANN		19,158	0							
DB Maintenance (Annual Cycle $610)	Infrastructure		ANN		610	0							
DB Maintenance (Semi-Annual Cycle $1220)	Infrastructure		ANN		1,220	0							
DB Maintenance (Semi-Annual Cycle $2440)	Infrastructure		ANN		2,440	0							
Dedicated Virtual Server	Infrastructure		ANN		4,150	0							
DB Instance Setup	Infrastructure				976	0							
DBA MS SQL Database Creation on Exisitng Instance	Infrastructure				366	0							
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $601 On Premise Physical Server = N/A	Infrastructure		ANN			0							
Small - 4 Core 16GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $951 On Premise Physical Server = $9,288	Infrastructure		ANN			0							
Medium - 8 Core 32GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $1,702 On Premise Physical Server = $9,751	Infrastructure		ANN			0							
Large - 16 Core 64GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $3,167 On Premise Physical Server = $10,446	Infrastructure		ANN			0							

Oakland County -- Application Development Program Budget

Return on Investment Analysis

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
Extra Large - 40 Core 160GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $7,564 On Premise Physical Server = $12,906	Infrastructure		ANN			0							

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs	66,000.00	66,000.00				
IT Hours - System Maintenance	Development Svcs						
IT Hours - Customer Support	Development Svcs						
IT Hours - Planned Maintenance	Development Svcs						
User Hours - New Development	Development Svcs						
User Hours - PTNE/OT	Development Svcs						
Contractor Professional Services	Development Svcs						
PC System - Acquisition	Hardware						
PC System - Maintenance	Hardware						
Notebook - Acquisition	Hardware						
Notebook - Maintenance	Hardware						
Tablet Notebook - Acquisition	Hardware						
Tablet Notebook - Maintenance	Hardware						
Laserprinter - Acquisition	Hardware						
Laserprinter - Maintenance	Hardware						
PC Maintenance User Owned	Hardware						
Printer Maintenance User Owned	Hardware						
File Space (100GB)	Hardware						
Package Software - Acquisition	Software						
Package Software - Maintenance	Software						
Business Objects Access	Software						
Term Emulation SFTW-Acquisition	Software						
Term Emulation SFTW-Maintenance	Software						
Server - Acquisition/Upgrade	Infrastructure						
Server - Maintenance	Infrastructure						
Server Sftwre - Acquisition/Upgrade	Infrastructure						
Server Sftwre - Maintenance	Infrastructure						
Server Rack Mount	Infrastructure						
Oracle Enterprise Per Processor - Includes Year 1 Maintenance	Infrastructure						
Oracle Enterprise Per Processor - Year 2 and Beyond	Infrastructure						
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure						

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server Enterprise - Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure						
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server - Standard Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure						
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure						
Websphere Basic Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure						
Websphere ND Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure						
Websphere ND Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure						
SSL Certificate	Infrastructure						

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
Internet Access	Infrastructure						
Imperva Web Application Firewall (External Web Applications Only)	Infrastructure						
App Code Directories on Consolidated IIS Server (Virtual)	Infrastructure						
Database (5 GB) on Consolidated SQL Instance Server	Infrastructure						
Database Instance (125 GB DB) on Consolidated SQL Server	Infrastructure						
Database SQL Maint Server	Infrastructure						
Database SQL Server Physical	Infrastructure						
DB Maintenance (Annual Cycle $610)	Infrastructure						
DB Maintenance (Semi-Annual Cycle $1220)	Infrastructure						
DB Maintenance (Semi-Annual Cycle $2440)	Infrastructure						
Dedicated Virtual Server	Infrastructure						
DB Instance Setup	Infrastructure						
DBA MS SQL Database Creation on Exisitng Instance	Infrastructure						
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $601 On Premise Physical Server = N/A	Infrastructure						
Small - 4 Core 16GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $951 On Premise Physical Server = $9,288	Infrastructure						
Medium - 8 Core 32GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $1,702 On Premise Physical Server = $9,751	Infrastructure						
Large - 16 Core 64GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $3,167 On Premise Physical Server = $10,446	Infrastructure						

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
Extra Large - 40 Core 160GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $7,564 On Premise Physical Server = $12,906	Infrastructure						

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Cost Summary

	Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development Services:								
	IT Hours - New Development	66,000	66,000					132,000
	IT Hours - System Maintenance							
	IT Hours - Customer Support							
	IT Hours - Planned Maintenance							
	User Hours - New Development							
	User Hours - PTNE/OT							
	Contractor Professional Services							
	Development Services Subtotal:	***66,000***	***66,000***					***132,000***
Hardware:								
	Hardware Subtotal:							
Software:								
	Software Subtotal:							
Infrastructure:								
	Infrastructure Subtotal							
Training:								
	Training Subtotal:							
Other:								
	Other Subtotal:							
Costs Total:		***66,000***	***66,000***					***132,000***

Oakland County -- Application Development Program Budget

Return on Investment Analysis

Assumptions

Date	Assumption Description
06-Sep-18	Reduction of project hours from 1,300 to 800.