Oakland County
Department of Information Technology
Project Scope and Approach

Project Name: GIS Enterprise Program (2023-24) **Project ID: D13182GB**

Leadership Group: Land					
Department: Information Technology			**Division:** Application Services		
Project Sponsor: Mike Timm		**Date Requested**: 3/15/2022		**PM Customer No.** 182	
Request Type:	***New Development X***	***Enhancement***	***Customer Support***		
	Planned System Maintenance or Upgrade				
IT Team Name: Infrastructure and GIS			**IT Team No**: 1		
Project Manager/Leader: Susan Moore					
Account Number:	17321	**Account Description:**	Enterprise GIS Fund	**Customer Name:**	Application Services
Grant Funded? Yes	**No** X		**Mandate?**	**Yes**	**No** X
			Mandate Source:		

Project Goal

To provide a progressive, location-based solution so that informed decision making is promoted, citizen services are improved, and collaboration across all levels of government is encouraged.

Business Objective

To expand Oakland County's location-based services to reach anyone, at any time, from anywhere.

To create and sustain innovative partnerships and collaboration opportunities.

To strategically implement and promote focused, location-based services to facilitate citizen access to information.

Major Deliverables

Examples include:

- Expanded use of spatial technologies by County departments and local cities, villages, and townships (CVTs).
    - Meet with additional County departments regarding spatial location, providing sample applications relevant to their business use ("roadshows").
    - Coordinate GIS "industry parties", the goal of which is for County and CVT staff with similar business processes to learn about, and collaborate on, GIS solutions.
    - Provide new, or enhancements to existing, solutions for roadshows and industry parties.
    - Track contact with CVTs with a centralized system
- Campus Locator application for citizens to use when navigating the County campus.

- Research and evaluation regarding Oakland County's participation in national and regional programs.
- GIS Data Distribution Workflow improvements
    - Create GIS data availability reports.
    - Create workflow, and potentially application, for identification and distribution of sensitive data.

Approach

- Develop Detailed Project Plans, as Needed
- Review Current Business Processes
- Document Business Requirements
- Research New Collaboration Opportunities, and Evaluate their Value
- Document Data Policy Changes
- Assess Hardware and Software Requirements
- Develop Implementation Plans
- Develop New Systems/Data
- Develop User Acceptance Test Plans
- Test New System/Data
- Develop User Training
- Develop User Documentation, SLA, Disaster Recovery Toolkit, Service Center Knowledge Documents
- Train/Notify Users of New System/Data
- Conduct Change Control
- Release New System/Data into Production

Business Objective

To foster a sustainable technological environment for Oakland County location-based services.

To leverage accurate and current location-based data to support decision making in Oakland County.

Major Deliverables

Examples include:

- New products derived from imagery, such as impervious surface or other feature extraction.
- New map caches using vector (rather than raster) tile format.
- Evaluation of new, relevant GIS technologies as they become available.
- New, or enhanced, enterprise GIS datasets, as they are requested.
- Expose additional customer data to make it available for analysis and decision-making by a larger group.
- Enhance GIS enterprise data maintenance and publishing workflows, as needed.
- Implement new functionality offered by ArcGIS Online during the scheduled quarterly releases.
- Improved administration of the County's ArcGIS Online account.
    - Create scripts to automate tasks.
    - Document standards and best practices.

- Consumption of additional Esri Marketplace applications within the County's ArcGIS Online Organization account to further refine administrative functions and end user experience.

Approach

- Develop Detailed Project Plans, as Needed
- Document Research Findings
- Share Research Findings at GIS Meetings.
- Review Current Business Process
- Conduct Needs Assessment with Customer
- Document Business Requirements
- Negotiate terms of contracts/SLAs with Vendors and Partners, as Needed
- Create Presentation for Board of Commissioners, as Needed
- Document Data Model Design and System Requirements
- Document System Architecture
- Determine and Document Automation/Conversion
- Assess Hardware and Software Requirements
- Develop Implementation Plan
- Develop New System/Data
- Develop User Acceptance Test Plan
- Test New System/Data
- Acquire User Acceptance Sign-Off
- Develop User Training
- Develop User Documentation, SLA, Disaster Recovery Toolkit, Service Center Knowledge Documents
- Train/Notify Users of New System/Data
- Conduct Change Control
- Release New System/Data into Production

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Research & Analysis

Gartner Research – N/A

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users Unlimited

Divisions All geospatial data and application consumers

Leadership Groups Land

Risk

Business Environment Medium - Project will require some changes to existing business processes.

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

Assumptions

Staffing IT Staffing: resources will be available for the hours indicated per the attached project plan.

Other Staffing: additional staffing will be available as follows:

Role:	Name	Hours per Day
Project Sponsor:	Mike Timm	As needed.

Project Name: GIS Enterprise Program (2023-24) **Project ID: D13182GB**

Facilities

- None

Technical

- No additional hardware purchases will be required specifically for this work.

Funding

- Funded

Other

- None

Priority

- TBD

Constraints

- None

Exclusions

- None

Oakland County
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Project Name: GIS Enterprise Program (2023-24) **Project ID: D13182GB**

PROJECT PHASE AUTHORIZATION

Phase(s): **All**	
Total Estimated Application Services **Hours: 4780**	
Total Estimated Technical Systems **Hours: 20**	
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: 4800**	
Preliminary Estimated Development for Future Phases	**Hours:**	
Grand Total Estimated Development	**Hours: 4800**	**Cost: $792,000**

Oakland County
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Project Name: GIS Enterprise Program (2023-24) **Project ID: D13182GB**

PROJECT COMPLETION AUTHORIZATION

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

GIS Enterprise Program (2023-24) - Size Estimate (+/- 10% to 50%)

	Type	ID	Task Name	Estimated
2				Hours
3	3	000000	GIS Enterprise Program	4,800
4				4,800

D13182GB

Oakland County -- GIS Enterprise Program (2023-24)

Return on Investment Analysis

Date: 02/02/2022

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:	396,000	396,000	0	0	0	0	792,000
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	396,000	396,000	0	0	0	0	792,000
Annual Return on Investment	(396,000)	(396,000)					(792,000)
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	396,000	792,000	792,000	792,000	792,000	792,000	792,000
Cumulative Return on Investment	(396,000)	(792,000)	(792,000)	(792,000)	(792,000)	(792,000)	(792,000)
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: March 27, 2020

Oakland County -- GIS Enterprise Program (2023-24)

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
Expanding the user base to even more County departments and CVTs further leverages our current investment of GIS technology and data.						0	
Improved AGO administration facilitates use of the product by providing clear, easy-to-follow guidelines.						0	
Improved data modeling can streamline GIS data maintenance and improve data accuracy.						0	
Public engagement improves transparency, effectiveness and decision making.						0	
Vector caching format improves user experience with faster panning and the ability to zoom in to a lower level.						0	
Creating opportunies for CVTs and Departments to work together (e.g., "industry parties") encourages collaboration and discussion directly among the relevant staff.						0	
Creating new imagery products such as impervious surface and other feature extraction assists customers such as WRC, ED and Health with analysis.						0	
						0	
						0	
						0	
						0	
						0	

Oakland County -- GIS Enterprise Program (2023-24)

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
Expanding the user base to even more County departments and CVTs further leverages our current investment of GIS technology and data.													
Improved AGO administration facilitates use of the product by providing clear, easy-to-follow guidelines.													
Improved data modeling can streamline GIS data maintenance and improve data accuracy.													
Public engagement improves transparency, effectiveness and decision making.													
Vector caching format improves user experience with faster panning and the ability to zoom in to a lower level.													
Creating opportunies for CVTs and Departments to work together (e.g., "industry parties") encourages collaboration and discussion directly among the relevant staff.													
Creating new imagery products such as impervious surface and other feature extraction assists customers such as WRC, ED and Health with analysis.													

Oakland County -- GIS Enterprise Program (2023-24)

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:								
	Expanding the user base to even more County departments and CVTs further leverages our current investment of GIS technology and data.							
	Improved AGO administration facilitates use of the product by providing clear, easy-to-follow guidelines.							
	Improved data modeling can streamline GIS data maintenance and improve data accuracy.							
	Public engagement improves transparency, effectiveness and decision making.							
	Vector caching format improves user experience with faster panning and the ability to zoom in to a lower level.							
	Creating opportunies for CVTs and Departments to work together (e.g., "industry parties") encourages collaboration and discussion directly among the relevant staff.							
	Creating new imagery products such as impervious surface and other feature extraction assists customers such as WRC, ED and Health with analysis.							
Savings Total:								

Oakland County -- GIS Enterprise Program (2023-24)

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		HR	4,800	165	792,000	1.015	x	x				
IT Hours - System Maintenance	Development Svcs		HR	50	165	8,250							
IT Hours - Customer Support	Development Svcs		HR	100	165	16,500							
IT Hours - Planned Maintenance	Development Svcs		HR	50	165	8,250							
User Hours - New Development	Development Svcs												
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 Software Purchase - Per Processor (4 Cores) - Requires Annual Support Below	Infrastructure				42,280	0							
Oracle Enterprise Software Support - Per Processor (4 Cores)	Infrastructure				9,293	0	1.030						

Oakland County -- GIS Enterprise Program (2023-24)

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 Software Purchase - Per Processor (4 cores) - Purchased Sept 2019-Aug 2020 - Includes Support thru Aug 2022	Infrastructure				16,985	0							
SQL Server Enterprise Software Purchase - Per Processor (4 cores) - Purchased Sept 2020-Aug 2021 - Includes Support thru Aug 2022	Infrastructure				12,724	0							
SQL Server Enterprise Software Purchase - Per Processor (4 cores) - Purchased Sept 2021-Aug 2022 - Includes Support thru Aug 2022	Infrastructure				8,463	0							
SQL Server Enterprise - Support, Per Processor (4 cores) - Sept 2022 and Beyond	Infrastructure				4,261	0							
SQL Server Standard Software Purchase - Per Processor (4 cores) - Purchased Sept 2019-Aug 2020 - Includes Support thru Aug 2022	Infrastructure				4,429	0							
SQL Server Standard Software Purchase - Per Processor (4 cores) - Purchased Sept 2020-Aug 2021 - Includes Support thru Aug 2022	Infrastructure				3,317	0							
SQL Server Standard Software Purchase - Per Processor (4 cores) - Purchased Sept 2021-Aug 2022 - Includes Support thru Aug 2022	Infrastructure				2,205	0							
SQL Server - Standard Support, Per Processor (4 cores) - Sept 2022 and Beyond	Infrastructure				1,112	0							
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				3,506	0							

Oakland County -- GIS Enterprise Program (2023-24)

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
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							
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							
Dedicated Virtual Server	Infrastructure		ANN		4,150	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 -- GIS Enterprise Program (2023-24)

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 -- GIS Enterprise Program (2023-24)

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	396,000.00	396,000.00				
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 Software Purchase - Per Processor (4 Cores) - Requires Annual Support Below	Infrastructure						
Oracle Enterprise Software Support - Per Processor (4 Cores)	Infrastructure						

Oakland County -- GIS Enterprise Program (2023-24)

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
SQL Server Enterprise Software Purchase - Per Processor (4 cores) - Purchased Sept 2019-Aug 2020 - Includes Support thru Aug 2022	Infrastructure						
SQL Server Enterprise Software Purchase - Per Processor (4 cores) - Purchased Sept 2020-Aug 2021 - Includes Support thru Aug 2022	Infrastructure						
SQL Server Enterprise Software Purchase - Per Processor (4 cores) - Purchased Sept 2021-Aug 2022 - Includes Support thru Aug 2022	Infrastructure						
SQL Server Enterprise - Support, Per Processor (4 cores) - Sept 2022 and Beyond	Infrastructure						
SQL Server Standard Software Purchase - Per Processor (4 cores) - Purchased Sept 2019-Aug 2020 - Includes Support thru Aug 2022	Infrastructure						
SQL Server Standard Software Purchase - Per Processor (4 cores) - Purchased Sept 2020-Aug 2021 - Includes Support thru Aug 2022	Infrastructure						
SQL Server Standard Software Purchase - Per Processor (4 cores) - Purchased Sept 2021-Aug 2022 - Includes Support thru Aug 2022	Infrastructure						
SQL Server - Standard Support, Per Processor (4 cores) - Sept 2022 and Beyond	Infrastructure						
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure						

Oakland County -- GIS Enterprise Program (2023-24)

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
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						
Internet Access	Infrastructure						
Imperva Web Application Firewall (External Web Applications Only)	Infrastructure						
App Code Directories on Consolidated IIS Server (Virtual)	Infrastructure						
Dedicated Virtual Server	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 -- GIS Enterprise Program (2023-24)

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 -- GIS Enterprise Program (2023-24)

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	396,000	396,000					792,000
	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:	***396,000***	***396,000***					***792,000***
Hardware:								
	Hardware Subtotal:							
Software:								
	Software Subtotal:							
Infrastructure:								
	Infrastructure Subtotal							
Training:								
	Training Subtotal:							
Other:								
	Other Subtotal:							
Costs Total:		***396,000***	***396,000***					***792,000***

Oakland County -- GIS Enterprise Program (2023-24)

Return on Investment Analysis

Assumptions

Date	Assumption Description
01-Feb-22	Most of the work done in the Enterprise Program is to enable others (Depts/CVTs/RCOC) to make better decisions, become more efficient, etc., making it challenging to attribute cost avoidance or tangible savings directly to the GIS Enterprise Program.
09-May-22	Assuming 50 hrs/year increase in system maintenace and planned maint, and 100 hrs/year for customer support.