Oakland County
Department of Information Technology
Project Scope and Approach

Project Name: IoT Services Network   **Project ID: TP3186IT**

Leadership Group: IT Steering Committee	
Department: Information Technology	**Division: Technical Systems & Networking**
Project Sponsor: EJ Widun	**Date Requested: 4/13/22** **PM Customer No. 186**

Request Type: _**New Development**_   _**Enhancement**_   _**Customer Support**_
**Planned System Maintenance or Upgrade**

IT Team Name: Network Services	**IT Team No: P**
Project Manager/Leader: Jerry Cadreau	

Account Number:	17030	**Account Description:**	Technical Systems & Networking	**Customer Name:**	Information Technology

Grant Funded?   Yes   **No**   **Mandate?**   Yes   **No**

Mandate Source:

Project Goal

To implement an Internet of Things services (IoT) network on existing wireless and wired infrastructure so that County departments can deploy IoT devices in a secured, approved configuration.

Business Objective

Major Deliverables
IoT network requirements document
ISE requirements document
Implemented IoT network
Migrated current IoT devices to new network
Approved process for adding future IoT items to network

Approach
Gather requirements for IoT network
Gather requirements for ISE configuration
Meet with owners of existing IoT devices
Confirm existing IoT devices will work on new network
Migrate existing IoT devices to new network
Test / confirm
Create process for future IoT devices to be added to network
Steering Committee review / approval of new process

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Research & Analysis

IT Research & Advisory Services Recommendation (select one)

- Research not Required

- Research Conducted – Nothing Found.

- Research Conducted – See recommendation below (enter short paragraph).

- Research Conducted – See summary recommendation below and detail information attached to the project in Clarity.

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users   **Approximately 50 IoT devices**

Divisions   **All**

Leadership Groups All

Risk

Business Environment   **Low** Little or no impact 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:	EJ Widun	As Needed

Project Name: IoT Services Network   **Project ID: TP3186IT**

Facilities

-

-

Technical

-

-

Funding

- Information Technology

Other

-

Priority   TBD

Constraints

-

-

Exclusions

-

-

Oakland County
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PROJECT PHASE AUTHORIZATION

Phase(s): All		
Total Estimated Application Services **Hours: 105**		
Total Estimated Technical Systems **Hours: 1,940**		
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: 2,045**	
Previously Authorized Development **Hours:**	
Preliminary Estimated Development for Future Phases **Hours:**	
Grand Total Estimated Development **Hours: 2,045 Cost: $337,425**	

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PROJECT COMPLETION AUTHORIZATION

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

IoT Services Network - Size Estimate (+/- 10% to 50%)

Type	ID	Task Name	Estimated Hours	Estimate Notes
Phase	000000	PROJECT MANAGEMENT	465	
Phase	200000	DEFINE BUSINESS REQUIREMENTS	170	
Phase	300000	DESIGN SYSTEM ARCHITECTURE	140	
Phase	600000	IMPLEMENTATION PHASE	1,110	
Phase	800000	POST IMPLEMENTATION SUPPORT	160	
			2,045	

Oakland County -- IoT Services Network

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:	337,425	0	0	0	0	0	337,425
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	337,425	0	0	0	0	0	337,425
Annual Return on Investment	(337,425)						(337,425)
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	337,425	337,425	337,425	337,425	337,425	337,425	337,425
Cumulative Return on Investment	(337,425)	(337,425)	(337,425)	(337,425)	(337,425)	(337,425)	(337,425)
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:			

Oakland County -- IoT Services Network

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
						0	
Increased Security from separate network for IoT devices	Intangible Benefit					0	
Increased security and stability from reviewing new devices prior to being added to network	Intangible Benefit					0	
						0	
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Oakland County -- IoT Services Network

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Increased Security from separate network for IoT devices	Intangible Benefit												
Increased security and stability from reviewing new devices prior to being added to network	Intangible Benefit												

Oakland County -- IoT Services Network

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:							
Increased Security from separate network for IoT devices							
Increased security and stability from reviewing new devices prior to being added to network							
Savings Total:							

Oakland County -- IoT Services Network

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			2,045	165	337,425	1.015	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				639	0							
PC System - Maintenance	Hardware				3,352	0							
Laptop - Acquisition	Hardware				922	0							
Laptop - Maintenance	Hardware				3,352	0							
Tablet Notebook - Acquisition	Hardware				1,069	0							
Tablet Notebook - Maintenance	Hardware				3,352	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							
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						
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							

Oakland County -- IoT Services Network

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 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				3,769	0							
Websphere Basic Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				754	0							
Websphere ND Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				14,170	0							
Websphere ND Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				2,835	0							
SSL Certificate	Infrastructure				910	0							

Oakland County -- IoT Services Network

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				190	0							
Imperva Web Application Firewall (External Web Applications Only)	Infrastructure		ANN		500	0							
App Code Directories on Consolidated IIS Server (Virtual)	Infrastructure		ANN		446	0							
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $601 On Premise Physical Server = $2,735	Infrastructure		ANN			0							
Small - 4 Core 16GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $951 On Premise Physical Server = $3,057	Infrastructure		ANN			0							
Medium - 8 Core 32GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $1,702 On Premise Physical Server = $8,715	Infrastructure		ANN			0							
Large - 16 Core 64GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $3,167 On Premise Physical Server = $10,758	Infrastructure		ANN			0							
Extra Large - 40 Core 192GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $7,564 On Premise Physical Server = $24,137	Infrastructure		ANN			0							

Oakland County -- IoT Services Network

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	337,425.00					
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						
Laptop - Acquisition	Hardware						
Laptop - Maintenance	Hardware						
Tablet Notebook - Acquisition	Hardware						
Tablet Notebook - Maintenance	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						
Oracle Enterprise Software Purchase - Per Processor (4 Cores) - Requires Annual Support Below	Infrastructure						
Oracle Enterprise Software Support - Per Processor (4 Cores)	Infrastructure						
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						

Oakland County -- IoT Services Network

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 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						
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 -- IoT Services Network

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						
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $601 On Premise Physical Server = $2,735	Infrastructure						
Small - 4 Core 16GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $951 On Premise Physical Server = $3,057	Infrastructure						
Medium - 8 Core 32GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $1,702 On Premise Physical Server = $8,715	Infrastructure						
Large - 16 Core 64GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $3,167 On Premise Physical Server = $10,758	Infrastructure						
Extra Large - 40 Core 192GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $7,564 On Premise Physical Server = $24,137	Infrastructure						

Oakland County -- IoT Services Network

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	337,425						337,425
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:	**337,425**						**337,425**
Hardware:							
Hardware Subtotal:							
Software:							
Software Subtotal:							
Infrastructure:							
Infrastructure Subtotal							
Training:							
Training Subtotal:							
Other:							
Other Subtotal:							
Costs Total:	**337,425**						**337,425**

Oakland County -- IoT Services Network

Return on Investment Analysis

Assumptions

Date	Assumption Description