Oakland County
Department of Information Technology
Project Scope and Approach

Project Name: Wireless LAN Redundancy **Project ID: TP0186WR**

Leadership Group: Information Technology Steering Committee			
Department: Information Technology		**Division:** Technical Systems and Networking	
Project Sponsor: Mike Timm	**Date Requested: 5/18/20**	**PM Customer No. 186**	
Request Type: New Development			
IT Team Name: Network Services		**IT Team No:** P	
Project Manager/Leader: Jerry Cadreau			
Account Number: 17030	**Account Description:** Information Technology	**Customer Name:**	Information Technology
Grant Funded? No		**Mandate?** No **Mandate Source:**	

Project Goal

To provide LAN connection redundancy to command and control, Leadership and Security/Safety areas of the County so that network connection can be maintain if the primary connection is unavailable.

Business Objective

To complete a Request for Proposal (RFP) to select a vendor to provide the needed hardware and software for the wireless redundancy system.

Major Deliverables

- Requirements document
- RFP
- Signed contract
- Negotiated Statement of Work

Approach

- Research previous firewall projects and leverage their historical information.
- Meet with stakeholders
- Create requirements documents
- Create and release RFP
- Create vendor shortlist
- Review demos
- Grade responses and select vendor
- Create SOW and get have contracted reviewed by Corp Counsel

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Business Objective

To implement the wireless LAN redundancy

Major Deliverables

- EA/InfoSEC approved System Design Document
- Implemented and tested Wireless LAN Redundancy
- Test Plan
- System documentation

Approach

- Work with vendor to create design document
- Review with InfoSEC and EA
- Consult with the teams and vendor to review the test plan.
- Implement backup system at sites
- Test backup solution

Research & Analysis

Gartner Research Recommendation Research Conducted

Many organizations have both wired LAN and WLAN connectivity to end devices, resulting in complexity to manage, increased switch port density and cabling to the desktop
IEEE 802.11ac Wave1 (1.3 Gbps), Wave 2 (6.9 Gbps) and 802.11ax (10 Gbps) wireless access points can all support more than the 1 Gigabit Ethernet performance of a wired switch port. While most laptops, smartphones and tablets expect wireless as the first connectivity in the enterprise, WLANs should increasingly be considered for primary LAN connectivity for more use cases, rather than only for mobility purposes. For example, leveraging softphones and voice over WLAN (VoWLAN) will further utilize the value of WLANs.
In addition to all corporate devices, IoT will primarily use wireless for enterprise connectivity. For organizations that are evaluating a WLAN-first strategy, see the recommendations below.
Recommendations:
■ Deploy WLAN as the main source of LAN connectivity using a wired connection as the "exception" rather than the rule. Save money on deploying cable to the desktop, especially for greenfield deployments. If needed, deploy cable only for limited, mission-critical areas or specifically defined use cases.
■ Make the upgrade to primarily WLAN when there is a LAN switch refresh or evaluate upgrading cabling from Cat 5. Using primarily WLAN will reduce switching expenses and reduce the need to upgrade cabling. Specify campus switches with 802.3bz ports to enable the use of existing Cat 5e, Cat 6 or better cabling for multigigabit links.
■ Use the automation tools for discover, identification, provisioning, security and monitoring to require less support for campus layer connectivity.
■ Create an enterprise policy that ensures minimum and consistent signal strength and signal/ noise in the desired covered areas when primarily using WLAN.

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Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users Approximately 1,500 staff members at 7 buildings.

Divisions Courts, Prosecutor's Office, Treasurer's Office, Information Technology, Executive, Facilities / Safety, Sheriff.

Leadership Groups Information Technology Steering Committee

Risk

Business Environment **Low** – Little or no impact to existing business processes

Technical Environment **Low** – Proven and previously implemented technologies

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
Chief of Network Services:	Guy Compton	As Needed
CTO / EA Stakeholder:	EJ Widun	As needed
Internal Services Stakeholder:	Janette McKenna	As Needed
App Services Stakeholder:	Tammi Shepherd	As Needed
CLEMIS Stakeholder:	Jeff Nesmith	As Needed

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Facilities

- Executive Office Building – Command and Control / Leadership – 41 West
- Sheriff Admin Building – Security / Safety – 38 East
- Jail and Law Enforcement Complex – Security / Safety - 10 East
- Public Works Building – Safety – 95 West
- Administrative Annex I – Safety / Security – 47 West
- Information Technology – Control – 49 West
- Court House Complex – Command and Control – 12 East and 14 East

Technical

- None

Funding

- Information Technology

Other

- Not Applicable

Priority

Constraints

- Not Applicable

Exclusions

- Rooms with no expectation of business work (Storage closets, mechanical rooms, rest rooms, etc..) are not included in the scope of Wi-Fi expansion.

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PROJECT PHASE AUTHORIZATION

Phase(s): Project Management and Wireless LAN Redundancy		
Total Estimated Application Services	**Hours: 50**	
Total Estimated Technical Systems	**Hours: 1,253**	
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: 1,303**	
Preliminary Estimated Development for Future Phases	**Hours:**	
Grand Total Estimated Development	**Hours: 1,303**	**Cost: $ 214,995**

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PROJECT COMPLETION AUTHORIZATION

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

Wireless LAN Redundancy - Size Estimate (+/- 10% to 50%)

	Type	ID	Task Name	Estimated Hours	Estimate Notes
1	Phase	000000	PROJECT MANAGEMENT	298	
2	Phase	100000	DEVELOP RFP & SELECT VENDOR	370	
3	Phase	200000	DEFINE BUSINESS REQUIREMENTS		
4	Phase	300000	DESIGN SYSTEM ARCHITECTURE	200	
5	Phase	400000	IMPLEMENT VENDOR APPLICATION		
6	Phase	500000	IMPLEMENTATION PHASE	345	
7	Phase	600000	POST IMPLEMENTATION SUPPORT	90	
8					
1				1,303	

Oakland County -- Wireless LAN Redundancy

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:	214,995	9,900	6,600	9,900	6,600	9,900	257,895
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	214,995	9,900	6,600	9,900	6,600	9,900	257,895
Annual Return on Investment	(214,995)	(9,900)	(6,600)	(9,900)	(6,600)	(9,900)	(257,895)
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	214,995	224,895	231,495	241,395	247,995	257,895	257,895
Cumulative Return on Investment	(214,995)	(224,895)	(231,495)	(241,395)	(247,995)	(257,895)	(257,895)
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: _____						

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Return on Investment Analysis
Savings Detail

Benefit/Savings Description		Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Annual Multiplier
Provide backup network connectivity for voice and data to key command and control and security and safety sites.	Intangible Benefit						
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	

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Return on Investment Analysis
Savings Detail

Benefit/Savings Description		Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Provide backup network connectivity for voice and data to key command and control and security and safety sites.	Intangible Benefit												

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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:								
	Provide backup network connectivity for voice and data to key command and control and security and safety sites.							
Savings Total:								

Oakland County -- Wireless LAN Redundancy

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	Development Svcs			1,303	165	214,995	1.000	X					
IT Hours - System Maintenance	Development Svcs			20	165	3,300	1.000		X	X	X	X	X
IT Hours - Customer Support	Development Svcs			20	165	3,300	1.000		X	X	X	X	X
IT Hours - Planned Maintenance	Development Svcs			20	165	3,300	1.000		X		X		X
User Hours - New Development	Development Svcs					0							
User Hours - PTNE/OT	Development Svcs					0							
PC System - Acquisition	Hardware				814	0							
PC System - Maintenance	Hardware				2,304	0							
Notebook - Acquisition	Hardware				1,223	0							
Notebook - Maintenance	Hardware				2,372	0							
Tablet Notebook - Acquisition	Hardware				2,012	0							
Tablet Notebook - Maintenance	Hardware					0							
Laserprinter - Acquisition	Hardware				1,432	0							
Laserprinter - Maintenance	Hardware				1,104	0							
Image Workstations - Acquisition	Hardware					0							
Image Workstations - Maintenance	Hardware				3,496	0							
PC Maintenance User Owned	Hardware				2,304	0							
Printer Maintenance User Owned	Hardware				1,072	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							
MS SQL Server Standard Per Processor - Includes Year 1 Maintenance	Infrastructure				4,725	0							

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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
MS SQL Server Standard Per Processor - Year 2 and Beyond	Infrastructure				946	0							
MS SQL Server Enterprise Per Processor - Includes Year 1 Maintenance	Infrastructure				19,693	0							
MS SQL Server Enterprise Per Processor - Year 2 and Beyond	Infrastructure				3,939	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							
TBD	Infrastructure			0	0	0							
Internet Access	Infrastructure				180	0							
Project Staff Training	Training					0							
User Training	Training					0							

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Return on Investment Analysis
Cost Detail

		Potential Cost Extensions					
Cost Description	**Project Cost Category**	**Y1**	**Y2**	**Y3**	**Y4**	**Y5**	**Y6**
IT Hours	Development Svcs	214,995.00					
IT Hours - System Maintenance	Development Svcs		3,300.00	3,300.00	3,300.00	3,300.00	3,300.00
IT Hours - Customer Support	Development Svcs		3,300.00	3,300.00	3,300.00	3,300.00	3,300.00
IT Hours - Planned Maintenance	Development Svcs		3,300.00		3,300.00		3,300.00
User Hours - New Development	Development Svcs						
User Hours - PTNE/OT	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						
Image Workstations - Acquisition	Hardware						
Image Workstations - Maintenance	Hardware						
PC Maintenance User Owned	Hardware						
Printer Maintenance User Owned	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						
MS SQL Server Standard Per Processor - Includes Year 1 Maintenance	Infrastructure						

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Return on Investment Analysis
Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
MS SQL Server Standard Per Processor - Year 2 and Beyond	Infrastructure						
MS SQL Server Enterprise Per Processor - Includes Year 1 Maintenance	Infrastructure						
MS SQL Server Enterprise Per Processor - Year 2 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						
TBD	Infrastructure	0.00					
Internet Access	Infrastructure						
Project Staff Training	Training						
User Training	Training						

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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	214,995						214,995
IT Hours - System Maintenance		3,300	3,300	3,300	3,300	3,300	16,500
IT Hours - Customer Support		3,300	3,300	3,300	3,300	3,300	16,500
IT Hours - Planned Maintenance		3,300		3,300		3,300	9,900
User Hours - New Development							
User Hours - PTNE/OT							
Development Services Subtotal:	***214,995***	***9,900***	***6,600***	***9,900***	***6,600***	***9,900***	***257,895***
Hardware:							
Hardware Subtotal:							
Software:							
Software Subtotal:							
Infrastructure:							
Infrastructure Subtotal							
Training:							
Training Subtotal:							
Other:							
Other Subtotal:							
Costs Total:	***214,995***	***9,900***	***6,600***	***9,900***	***6,600***	***9,900***	***257,895***

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Return on Investment Analysis
Assumptions

Date	Assumption Description	