

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

Leadership Group: Information Technology Steering Committee					
Department: Information Technology			Division: Technical Systems and Networking		
Project Sponsor: EJ Widun		Date Requested: 10/1/2020		PM Customer No. 186	
Request Type: <i>New Development</i>					
IT Team Name: Server Administration			IT Team No: 6		
Project Manager/Leader: Heidi Flack					
Account Number:	17030	Account Description:	Technical Systems and Networking	Customer Name:	Information Technology
Grant Funded? No			Mandate? No		

Project Goal

To procure, implement, and migrate to a modern storage, compute, and network infrastructure, so that legacy hardware can be decommissioned.

Business Objective

The current "RAP" network, compute, and storage equipment has reached the end of its 7-year life. With the intention of moving the County forward towards a flexible and modern infrastructure design, the IT Infrastructure Modernization project will replace current infrastructure with modern, improved functionality, consolidate all Storage, Compute, and Networking onto common, shared platforms, while integrating with our AWS environment. This allows for improved workload portability, enhanced security, and significant cost savings.

Major Deliverables

Project 0: TSN Redesign – Complete

Deliverables:

- 5 Year strategic Infrastructure Modernization Plan
- Preliminary Budget

Project 1: RFPs and Basic Architecture (In progress)

Phase: RFPs and Vendor Selection

- **Program Kick Off**
 - Develop Kick Off Presentation
 - Conduct Strategic Scope & Approach Presentation
 - Determine High-Level Estimates
- **Network**
 - Conduct Networking Data Gathering & Analysis
 - Define Networking Requirements
 - Develop Networking architecture: Strategic Approach and Concept Design
 - Execute Network VAR RFP
 - Conduct Tech Review
 - Execute Network Contract

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

- **Storage**
 - Conduct Storage Data Gathering & Analysis
 - Define Storage Requirements
 - Execute Storage RFP
 - Execute Storage Contract
- **Compute (SA)**
 - Renegotiate VMware ELA for OpEx funding model
 - Finalize Compute hardware capacities and server models
 - Request quote for Compute Hardware
- **Budget Planning**
 - Finalize Capital Expense Plan
 - Submit Miscellaneous Resolution for establishment and transfer of Project Funds
 - Present for Board Approval
 - Update ROI

Project 2: Final Design, Procurement, Implementation

- **Integrated Network, Storage, Compute Architecture Design**
 - Develop Detail Design
 - Conduct Tech Review
- **Execute Purchase**
 - Procure network, storage, compute hardware and services
- **Implementation**
 - Deploy & configure network hardware
 - Deploy & configure storage hardware
 - Deploy & configure server hardware & virtualization platform
 - Redeploy relevant Command & Control servers and applications to new network architecture
- **Failure Mode Testing**
 - Network UAT
 - Storage UAT
 - Virtualization UAT
- **Integrate on-premises virtualization platform with VMC on AWS**
 - Procure VMC on AWS environment
 - Deploy, configure and test NSX integrations

Project 3: Migration

- **Network Gateway Migration**
 - Move routing elements off UTM platform
- **Virtual Server Migrations**
 - Oakland County virtual servers
 - CLEMIS virtual servers
- **Physical Server Migrations**
 - Oakland County physical servers
 - CLEMIS physical servers

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

Project 4: Implement new Data Protection solution

- **Identify Data Protection solution**
 - Evaluate available options within current technology stack
 - Implement and validate solution
 - Transition to new solution

Project 5: Decommission

- **Decommission old Compute environment**
- **Decommission old Storage environment**
- **Decommission old Network environment**

Approach

- Adhere to IT Infrastructure Modernization strategy
- Perform analysis of competitively bid storage and network solutions
- Design, diagram and define strategic approach and Roadmap for solution.
- Develop Budget (Capital) Plans and obtain Board approval for funding.
- Procure services and infrastructure as required.
- Develop implementation plans.
- Deploy new network, compute, and storage infrastructure next to the current RAP environment.
- Migrate servers to new platform with minimal disruption
- Decommission old hardware and platforms
- Transition to operations with documented Lessons Learned and updated DR Toolkits.

Research & Analysis

Gartner Research Recommendation:

- Start With These Three Best Practices to Maximize Open-Source Software Value
<https://www.gartner.com/document/3956330?ref=solrAll&refval=251729158>
- Magic Quadrant for Data Center Networking:
<https://www.gartner.com/document/3947431?ref=solrAll&refval=251788935>
- Data Center Infrastructure Primer for 2020
<https://www.gartner.com/document/3980031?ref=solrAll&refval=251788883>
- Magic Quadrant for Primary Storage
<https://www.gartner.com/document/3962309?ref=solrAll&refval=251789843>
- Market Guide for Server Virtualization
<https://www.gartner.com/document/3907165?ref=solrAll&refval=251729700>

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users All
Divisions IT
Leadership Groups IT Steering Committee

Risk

Business Environment Med = Project requires some changes to existing business processes.
Technical Environment High = New or non-standard technology.

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:

<u>Role:</u>	<u>Name</u>
Sponsor/ TSN/EA Stakeholder:	EJ Widun
IT Stakeholder:	Mike Timm
Security Stakeholder:	TJ Fields
NS Stakeholder	Guy Compton
CLEMIS Stakeholder:	Jeff Nesmith
Internal Services Stakeholder:	Janette McKenna
Apps Stakeholder:	Tammi Shepherd
Data Center Stakeholder:	Joe Tabor

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

Facilities

- Joe Tabor/Operations will manage work to be conducted with FM&O, supporting estimates, modifications, and any costs back to IT.

Technical

- The new network architecture will conform to modern data center standards and “split” the data centers into two availability zones.
- Technical debt and equipment EOL will drive the attrition of process for updating infrastructure.
- Deployments into the new Green Field environment will begin in the 2023-24 Master Plan.

Funding

- Information Technology
- Funding will be available for this effort and future phases and purchases.
- Implementation of selected solutions will be approved and budgeted.

Other

-

Priority

- 10

Constraints

- Equipment replacement will be dependent upon EOL terms.

Exclusions

- Application migrations to the new environment except for the POC.

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

PROJECT PHASE AUTHORIZATION

Phase(s): Project Management, Project Greenfield Program	
Total Estimated Application Services	Hours: 600
Total Estimated Technical Systems	Hours: 5,453
Total Estimated CLEMIS	Hours: 462
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:	Date:
Reason:	
Project Sponsor Approval:	
Title:	Date:

PROJECT SUMMARY

Authorized Development (see above)	Hours:	
Previously Approved Phases	Hours:	
Grand Total Estimated Development	Hours: 6,515	Cost: \$1,074,975

Oakland County Department of Information Technology Project Scope and Approach

Project Name: IT Infrastructure Modernization Program

Project ID: T62186IM

PROJECT COMPLETION AUTHORIZATION

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

IT Infrastructure Modernization - Size Estimate (+/- 10% to 50%) (Read-Only) ×				
Type	ID	Task Name	Estimated Hours	Estimate Notes
1	Phase	000000	PROJECT MANAGEMENT	0
2	Phase	100000	ITIM DESIGN PROCURE IMPLEMENT	2,335
3	Phase	200000	ITIM MIGRATIONS	1,896
4	Phase	300000	ITIM DATA PROTECTION REPLACEMENT	1,017
5	Phase	400000	ITIM DECOMMISSION	1,267
6				
			6,515	

Oakland County -- IT Infrastructure Modernization Program

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:	129,030	1,074,975	0	0	0	0	1,204,005
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	129,030	1,074,975	0	0	0	0	1,204,005
Annual Return on Investment	(129,030)	(1,074,975)					(1,204,005)
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	129,030	1,204,005	1,204,005	1,204,005	1,204,005	1,204,005	1,204,005
Cumulative Return on Investment	(129,030)	(1,204,005)	(1,204,005)	(1,204,005)	(1,204,005)	(1,204,005)	(1,204,005)
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 -- IT Infrastructure Modernization Program

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
Identify portability solutions of workloads between the Cloud and on-premise	Intangible Benefit	17030 - Technical Systems & Networking				0	
Identify improved east/west protection between applications	Intangible Benefit	17030 - Technical Systems & Networking				0	
Identify improved encrypted data at rest solution	Intangible Benefit	17030 - Technical Systems & Networking				0	
Identify a faster access to data, improving application performance and user experience	Intangible Benefit	17030 - Technical Systems & Networking				0	
Identify a solution for increased adoption of open source technology	Intangible Benefit	17030 - Technical Systems & Networking				0	
Identify a consistent network management platform	Intangible Benefit	17030 - Technical Systems & Networking				0	

Oakland County -- IT Infrastructure Modernization Program

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1-2021	Y2-2022	Y3-2023	Y4-2024	Y5-2025	Y6-2026
Identify portability solutions of workloads between the Cloud and on-premise	Intangible Benefit												
Identify improved east/west protection between applications	Intangible Benefit												
Identify improved encrypted data at rest solution	Intangible Benefit												
Identify a faster access to data, improving application performance and user experience	Intangible Benefit												
Identify a solution for increased adoption of open source technology	Intangible Benefit												
Identify a consistent network management platform	Intangible Benefit												

Oakland County -- IT Infrastructure Modernization Program
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Tangible Benefit:							
<i>Tangible Benefits Subtotal:</i>							
Cost Avoidance:							
<i>Cost Avoidance Subtotal:</i>							
Intangible Benefit:							
Identify portability solutions of workloads between the Cloud and on-premise							
Identify improved east/west protection between applications							
Identify improved encrypted data at rest solution							
Identify a faster access to data, improving application performance and user experience							
Identify a solution for increased adoption of open source technology							
Identify a consistent network management platform							
Savings Total:							

Oakland County -- IT Infrastructure Modernization Program
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Cost	Affects Project ROI?						
							Y1	Y2	Y3	Y4	Y5	Y6	
IT Hours - New Development: T62186P1 ITIM PH1	Development Svcs	Technical Services & Networking	HR	782	165	129,030	x						
IT Hours - New Development: T62186IM IT Infrastructure Modernization	Development Svcs	Technical Services & Networking	HR	6,515	165	1,074,975		X					

Oakland County -- IT Infrastructure Modernization Program
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1-2021	Y2-2022	Y3-2023	Y4-2024	Y5-2025	Y6-2026
IT Hours - New Development: T62186P1 ITIM PH1	Development Svcs	129,030.00					
IT Hours - New Development: T62186IM IT Infrastructure Modernization	Development Svcs		1,074,975.00				

Oakland County -- IT Infrastructure Modernization Program
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: T62186P1 ITIM PH1	129,030						129,030
IT Hours - New Development: T62186IM IT Infrastructure Modernization		1,074,975					1,074,975
<i>Development Services Subtotal:</i>	129,030	1,074,975					1,204,005
Hardware:							
<i>Hardware Subtotal:</i>							
Software:							
<i>Software Subtotal:</i>							
Infrastructure:							
<i>Infrastructure Subtotal</i>							
Training:							
<i>Training Subtotal:</i>							
Other:							
<i>Other Subtotal:</i>							
Costs Total:	129,030	1,074,975					1,204,005

Oakland County -- IT Infrastructure Modernization Program
Return on Investment Analysis

Assumptions

Date	Assumption Description
01-Jun-20	IT Labor is based on a rate of \$165/hr.
01-Jun-20	Deploying new CLEMIS infrastructure (storage, compute) is not in scope of this program.
01-Jun-20	Migration and deployment into the new environment will happen as part of a separate project in the next master plan.
01-Jun-20	Retirement of existing RAP infrastructure would happen after redeployments and included in the next master plan.
20-Jan-21	MP 21-22 does not include purchases, new development and implementing new infrastructure unless deemed necessary through budget approval and scope change or project development.
20-Jan-21	A 5-year infrastructure strategic roadmap and budgetary plan will be produced as an outcome of this project/ROI.