Oakland County
Department of Information Technology
Project Scope and Approach

Project Name: FM Infrastructure Improvements   **Project ID: D10147IN**

Leadership Group: Land	

Department: Facilities Management	**Division:** Facilities Maintenance and Operations

Project Sponsor: Art Holdsworth	**Date Requested: 2/1/18**	**PM Customer No. 147**

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: Mike Dagle

Account Number: TBD	**Account Description:** TBD	**Customer Name:**	Facilities Mgmt

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

Mandate Source:

Project Goal

To converge the FM security network with the OCIT network so that FM security systems can be shared and managed in a standardized technical environment and network connectivity can be established for FM security systems.

Business Objective

To improve network connectivity and performance for current Security Network systems, FM's isolated networks, and future expansion. To standardize network gear according to IT's UCC standards.

Major Deliverables
- Detailed project plan
- Detailed network strategy
- Contract amendment / bill of materials with UCC vendor
- Network monitoring and alarming
- Network connectivity strategy for all FM security systems
- FM/IT SLA and network management strategy
- Migration of the network gear that supports the following functions to IT infrastructure:
  - Security video
  - Alarms
  - Card access
- Service Center documents/incident areas, if necessary
- Disaster Recovery Toolkit

Approach
- Develop Detailed Project Plan
- Perform technical/architecture review

Project Name: FM Infrastructure Improvements   **Project ID: D10147IN**

- Redesign current FM network according to recommendations from prior *FM Infrastructure Improvement – Program Planning* project
- Work with Network team and customer to identify where network and/or fiber needs to be added
- Validate and communicate best practices related to network
- Develop Implementation Plan
- Develop User Acceptance Criteria
- Acquire User Acceptance Sign off
- Conduct Change Control
- Develop User Documentation
- Release new changes/data into production
- Retire FM hardware, if applicable

Research & Analysis

Gartner Research Recommendation

The escalating threat environment is forcing I&O leaders to revamp their existing surveillance solutions. NVRs are central to such modernization projects, as they are simple to operate and easy to deploy.

The NVR market consists of multiple form factors and configurations as a result of advances in compute, network and storage technologies, thus complicating the NVR evaluation process.

Managing multiple sites with NVRs deployed at each location is a challenge that IT teams grapple with, as they are often used for remote and centralized management of IT assets.

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users   12

Divisions   Facilities Management

Leadership Groups   Land

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Risk

Business Environment   High – Product dramatically changes 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:

Role:	Name	Hours per Day
Project Sponsor:	Art Holdsworth	As needed
Security Network Expert:	FM Security Network Team	2-4

Facilities

- Consistent access to Security Network equipment

Technical

- The FM Security Network convergence will use the existing UCC vendor and contract
- Software Designed Access will separate FM network traffic
- Presidio will store network gear offsite until installed

Funding

- IT

Other

FM and IT

- M&B, FM and IT will need to determine a cost recovery model for FM security system network attached devices

Project Name: FM Infrastructure Improvements   **Project ID: D10147IN**

Priority

- TBD

Constraints

- FM Security staff availability and prior completion of IT Universal Communications and Collaboration (UCC) network project

Exclusions

- Future phases, currently out of scope:
    - Radio Towers – Cameras located on radio tower sites
    - POTS Lines – Telephone based alarm lines
    - NVR Assessment – Camera video storage standards and central retrieval

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PROJECT PHASE AUTHORIZATION

Phase(s):		
Total Estimated Application Services	**Hours: 809**	
Total Estimated Technical Systems	**Hours: 672**	
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: 1481**	**Cost: $244,365**

Project Name: FM Infrastructure Improvements   **Project ID: D10147IN**

PROJECT COMPLETION AUTHORIZATION

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

FM Infrastructure Improvements – Size Estimate (+/- 10% to 50%)

	Type	ID	Task Name	Estimated Hours	Estimate Notes
1	Type	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	3	000000	PROJECT MANAGEMENT	360	
4	Phase	100000	Phase 1 - Vendor Contract Negotiations & De	329	
5	Phase	200000	Phase 2 - FM Network Replace Design - POC -	323	
6	Phase	300000	Phase 3 - FM Network Design & Implementati	469	
7				1,481	

FM Infrastructure Improvements
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:	310,709	56,544	57,109	57,680	58,257	58,840	599,139
Costs:							
Development Services Subtotal:	174,333	174,333	50,495	51,000	51,510	52,025	553,695
Hardware Subtotal:	454,354	454,354	0	0	0	0	908,708
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	310,709	56,544	57,109	57,680	58,257	58,840	599,139
Annual Total Costs	628,687	628,687	50,495	51,000	51,510	52,025	1,462,403
Annual Return on Investment	(317,978)	(572,143)	6,614	6,680	6,747	6,815	(863,264)
Annual Costs/Savings Ratio	202.34%	1111.86%	88.42%	88.42%	88.42%	88.42%	
Project Cumulative Statistics:							
Cumulative Total Savings	310,709	367,253	424,362	482,042	540,300	599,139	599,139
Cumulative Total Costs	628,687	1,257,373	1,307,868	1,358,868	1,410,378	1,462,403	1,462,403
Cumulative Return on Investment	(317,978)	(890,120)	(883,506)	(876,826)	(870,078)	(863,264)	(863,264)
Cumulative Cost/Savings Ratio	202.34%	342.37%	308.20%	281.90%	261.04%	244.08%	244.08%
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:			

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
Migrating FM maintained hardware software to IT-managed environment ensures that security standards are followed.	Cost Avoidance		EA	10	60	600	1.010
Establish consistent security standards, patching, configuration, and IP management	Cost Avoidance		EA	48	60	2,880	1.010
Ability to retrieve security video from any facility	Cost Avoidance		ANN	40	60	2,400	1.010
Fewer remote site visits due to central network monitoring and alerting	Cost Avoidance		EA	150	60	9,000	1.010
Reduced equipment (vehicle) and gasoline usage	Cost Avoidance		ANN	20	60	1,200	1.010
Enhanced service time to FM Security Customers (WRC, Parks, Rochester Hills, Troy, Health, HS, IT OC Public)	Cost Avoidance		EA	8	60	480	1.010
Network Advantage License	Cost Avoidance		EA	1	4,046	32,368	1.010
DWDM FM Secuirty Network Extension	Cost Avoidance		EA	5	50,945	254,725	1.010
ASE FM Security Network Extension	Cost Avoidance		EA	2	3,828	7,656	1.010
Alarm activation time - Alarms at remote locations use dial up to contact safety dispatch - Fiber would allow faster response time	Intangible Benefit					0	1.010

FM Infrastructure Improvements

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
Migrating FM maintained hardware software to IT-managed environment ensures that security standards are followed.	Cost Avoidance	x	x	x	x	x	x	600.00	606.00	612.06	618.18	624.36	630.61
Establish consistent security standards, patching, configuration, and IP management	Cost Avoidance	x	x	x	x	x	x	2,880.00	2,908.80	2,937.89	2,967.27	2,996.94	3,026.91
Ability to retrieve security video from any facility	Cost Avoidance	x	x	x	x	x	x	2,400.00	2,424.00	2,448.24	2,472.72	2,497.45	2,522.42
Fewer remote site visits due to central network monitoring and alerting	Cost Avoidance	x	x	x	x	x	x	9,000.00	9,090.00	9,180.90	9,272.71	9,365.44	9,459.09
Reduced equipment (vehicle) and gasoline usage	Cost Avoidance	x	x	x	x	x	x	1,200.00	1,212.00	1,224.12	1,236.36	1,248.72	1,261.21
Enhanced service time to FM Security Customers (WRC, Parks, Rochester Hills, Troy, Health, HS, IT OC Public)	Cost Avoidance	x	x	x	x	x	x	480.00	484.80	489.65	494.54	499.49	504.48
Network Advantage License	Cost Avoidance	x	x	x	x	x	x	32,368.00	32,691.68	33,018.60	33,348.78	33,682.27	34,019.09
DWDM FM Secuirty Network Extension	Cost Avoidance	x						254,725.00					
ASE FM Security Network Extension	Cost Avoidance	x	x	x	x	x	x	7,656.00	7,732.56	7,809.89	7,887.98	7,966.86	8,046.53
Alarm activation time - Alarms at remote locations use dial up to contact safety dispatch - Fiber would allow faster response time	Intangible Benefit												

FM Infrastructure Improvements
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:							
Migrating FM maintained hardware software to IT-managed environment ensures that security standards are followed.	600	606	612	618	624	631	3,691
Establish consistent security standards, patching, configuration, and IP management	2,880	2,909	2,938	2,967	2,997	3,027	17,718
Ability to retrieve security video from any facility	2,400	2,424	2,448	2,473	2,497	2,522	14,765
Fewer remote site visits due to central network monitoring and alerting	9,000	9,090	9,181	9,273	9,365	9,459	55,368
Reduced equipment (vehicle) and gasoline usage	1,200	1,212	1,224	1,236	1,249	1,261	7,382
Enhanced service time to FM Security Customers (WRC, Parks, Rochester Hills, Troy, Health, HS, IT OC Public)	480	485	490	495	499	504	2,953
Network Advantage License	32,368	32,692	33,019	33,349	33,682	34,019	199,128
DWDM FM Secuirty Network Extension	254,725						254,725
ASE FM Security Network Extension	7,656	7,733	7,810	7,888	7,967	8,047	47,100
Cost Avoidance Subtotal:	*310,709*	*56,544*	*57,109*	*57,680*	*58,257*	*58,840*	*599,139*
Intangible Benefit:							
Alarm activation time - Alarms at remote locations use dial up to contact safety dispatch - Fiber would allow faster response time							
0							
0							
Savings Total:	*310,709*	*56,544*	*57,109*	*57,680*	*58,257*	*58,840*	*599,139*

FM Infrastructure Improvements
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	1,481	165	122,183		x	x				
IT Hours - System Maintenance	Development Svcs		HR	100	165	16,500	1.010			x	x	x	x
IT Hours - Customer Support	Development Svcs		HR	100	165	16,500	1.010			x	x	x	x
IT Hours - Planned Maintenance	Development Svcs			100	165	16,500	1.010			x	x	x	x
User Hours - New Development	Development Svcs					0							
User Hours - PTNE/OT	Development Svcs					0							
Contractor Professional Services	Development Svcs					52,150		x	x				
Network Switch			EA			454,354		x	x				
PC System - Acquisition	Hardware				814	0							
PC System - Maintenance	Hardware				2,304	0							
Notebook - Acquisition	Hardware		EA		1,223	0		x					
Notebook - Maintenance	Hardware		ANN		2,372	0		x					
Tablet Notebook - Acquisition	Hardware		ANN		2,012	0		x					
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							
File Space (100GB)	Hardware		ANN		173	0							
Internet Bandwidth per MB	Hardware		ANN		750	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							

FM Infrastructure Improvements

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
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							
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							

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							
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							

FM Infrastructure Improvements

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

FM Infrastructure Improvements
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	122,182.50	122,182.50				
IT Hours - System Maintenance	Development Svcs			16,831.65	16,999.97	17,169.97	17,341.67
IT Hours - Customer Support	Development Svcs			16,831.65	16,999.97	17,169.97	17,341.67
IT Hours - Planned Maintenance	Development Svcs			16,831.65	16,999.97	17,169.97	17,341.67
User Hours - New Development	Development Svcs						
User Hours - PTNE/OT	Development Svcs						
Contractor Professional Services	Development Svcs	52,150.00	52,150.00				
Network Switch		454,354.10	454,354.10				
PC System - Acquisition	Hardware						
PC System - Maintenance	Hardware						
Notebook - Acquisition	Hardware	0.00					
Notebook - Maintenance	Hardware	0.00					
Tablet Notebook - Acquisition	Hardware	0.00					
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						
File Space (100GB)	Hardware						
Internet Bandwidth per MB	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						

Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
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						
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						

FM Infrastructure Improvements

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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						
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						

FM Infrastructure Improvements
Return on Investment Analysis

Cost Detail

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

FM Infrastructure Improvements

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	122,183	122,183					244,365
IT Hours - System Maintenance			16,832	17,000	17,170	17,342	68,343
IT Hours - Customer Support			16,832	17,000	17,170	17,342	68,343
IT Hours - Planned Maintenance			16,832	17,000	17,170	17,342	68,343
User Hours - New Development							
User Hours - PTNE/OT							
Contractor Professional Services	52,150	52,150					104,300
Development Services Subtotal:	***174,333***	***174,333***	***50,495***	***51,000***	***51,510***	***52,025***	***553,695***
Hardware:							
Network Switch	454,354	454,354					908,708
	0						
	0						
Hardware Subtotal:	***454,354***	***454,354***					***908,708***
Software:							
Software Subtotal:							
Infrastructure:							
	0	0	0	0	0	0	
Infrastructure Subtotal							
Training:							
Training Subtotal:							
Other:							
Other Subtotal:							
Costs Total:	***628,687***	***628,687***	***50,495***	***51,000***	***51,510***	***52,025***	***1,462,403***

FM Infrastructure Improvements

Return on Investment Analysis

Assumptions

Date	Assumption Description
03-Jul-18	Network Advantage License cost avoidance of enhancing existing FM Security Network
03-Jul-18	DWDM FM Secuirty Network Extension cost avoidance of enhancing existing FM Security Network
03-Jul-18	ASE FM Security Network Extension cost avoidance of enhancing existing FM Security Network
03-Jul-18	Establish consistent security standards, patching, configuration, and IP management, 2-3 hrs per new site
03-Jul-18	Ability to retrieve security video from any facility, 2 hrs per video retrieval
03-Jul-18	All labor hour savings $60