

Oakland County Department of Information Technology Project Scope and Approach

Project Name: Cloud Optimization

Project ID: TT9186CO

Leadership Group: IT Steering Committee			
Department: Information Technology		Division: Technical Systems & Networking	
Project Sponsor: EJ Widun	Date Requested: 8/23/18	PM Customer No. 186	
Request Type: New Development			
IT Team Name: Enterprise Architecture		IT Team No: T	
Project Manager/Leader: Lesley Hopson			
Account Number: 17030	Account Description: Technical Systems & Networking	Customer Name:	IT
Grant Funded?	No	Mandate?	No
		Mandate Source:	

Project Goal

To evaluate, prototype and test new cloud technologies so that Oakland County can realize additional benefits and further reduce costs as part of the Cloud First strategic journey.

Business Objectives

- Optimized Cloud Network tools and services

Major Deliverables

- Optimized Cloud Network
- CJIS Gov. Cloud Remediations
- Cost Optimization

Approach

- Evaluate, prototype, test and implement tools to optimize cost where applicable
- Update current business process and refine as needed
- Analyze and revise the Capacity Response Plan
- Remediate CJIS observation for Gov. Cloud as needed
- Evaluate and implement cost saving measures

**Oakland County
Department of Information Technology
Project Scope and Approach**

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Research & Analysis

Gartner Research Recommendation Research Conducted

Cloud and “Cloud first” is evolving to an expected approach for traditional and next-generation IT. Cloud solutions support the needs of the enterprise, workgroups, individual users, customers and partners. Technical leaders responsible for Cloud implementations must balance value against concerns about relative cost, trust and ‘Cloud washing’ while implementing the Cloud strategy.

The benefits of Cloud include

- Cost savings
- Agility
- Innovation
- Investment protections
- Improved time to market

The key to success is to drive cost transparency and accountability to the business. Technical leaders responsible for Cloud implementations must balance the challenges of adopting an enterprise’s culture and skills as well as its management, integration, and vendor management strategies. These include security, risk management, governance, compliance and disaster recovery. Most challenges are nontechnical.

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users All

Divisions All

Leadership Groups All

Risk

Business Environment **High** Projects within the program will require some changes to existing business processes.

Technical Environment **High** New or non-standard technology.

**Oakland County
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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>	<u>Hours per Day</u>
Project Sponsor	EJ Widun	As Needed
Executive Sponsor	Phil Bertolini	As Needed
Chief Technology Officer	Jim Taylor	As Needed
Server Stakeholder	EJ Widun	As needed
IT Director	Mike Timm	As Needed
Chief Info. Security Officer	Bridget Kravchenko	As Needed
Internal Services Stakeholder	Janette McKenna	As Needed
App. Services Stakeholder	Tammi Shepherd	As Needed

Facilities

- Meeting rooms as needed to facilitate Program implementation

Technical

-

Funding

- Information Technology

Other

-

Priority TBD

Constraints

-

Exclusions

-

Oakland County Department of Information Technology Project Scope and Approach

Project Name: Cloud Optimization

Project ID: TT9186CO

PROJECT PHASE AUTHORIZATION

Phase(s): Cloud Program Management and Cloud Optimization Core Implementation	
Total Estimated Application Services	Hours: 14
Total Estimated Technical Systems	Hours: 486
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: <input type="checkbox"/> Yes <input type="checkbox"/> No	Date:
Reason:	
Project Sponsor Approval:	
Title:	Date:

PROJECT SUMMARY

Authorized Development (see above)	Hours: 500
Preliminary Estimated Development for Future Phases	Hours:
Grand Total Estimated Development	Hours: 500 Cost: \$69,662

**Oakland County
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Project Scope and Approach**

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PROJECT COMPLETION AUTHORIZATION

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

Cloud Optimization - Size Estimate (+/- 10% to 50%)

1	Type	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	Phase	000000	PROJECT MANAGEMENT	177	
4	Phase	200000	CLOUD OPTIMIZATION CORE IMPLEMENTATION	323	
5				500	

Oakland County -- Cloud Program
Return on Investment Analysis

Project Summary

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Benefits/Savings:										
Tangible Benefits Subtotal:	303,000	13,000	712,000	182,000	26,000	26,000	26,000	26,000	26,000	26,000
Cost Avoidance Subtotal:	858,196	570,821	1,057,262	785,653	529,439	1,299,651	793,503	940,339	785,653	663,503
Costs:										
Development Services Subtotal:	1,216,880	142,369	129,323	0	0	0	0	0	0	0
Hardware Subtotal:	795,105	338,842	302,178	302,178	302,178	455,538	338,842	302,178	302,178	302,178
Software Subtotal:	340,241	282,254	274,103	274,103	274,103	274,103	282,254	274,103	274,103	274,103
Infrastructure Subtotal	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461
Training Subtotal:	0	0	0	0	0	0	0	0	0	0
Other Subtotal:	0	248	0	0	0	0	248	0	0	0
Annual Statistics:										
Annual Total Savings	1,161,196	583,821	1,769,262	967,653	555,439	1,325,651	819,503	966,339	811,653	689,503
Annual Total Costs	2,513,687	925,174	867,064	737,742	737,742	891,102	782,805	737,742	737,742	737,742
Annual Return on Investment	(1,352,491)	(341,353)	902,198	229,911	(182,303)	434,549	36,698	228,597	73,911	(48,239)
Annual Costs/Savings Ratio	216.47%	158.47%	49.01%	76.24%	132.82%	67.22%	95.52%	76.34%	90.89%	107.00%
Project Cumulative Statistics:										
Cumulative Total Savings	1,161,196	1,745,017	3,514,279	4,481,932	5,037,371	6,363,021	7,182,524	8,148,863	8,960,516	9,650,019
Cumulative Total Costs	2,513,687	3,438,861	4,305,925	5,043,667	5,781,408	6,672,510	7,455,315	8,193,057	8,930,798	9,668,540
Cumulative Return on Investment	(1,352,491)	(1,693,844)	(791,646)	(561,735)	(744,038)	(309,489)	(272,791)	(44,194)	29,718	(18,521)
Cumulative Cost/Savings Ratio	216.47%	197.07%	122.53%	112.53%	114.77%	104.86%	103.80%	100.54%	99.67%	100.19%
Year Positive Payback Achieved									Year 9	
State or Federal Mandate?										
Signatures:										
Benefits Reviewed By Project Sponsor	_____			Date:	_____					
Costs (including IT Resources) Reviewed By Information Technology Project Manager	_____			Date:	_____					

Oakland County -- Cloud Program
Return on Investment Analysis

Project Summary

Total
1,366,000
8,284,019
1,488,572
3,741,394
2,823,471
1,614,606
0
497
9,650,019
9,668,540
(18,521)
9,650,019
9,668,540
(18,521)
100.19%
Year 9

Oakland County -- Cloud 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 Mu	Affects Project ROI?											
								Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10		
Gain the understanding of cloud computing and infrastructures	Intangible Benefit	Technical Services & Ntwkg				0													
Gain new and improved OC Cloud standards	Intangible Benefit	Technical Services & Ntwkg				0													
Establish Goals and Objectives for Cloud implementations	Intangible Benefit	Technical Services & Ntwkg				0													

Oakland County -- Cloud Program
Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
Gain the understanding of cloud computing and infrastructures	Intangible Benefit						
Gain new and improved OC Cloud standards	Intangible Benefit						
Establish Goals and Objectives for Cloud implementations	Intangible Benefit						

Oakland County -- Cloud Program
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Tangible Benefit:											
Cloud Program - TT6186CP Capital Equipment Plan Savings based on budget reductions.	290,000	0	686,000	156,000	0	0	0	0	0	0	1,132,000
Cloud Program - TT6186CP Y1 - 2 Power costs of the bubble hardware	13,000	13,000	0	0	0	0	0	0	0	0	26,000
Cloud Program - TT6186CP Y3 - 10 Power costs of the bubble hardware	0	0	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	208,000
Cloud Program - TT6186CP LaserFiche (Imaging) Offset	0	0	0	0	0	0	0	0	0	0	0
Cloud Program - TT6186CP Oracle License for Clarity	0	0	0	0	0	0	0	0	0	0	0
Cloud Program - TT6186CP Storage Gateway Savings Vignette	0	0	0	0	0	0	0	0	0	0	0
Cloud Program - TT6186CP Oracle Upgrade for Clarity	0	0	0	0	0	0	0	0	0	0	0
<i>Tangible Benefits Subtotal:</i>	303,000	13,000	712,000	182,000	26,000	26,000	26,000	26,000	26,000	26,000	1,366,000
Cost Avoidance:											
Cloud Refresh - TT8186CR AWS billing costs avoided by acquiring Park My Cloud tool and enhancing spin up/spin down strategy	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	462,118
Cloud Program - TT6186CP 2 FX2s - Bubble capacity cost avoidance	244,520	0	244,520	0	0	244,520	0	244,520	0	0	978,080
Cloud Program - TT6186CP SSD and additional disk- Bubble capacity cost avoidance	236,248	0	0	0	0	236,248	0	0	0	0	472,496

Oakland County -- Cloud Program
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Program - TT6186CP Y1 - 2 Microsoft Server License - Bubble capacity & data center cost avoidance	41,772	41,772	0	0	0	0	0	0	0	0	83,544
Cloud Program - TT6186CP Y3 - 10 Microsoft Server License - Bubble capacity & data center cost avoidance	0	0	83,544	83,544	83,544	83,544	83,544	83,544	83,544	83,544	668,352
Cloud Program - TT6186CP Backup (Avamar) - License bubble capacity cost avoidance	16,380	0	16,380	0	0	16,380	0	16,380	0	0	65,520
Cloud Program - TT6186CP VM Ware License - Bubble capacity cost avoidance	134,064	0	134,064	134,064	0	134,064	134,064	0	134,064	134,064	938,448
Cloud Connect - TT6186NC Radware Infrastructure	0	110,000	0	0	0	0	110,000	0	0	0	220,000
Cloud Connect - TT6186NC Radware Maintenance	0	7,400	7,400	7,400	7,400	7,400	7,400	7,400	7,400	7,400	66,600
Cloud Connect - TT6186NC Packetshaper Infrastructure	0	0	150,000	0	0	0	0	150,000	0	0	300,000
Cloud Connect - TT6186NC Packetshaper Maintenance	0	15,803	15,803	15,803	15,803	15,803	15,803	15,803	15,803	15,803	142,227
Cloud Connect - TT6186NC Fire Eye Upgrade (10GB)	139,000	0	0	0	0	139,000	0	0	0	0	278,000
Cloud Connect - TT6186NC Fire Eye Annual Maintenance	0	40,219	40,219	40,219	40,219	40,219	40,219	40,219	40,219	40,219	361,971
Cloud Connect - TT6186NC Fire Eye Gigamon Cards	0	20,000	0	0	0	0	20,000	0	0	0	40,000
Cloud Connect - TT6186NC AT&T ISP Connection Services (2 Drivers @ \$3,091.97 *12 months) (updated per AT&T email with revised rate)	0	74,207	74,207	74,207	74,207	74,207	74,207	74,207	74,207	74,207	667,866
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers (2) Replacement at EOL 2021. (*Prices reflects an 66% discount per Presidio contract. \$307,000 Total List Price)	0	0	0	104,380	0	0	0	0	104,380	0	208,760

Oakland County -- Cloud Program

Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers Maintenance (2) at EOL 2021. (*Prices reflects a 40% discount with a 5yr Maintenance agreements per Presidio contract. \$28,568 Total List Price)	0	0	0	17,141	17,141	17,141	17,141	17,141	17,141	17,141	119,986
Cloud Connect - TT6186NC C1-ASR1001-HX/K9 Routers Advanced Enterprise License (2) at EOL 2021 - No discount	0	0	0	16,650	0	0	0	0	16,650	0	33,300
Cloud Connect - TT6186NC SFP Module (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	0	0	0	1,120	0	0	0	0	1,120	0	2,240
Cloud Program - TT6186CP SQL License Cost Avoidance by reducing enterprise pricing @ renewal	0	0	29,705	29,705	29,705	29,705	29,705	29,705	29,705	29,705	237,640
Cloud Refresh - Automation: At the end of Phase 2, server builds are scripted so the 8 hour task reduces to less than 1 per server so you save \$1176 per server build (but we cannot claim a hard dollar savings)	0	215,208	215,208	215,208	215,208	215,208	215,208	215,208	215,208	215,208	1,936,872
Cost Avoidance Subtotal:	858,196	570,821	1,057,262	785,653	529,439	1,299,651	793,503	940,339	785,653	663,503	8,284,019
Intangible Benefit:											
Gain the understanding of cloud computing and infrastructures											
Gain new and improved OC Cloud standards											
Establish Goals and Objectives for Cloud implementations											

Oakland County -- Cloud Program
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Connect - TT6186NC Checkpoint allows greater functionality and capabilities than Fire Eye, including a single pane of glass, already supported in the environment, and minimal work to upgrade as opposed to procure and fully implementing a new solution.											
Cloud AD - TT6186AD Allows cloud connections for on-prem applications											
Pay as you go servers and SAN											
Deferral of Maintenance and Upgrades for Hardware and Storage to IAAS provider											
Unlimited resource scalability for servers and storage											
Cloud Program - TT6186CP Intrusion Detection System with 24 by 7 monitoring by an outside firm.											
Cloud Refresh - Separation of Dev/QA from production which increases the availability of production											
0											
Cloud Program - TT6186CP Resiliency - Improved resiliency by the cloud model vs our two data centers											
Cloud Program - TT6186CP Improved DR on premise in a full disaster we run in a degraded state											
Cloud Program - TT6186CP Nimbleness (e.g.(Clarity Oracle started working in the new environment in days											

Oakland County -- Cloud Program
Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cloud Program - TT6186CP DB Expense Reductions - Having Cloud opens the possibility of exploring additional/less expensive DB options compared to Oracle and SQL. Today we spend about \$200,000 per year in SQL Licensing. (ITB)											
Refresh - Autoscaling: At the end of Phase 2, we will begin Autoscaling, which will further reduce costs but cannot be estimated until the end of that Phase											
Cloud Program - TT6186CP Improved citizen engagement models: It will empower us to use APIs and begin connecting disparate apps and giving a better citizen experience											
Cloud Program - TT6186CP In Cloud we have separation between dev/qa/prod as well as apps/DB/Mangement/Security Services. We do not have this on premise and the fix on premise is a network redesign or implement NSX on the VM Environment or Implement McAfee ENS Firewall											
Cloud Program - TT6186CP Containerization - With Cloud, we will be able to leverage containerization for custom built apps that are migrated											
Savings Total:	1,161,196	583,821	1,769,262	967,653	555,439	1,325,651	819,503	966,339	811,653	689,503	9,650,019

Oakland County -- Cloud Program
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	Y7	Y8	Y9	Y10		
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	899	125	112,178	x												
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	Development Svcs	Technical Services & Ntwkg	EA	1	52,000	52,000	x												
Program Management - TT6186PM IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	1,242	120	149,305	x												
Cloud AD - TT6186AD IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	548	116	63,743	x												

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1 (2018)	Y2 (2019)	Y3 (2020)	Y4	Y5	Y6
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	Development Svcs	112,178					
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	Development Svcs	52,000					
Program Management - TT6186PM IT Hours - New Development	Development Svcs	149,305					
Cloud AD - TT6186AD IT Hours - New Development	Development Svcs	63,743					

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Development Services:								
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	112,178							
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	52,000							
Program Management - TT6186PM IT Hours - New Development	149,305							
Cloud AD - TT6186AD IT Hours - New Development	63,743							
Cloud AD - TT6186AD Professional Services (Turing Streams - TT8186CS IT Hours - New Development	56,852							
IT Hours - New Development	58,496							
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	17,963							
Cloud Refresh (Phase I YEAR 1) - TT8186CR	268,018							
Cloud Refresh (Phase I YEAR 2) - TT8186CR	0	13,046	0	0	0	0		
Cloud Optimization - TT9186CO IT Hours - New Development	0	41,384	41,384					
Program Management (19/20) - TT9186CP IT Hours - New Development	0	87,939	87,939	0	0	0	0	
Cloud Refresh (Phase I) - TT8186CR Professional Services (TBD)	144,000	0	0	0	0	0		
	0							
Cloud Connect - TT6186NC IT Labor - Implementation (Actuals)	30,432							
Cloud Connect - TT6186NC IT Labor - Implementation (Future ETC)	136,416							
Cloud Connect - TT6186NC WAN Routers Professional Services -	65,000							

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Cloud DNS - TT8186DN								
IT Labor - Implementation	62,478							
<i>Development Services Subtotal:</i>	1,216,880	142,369	129,323					
Hardware:								
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	332,209							
Cloud Program - TT6186CP Y2 - 10 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX		117,942	117,942	117,942	117,942	117,942	117,942	117,942
Cloud Program Streams costs for CAMS @ 35% utilization	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236
Cloud Program - TT6186CP Disk Storage	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2)	152,240					152,240		
Cloud Connect - TT6186NC CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	1,120					1,120		
Cloud Connect - TT6186NC CheckPoint Appliance CPAP-SBTE2000X-	125,300							
Cloud Connect - TT6186NC CheckPoint SFP+ transceiver for 10G fiber		6,376					6,376	
Cloud Connect - TT6186NC Check Point SFP+ interface card - 4 Port		30,288					30,288	
<i>Hardware Subtotal:</i>	795,105	338,842	302,178	302,178	302,178	455,538	338,842	302,178
Software:								
Cloud Program - TT6186CP Cloud Tools (Park My Cloud, Check Point, Alert Logic)	99,600	99,600	99,600	99,600	99,600	99,600	99,600	99,600

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Cloud Program Streams costs for CAMS @ 35% utilization	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236
Cloud Program - TT6186CP Cloud Strategic Bill - YR 1	156,731							
Cloud Program - TT6186CP Cloud Strategic Bill - YR 2-6		115,593	115,593	115,593	115,593	115,593	115,593	115,593
Cloud Connect - TT6186NC CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	25,000							
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2) Maintenance - (*Prices reflects an 40% discount with a 5yr Maintenance agreements per Presidio contract. Total List price \$49,459)	29,674	29,674	29,674	29,674	29,674	29,674	29,674	29,674
Cloud Connect - TT6186NC Check Point Direct Enterprise Premium		8,151					8,151	
Cloud Connect - TT6186NC CheckPoint Appliance Licenses (*Prices	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
<i>Software Subtotal:</i>	340,241	282,254	274,103	274,103	274,103	274,103	282,254	274,103
Infrastructure:								
Cloud Connect - TT6186NC AT&T ISP Connection Services (2 Drivers	117,465	117,465	117,465	117,465	117,465	117,465	117,465	117,465
Cloud Connect - TT6186NC Windstream Direct Connection Services -	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640
Cloud Connect - TT6186NC AWS (Amazon)10GB Connection Services	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256
Cloud DNS - TT8186DN AWS Services for DNS	100	100	100	100	100	100	100	100
<i>Infrastructure Subtotal</i>	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461
Training:								
<i>Training Subtotal:</i>								
Other:								

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8
Cloud Connect - TT6186NC								
CheckPoint SFP Shipping Charge		248					248	
<i>Other Subtotal:</i>		248					248	
Costs Total:	2,513,687	925,174	867,064	737,742	737,742	891,102	782,805	737,742

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Year 9	Year 10	Total
		112,178
		52,000
		149,305
		63,743
		56,852
		58,496
		17,963
		268,018
		13,046
		82,768
		175,877
		144,000
		30,432
		136,416
		65,000

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Year 9	Year 10	Total
		62,478
		1,488,572
		332,209
117,942	117,942	1,061,478
4,236	4,236	42,360
180,000	180,000	1,800,000
		304,480
		2,240
		125,300
		12,753
		60,575
302,178	302,178	3,741,394
99,600	99,600	996,000

Oakland County -- Cloud Program
Return on Investment Analysis

Cost Summary

Year 9	Year 10	Total
4,236	4,236	42,360
		156,731
115,593	115,593	1,040,338
		25,000
29,674	29,674	296,740
		16,302
25,000	25,000	250,000
274,103	274,103	2,823,471
117,465	117,465	1,174,646
38,640	38,640	386,400
5,256	5,256	52,560
100	100	1,000
161,461	161,461	1,614,606

Oakland County -- Cloud Program
 Return on Investment Analysis

Cost Summary

Year 9	Year 10	Total
		497
		497
737,742	737,742	9,668,540

Oakland County -- Cloud Program
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Assumptions

Date	Project
22-Mar-17	AD - TT6186AD
25-Mar-17	Program
14-Dec-17	Program Management
	Network Connect
08-Feb-18	
22-Feb-18	Refresh
22-Feb-18	Refresh
22-Feb-18	Refresh
22-Feb-18	Program
10-Apr-18	Program
10-Apr-18	Program
10-Apr-18	Program
10-Apr-18	Program
10-Apr-18	Program
10-Apr-18	Network Connect
16-Apr-18	DNS
10-Apr-18	Program
10-Apr-18	Refresh
26-Apr-18	Program
08-Feb-18	Network Connect
21-Feb-18	Network Connect
02-Mar-18	Network Connect
05-Mar-18	Network Connect
05-Mar-18	Network Connect

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Assumptions

Date	Project
05-Mar-18	Network Connect
17-Apr-18	Refresh
20-Apr-18	Refresh
23-Apr-18	Refresh

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Assumptions

Assumption Description
<p>Consulting services from Strategic will be leveraged and funding will be available. Subsequent phases will include additional scope and leverage the remaining ETC. Support and enhancement efforts <200hrs are listed as tasks and managed under the Cloud Program labor costs. The Cloud Network Connect project is only sized through Design and RFP process. The labor and equipment costs have not estimated for implementation.</p>
<p>Year 1 assumes no spin up and spin down, and reserved instances. Year 2 assumes a greater amount of spin up and spin down and reserved instance for the apps. No backup/storage estimates or DR costs included DR must be manually failed over. This will require pre-configuring fail over environment in another AWS datacenter Excluded is the shared stewardship (Labor) costs, because they are the same across the board for physical and virtual servers.</p>
<p>Apps In Scope: Clarity, CAMs, Imaging, Neptune, eLearning, GIS Costs In Scope (for the 6 Apps): Strategic, Licenses, AWS Server Costs, AWS DB Costs</p>
<p>Infrastructure In Scope (for Apps In Scope): Cloud AD, Streams, Refresh (Phase I), Optimization (Refresh Phase II), Security/Cloud Tools Scope assumptions are based on the Coal Fire validated design approved by OA VM Capacity Bubble estimates were based upon the technology and environment configuration available when the specific project was scheduled to be executed.</p>
<p>ROI In Scope: Network Connect cost and savings (incl direct connect, upgraded internet)</p>
<p>ROI In Scope: Public DNS to Cloud because Network Connect benefits are not realized unless this is completed</p>
<p>Billing, including offsets are in scope for the ROI</p>
<p>Out of Scope: New Tools, Dev time for the 6, PCI Zone, WatchGuard, All CJIS, Any new systems brought in after 4/10, changes to existing (approved) cloud design</p>
<p>Server build cycle time efficiencies will be realized by the Server Admin team in the future and will result in improved time to market/completion</p>
<p>The Cloud Network Connect project is only sized through Design and RFP process. The labor and equipment costs have not estimated for implementation. All other Cloud projects are managed under the Cloud Program. Checkpoint allows greater functionality and capabilities than Fire Eye, including a single pane of glass, already supported in the environment, and minimal work to upgrade as opposed to fully implementing a new solution. CISCO products (ASR WAN Router) price in the 'Cost Detail' reflects a 66% discount based on current Presidio agreement. CISCO maintenance price in the 'Cost Detail' reflects a 40% discount per Guy Compton.</p>

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Assumptions

Assumption Description
AWS Connection cost is based on 10GB connection. The only option less than 10GB is a 1GB connection option: 1GB Connection \$0.30/hr = \$2,628/year x 2 redundant connections = \$5,256/year.
Consulting Services will be used when practical.
Environments are priced with the assumption that dev and QA is shut down 108 out of the 168 hours in a week (a pay for what you use model and estimated for what we use and turning stuff off when not in use)
CheckPoint numbers for redesign are not included

SUMMARY Spend to Date				
Total Program Spend to Date	\$498,006			
Total % Spend to Date				
DETAILS				
				0
Cost Description	Spend to Date	Spend % of Estimate	Completed Units	Total Units
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	\$112,178	100%	898.75	898.75
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	\$52,000	100%	1	1
Program Management - TT6186PM IT Hours - New Development	\$111,678	75%	929	1242
Cloud AD - TT6186AD IT Hours - New Development	\$49,697	78%	427.25	548
Cloud AD - TT6186AD Professional Services (Turing Group/Strategic Solutions)	\$56,852	100%	1	1
Streams - TT8186CS IT Hours - New Development	\$39,523	68%	319.25	472.5
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	\$17,963	100%	154	154
Cloud Refresh (Phase I YEAR 1) - TT8186CR IT Hours - New Development	\$12,863	5%	87.5	1823.25
Cloud Refresh (Phase I YEAR 2) - TT8186CR IT Hours - New Development	\$0	0%	0	88.75
Cloud Optimization - TT9186CO IT Hours - New Development	\$0	0%	0	280
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	\$0	0%		1
Cloud Program Streams costs for CAMS @ 35% utilization	\$0	0%		1
Cloud Program - TT6186CP Disk Storage	\$0	0%		1
Cloud Refresh (Phase I) - TT8186CR Professional Services (TBD)	\$0	0%	0	1

Cloud Connect - TT6186NC IT Labor - Implementation (Actuals)	\$0	0%		276.25
Cloud Connect - TT6186NC IT Labor - Implementation (Future ETC)	\$40,609	30%	276.25	928
Cloud Connect - TT6186NC AT&T ISP Connection Services (2 Drivers @\$4,894.36 * 12 months) (updated per AT&T /Renee's email with revised rate)	\$0	0%		12
Cloud Connect - TT6186NC Windstream Direct Connection Services - (1G @ each site = 2@\$1,610 = \$3,220 x 12mths)	\$0	0%		12
Cloud Connect - TT6186NC AWS (Amazon)10GB Connection Services \$0.30/hr ; \$2,628x2= \$5,256/year (note: X 2 redundant connections = \$39,420/year)	\$0	0%		2
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2) (*Prices reflects an 66% discount per Presidio contract. \$346,000 Total List Price)	\$0	0%		2
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2) Maintenance - (*Prices reflects an 40% discount with a 5yr Maintenance agreements per Presidio contract. Total List price \$49,459)	\$0	0%		2
Cloud Connect - TT6186NC CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	\$0	0%		2
Cloud Connect - TT6186NC CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	\$0	0%		8
Cloud Connect - TT6186NC WAN Routers Professional Services - ASR1006-X (No discount)	\$0	0%		1
Cloud Connect - TT6186NC CheckPoint SFP+ transceiver for 10G fiber Ports - short range (10GBase- SR)	\$0	0%		8
Cloud Connect - TT6186NC Check Point SFP+ interface card - 4 Port 10GBase. Requires an additional 10GBase SFP+ transceiver per interface port.	\$0	0%		2
Cloud Connect - TT6186NC Check Point Direct Enterprise Premium Support - Licenses	\$0	0%		1

Cloud Connect - TT6186NC CheckPoint SFP Shipping Charge	\$0	0%		1
Cloud Connect - TT6186NC CheckPoint Appliance CPAP-SBTE2000X-40VM - SandBlast TE Appliance TE2000X (*Prices reflects an 30% discount per Optiv contact. \$179,000 Total List Price)	\$0	0%		1
Cloud Connect - TT6186NC CheckPoint Appliance Licenses (*Prices reflects an estimated 20% of hardware cost))	\$0	0%		1
Cloud DNS - TT8186DN IT Labor - Implementation	\$4,643	7%	37.75	508
Cloud DNS - TT8186DN AWS Services for DNS	\$0	0%		10
Cloud Program - TT6186CP Cloud Tools (Park My Cloud, Check Point, Alert Logic)	\$0	0%		12
0	\$0	#DIV/0!		0
0	\$0	#DIV/0!		0
Cloud Program - TT6186CP Cloud Strategic Bill - YR 1	\$0	0%		1
Cloud Program - TT6186CP Cloud Strategic Bill - YR 2-6	\$0	0%		1
Program Management (19/20) - TT9186CP IT Hours - New Development				650
0				0
0				0
0				0
0				0
0				0

\$0	\$0	
Rate per Unit	Total Cost	Y1 (2018)
\$125	\$112,178	\$112,178
\$52,000	\$52,000	\$52,000
\$120	\$149,305	\$149,305
\$116	\$63,743	\$63,743
\$56,852	\$56,852	\$56,852
\$124	\$58,496	\$58,496
\$117	\$17,963	\$17,963
\$147	\$268,018	\$268,018
\$147	\$13,046	\$0
\$148	\$41,384	\$0
\$332,209	\$332,209	\$332,209
\$4,236	\$4,236	\$4,236
\$180,000	\$180,000	\$180,000
\$144,000	\$144,000	\$144,000

\$110	\$30,432	\$30,432
\$147	\$136,416	\$136,416
\$9,789	\$117,465	\$117,465
\$3,220	\$38,640	\$38,640
\$2,628	\$5,256	\$5,256
\$76,120	\$152,240	\$152,240
\$14,837	\$29,674	\$29,674
\$12,500	\$25,000	\$25,000
\$140	\$1,120	\$1,120
\$65,000	\$65,000	\$65,000
\$797	\$6,376	
\$15,144	\$30,288	
\$8,151	\$8,151	

\$248	\$248	
\$125,300	\$125,300	\$125,300
\$25,000	\$25,000	\$25,000
\$123	\$62,478	\$62,478
\$10	\$100	\$100
\$8,300	\$99,600	\$99,600
\$0	\$0	\$0
\$0	\$0	\$0
\$156,731	\$156,731	\$156,731
\$115,593	\$115,593	
\$135	\$87,939	\$0
\$0	\$0	\$0
\$0	\$0	\$0
\$0	\$0	\$0
\$0	\$0	\$0
\$0	\$0	\$0