

# Oakland County Department of Information Technology Project Scope and Approach

**Project Name:** Cloud Program Management 2019-20

**Project ID:** TT9186CP

<b>Leadership Group:</b> IT Steering Committee			
<b>Department:</b> Information Technology		<b>Division:</b> Technical Systems & Networking	
<b>Project Sponsor:</b> EJ Widun	<b>Date Requested:</b> 8/24/2018	<b>PM Customer No.</b> 186	
<b>Request Type:</b> New Development			
<b>IT Team Name:</b> Enterprise Architecture		<b>IT Team No:</b> T	
<b>Project Manager/Leader:</b> Lesley Hopson			
<b>Account Number:</b> 17030	<b>Account Description:</b> Technical Systems & Networking	<b>Customer Name:</b>	IT
<b>Grant Funded?</b>	No	<b>Mandate?</b>	No
		<b>Mandate Source:</b>	

## Project Goal

To manage resources, tasks and budget for the Cloud Program so that communication is frequent, consistent and effective, and all aspects of the Cloud Program are delivered on time and on budget.

## Business Objective

- Increase efficiency for Cloud Program Projects
- Delivery of Program Projects on-time and on-budget
- Increase communication with project sponsors, program sponsor and customers
- Maintain clear communication paths with vendor
- Resource and Project Planning

## **Major Deliverables**

- Program governance over all projects included in the County Cloud Program
- Facilitation of the Cloud Steering Committee
- Timely communication to customers, project sponsors and program sponsor
- Management of vendor(s) for non-specific project tasks
- Program issue management
- Attend or schedule program conferences and training as appropriate for the advancement of the program

## **Approach**

- Develop Detailed Project Plans for the program
- Review current business process and conduct needs assessment with customer, ensuring current manual processes are refined and automated
- Conduct timely Cloud Steering Committee meetings
- Develop a clear communication plan projects and the program

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- Follow standard County processes for project governance
- Follow standard County processes for program issues
- Engage Cloud Consulting Professional Services to complete tasks detailed in the Statements of Work where applicable
- Utilize subject matter experts and/or resources on new tasks and projects as required

## **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

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**Risk**

**Business Environment**      **High**      Projects within the program will require 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:

<b><u>Role:</u></b>	<b><u>Name</u></b>	<b><u>Hours per Day</u></b>
Project Sponsor	EJ Widun	As Needed
Executive Sponsor	Phil Bertolini	As Needed
Chief Technology Officer	Jim Taylor	As Needed
Server Stakeholder	Carl Wilson	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
-

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**Other**

- 

**Priority** TBD

**Constraints**

- 

**Exclusions**

-

# Oakland County Department of Information Technology Project Scope and Approach

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**Project ID: TT9186CP**

## PROJECT PHASE AUTHORIZATION

<b>Phase(s): Cloud Program Management</b>	
<b>Total Estimated Application Services</b>	<b>Hours: 0</b>
<b>Total Estimated Technical Systems</b>	<b>Hours: 1300</b>
<b>Total Estimated CLEMIS</b>	<b>Hours: 0</b>
<b>Total Estimated Internal Services</b>	<b>Hours: 0</b>
<b>IT Application Services Division Manager Approval:</b>	<b>Date:</b>
<b>IT Technical Systems Division Manager Approval:</b>	<b>Date:</b>
<b>IT CLEMIS Division Manager Approval:</b>	<b>Date:</b>
<b>IT Internal Services Division Manager Approval:</b>	<b>Date:</b>
<b>IT Management Approval:</b>	
Approved: <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Date:</b>
Reason:	
<b>Project Sponsor Approval:</b>	
Title:	<b>Date:</b>

## PROJECT SUMMARY

<b>Authorized Development (see above)</b>	<b>Hours:</b>	
<b>Preliminary Estimated Development for Future Phases</b>	<b>Hours:</b>	
<b>Grand Total Estimated Development</b>	<b>Hours: 1,300</b>	<b>Cost: \$157,818.14</b>

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## PROJECT COMPLETION AUTHORIZATION

<b>Customer Acceptance of Product:</b>	
Title:	Date:
<b>Project Office Review:</b>	Date:

Cloud Program Management 2019-20 - Size Estimate (+/- 10% to 50%) <span style="float: right;">✕</span>					
	Type	ID	Task Name	Estimated Hours	Estimate Notes
1	Phas	000000	☐ CLOUD PROGRAM MANAGEMENT	1,300	
2					
1				1,300	

**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	Total
<b>Benefits/Savings:</b>											
Tangible Benefits Subtotal:	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 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
<b>Costs:</b>											
Development Services Subtotal:	1,064,445	229,449	130,194	0	0	0	0	0	0	0	1,424,088
Hardware Subtotal:	795,105	338,842	302,178	302,178	302,178	455,538	338,842	302,178	302,178	302,178	3,741,394
Software Subtotal:	340,241	282,254	274,103	274,103	274,103	274,103	282,254	274,103	274,103	274,103	2,823,471
Infrastructure Subtotal:	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	161,461	1,614,606
Training Subtotal:	0	0	0	0	0	0	0	0	0	0	0
Other Subtotal:	0	248	0	0	0	0	248	0	0	0	497
<b>Annual Statistics:</b>											
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	9,650,019
Annual Total Costs	2,361,251	1,012,254	867,936	737,742	737,742	891,102	782,805	737,742	737,742	737,742	9,604,056
Annual Return on Investment	(1,200,055)	(428,433)	901,326	229,911	(182,303)	434,549	36,698	228,597	73,911	(48,239)	45,962
Annual Costs/Savings Ratio	203.35%	173.38%	49.06%	76.24%	132.82%	67.22%	95.52%	76.34%	90.89%	107.00%	
<b>Project Cumulative Statistics:</b>											
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	9,650,019
Cumulative Total Costs	2,361,251	3,373,506	4,241,441	4,979,183	5,716,925	6,608,026	7,390,831	8,128,573	8,866,315	9,604,056	9,604,056
Cumulative Return on Investment	(1,200,055)	(1,628,489)	(727,163)	(497,251)	(679,554)	(245,005)	(208,307)	20,290	94,201	45,962	45,962
Cumulative Cost/Savings Ratio	203.35%	193.32%	120.69%	111.09%	113.49%	103.85%	102.90%	99.75%	98.95%	99.52%	99.52%
Year Positive Payback Achieved								Year 8			Year 8
State or Federal Mandate?											
<b>Signatures:</b>											
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

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													
Cloud Program - TT6186CP SQL License Cost Avoidance by reducing enterprise pricing @ renewal	Cost Avoidance	Technical Services & Ntwkg	EA	1	29,705	29,705				x	x	x	x		x	x	x	x	
<b>Cloud AD - TT6186AD</b> Allows cloud connections for on-prem applications	Intangible Benefit	Technical Services & Ntwkg				0													
Pay as you go servers and SAN	Intangible Benefit	Technical Services & Ntwkg																	
Deferral of Maintenance and Upgrades for Hardware and Storage to IAAS provider	Intangible Benefit	Technical Services & Ntwkg																	
Unlimited resource scalability for servers and storage	Intangible Benefit	Technical Services & Ntwkg																	
<b>Cloud Program - TT6186CP</b> Capital Equipment Plan Savings based on budget reductions.	Tangible Benefit	Technical Services & Ntwkg	EA	1	0	1,132,000		x		x	x								
Cloud Program - TT6186CP Intrusion Detection System with 24 by 7 monitoring by an outside firm.	Intangible Benefit	Technical Services & Ntwkg	EA																



**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		
Cloud Refresh - Separation of Dev/QA from production which increases the availability of production	Intangible Benefit	Technical Services & Ntwkg	EA																
<b>Cloud Connect - TT6186NC</b> 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.	Intangible Benefit	Technical Services & Ntwkg																	
<b>Cloud Connect - TT6186NC</b> Radware Infrastructure	Cost Avoidance	Technical Services & Ntwkg	EA	1	110,000	110,000			x						x				
<b>Cloud Connect - TT6186NC</b> Radware Maintenance	Cost Avoidance	Technical Services & Ntwkg	ANN	1	7,400	7,400			x	x	x	x	x		x	x	x	x	
<b>Cloud Connect - TT6186NC</b> Packetshaper Infrastructure	Cost Avoidance	Technical Services & Ntwkg	EA	1	150,000	150,000					x					x			
<b>Cloud Connect - TT6186NC</b> Packetshaper Maintenance	Cost Avoidance	Technical Services & Ntwkg	ANN	1	15,803	15,803			x	x	x	x	x		x	x	x	x	
<b>Cloud Connect - TT6186NC</b> Fire Eye Upgrade (10GB)	Cost Avoidance	Technical Services & Ntwkg	ANN	1	139,000	139,000			x						x				
<b>Cloud Connect - TT6186NC</b> Fire Eye Annual Maintenance	Cost Avoidance	Technical Services & Ntwkg	ANN	1	40,219	40,219			x	x	x	x	x		x	x	x	x	
<b>Cloud Connect - TT6186NC</b> Fire Eye Gigamon Cards	Cost Avoidance	Technical Services & Ntwkg	EA	1	20,000	20,000			x						x				
<b>Cloud Connect - TT6186NC</b> <b>AT&amp;T ISP Connection Services (2 Drivers @\$3,091.97 *12 months)</b> <i>(updated per AT&amp;T email with revised rate)</i>	Cost Avoidance	Technical Services & Ntwkg	ANN	12	6,184	74,207				x	x	x	x	x	x	x	x	x	



**Oakland County -- Cloud Program**  
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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		
Cloud Program - TT6186CP Backup (Avamar) - License bubble capacity cost avoidance	Cost Avoidance	Technical Services & Ntwkg	EA	1	16,380	16,380		x		x				x					
Cloud Program - TT6186CP VM Ware License - Bubble capacity cost avoidance	Cost Avoidance	Technical Services & Ntwkg	EA	1	134,064	134,064		x		x	x			x		x			x
Cloud Program - TT6186CP LaserFiche (Imaging) Offset	Tangible Benefit	Technical Services & Ntwkg	EA																
Cloud Program - TT6186CP Oracle License for Clarity	Intangible Benefit	Technical Services & Ntwkg	EA	12				x	x	x	x	x	x						
Cloud Program - TT6186CP Storage Gateway Savings Vignette	Intangible Benefit	Technical Services & Ntwkg	EA	12				x	x	x	x	x	x						
Cloud Program - TT6186CP Oracle Upgrade for Clarity	Intangible Benefit	Technical Services & Ntwkg	EA	12				x	x	x	x	x	x						
Cloud Program - TT6186CP Y1 - 2 Power costs of the bubble hardware	Tangible Benefit	Technical Services & Ntwkg	EA	1	13,000	13,000		x	x										
Cloud Program - TT6186CP Y3 - 10 Power costs of the bubble hardware	Tangible Benefit	Technical Services & Ntwkg	EA	1	26,000	26,000				x	x	x	x		x		x		x
Cloud Program - TT6186CP Resiliency - Improved resiliency by the cloud model vs our two data centers	Intangible Benefit	Technical Services & Ntwkg	EA					x	x	x	x	x	x						
Cloud Program - TT6186CP Improved DR on premise in a full disaster we run in a degraded state	Intangible Benefit	Technical Services & Ntwkg	EA																
Cloud Program - TT6186CP Nimbleness (e.g.(Clarity Oracle started working in the new environment in days	Intangible Benefit	Technical Services & Ntwkg	EA																

**Oakland County -- Cloud Program**  
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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	
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)	Cost Avoidance	Technical Services & Ntwkg	EA	1,464	147	215,208			x	x	x	x	x		x	x	x	x
<b>Cloud Program - TT6186CP</b> 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)	Intangible Benefit	Technical Services & Ntwkg	EA															
<b>Refresh -</b> 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	Intangible Benefit	Technical Services & Ntwkg	EA															
<b>Cloud Program - TT6186CP</b> Improved citizen engagement models: It will empower us to use APIs and begin connecting disparate apps and giving a better citizen experience	Intangible Benefit	Technical Services & Ntwkg	EA															
<b>Cloud Program - TT6186CP</b> 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	Intangible Benefit	Technical Services & Ntwkg	EA															

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Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Affects Project ROI?											
							Annual Mu	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
<b>Cloud Program - TT6186CP</b> Containerization - With Cloud, we will be able to leverage containerization for custom built apps that are migrated	Intangible Benefit	Technical Services & Ntwkg	EA															

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Savings Detail

Benefit/Savings Description	Project Savings Category	Potential Savings Extensions									
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
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										
Cloud Program - TT6186CP SQL License Cost Avoidance by reducing enterprise pricing @ renewal	Cost Avoidance			29,705.00	29,705.00	29,705.00	29,705	29,705	29,705	29,705	29,705
<b>Cloud AD - TT6186AD</b> Allows cloud connections for on-prem applications	Intangible Benefit										
Pay as you go servers and SAN	Intangible Benefit										
Deferral of Maintenance and Upgrades for Hardware and Storage to IAAS provider	Intangible Benefit										
Unlimited resource scalability for servers and storage	Intangible Benefit										
<b>Cloud Program - TT6186CP</b> Capital Equipment Plan Savings based on budget reductions.	Tangible Benefit	290,000.00		686,000.00	156,000.00	0.00					
Cloud Program - TT6186CP Intrusion Detection System with 24 by 7 monitoring by an outside firm.	Intangible Benefit										

**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	Y7	Y8	Y9	Y10
Cloud Refresh - Separation of Dev/QA from production which increases the availability of production	Intangible Benefit										
<b>Cloud Connect - TT6186NC</b> 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.	Intangible Benefit										
<b>Cloud Connect - TT6186NC</b> Radware Infrastructure	Cost Avoidance		110,000					110,000			
<b>Cloud Connect - TT6186NC</b> Radware Maintenance	Cost Avoidance		7,400	7,400	7,400	7,400	7,400	7,400	7,400	7,400	7,400
<b>Cloud Connect - TT6186NC</b> Packetshaper Infrastructure	Cost Avoidance			150,000					150,000		
<b>Cloud Connect - TT6186NC</b> Packetshaper Maintenance	Cost Avoidance		15,803	15,803	15,803	15,803	15,803	15,803	15,803	15,803	15,803
<b>Cloud Connect - TT6186NC</b> Fire Eye Upgrade (10GB)	Cost Avoidance	139,000						139,000			
<b>Cloud Connect - TT6186NC</b> Fire Eye Annual Maintenance	Cost Avoidance		40,219	40,219	40,219	40,219	40,219	40,219	40,219	40,219	40,219
<b>Cloud Connect - TT6186NC</b> Fire Eye Gigamon Cards	Cost Avoidance		20,000					20,000			
<b>Cloud Connect - TT6186NC</b> <b>AT&amp;T ISP Connection Services (2 Drivers @\$3,091.97 *12 months)</b> <i>(updated per AT&amp;T email with revised rate)</i>	Cost Avoidance		74,207	74,207	74,207	74,207	74,207	74,207	74,207	74,207	74,207

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Benefit/Savings Description	Project Savings Category	Potential Savings Extensions										
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	
<b>Cloud Connect - TT6186NC</b> <b>C1-ASR1001-HX/K9 Routers (2)</b> Replacement at EOL 2021. (*Prices reflects an 66% discount per Presidio contract. \$307,000 Total List Price)	Cost Avoidance				104,380						104,380	
<b>Cloud Connect - TT6186NC</b> <b>C1-ASR1001-HX/K9 Routers</b> Maintenance (2) at EOL 2021. (*Prices reflects a 40% discount with a 5yr Maintenance agreements per Presidio contract. \$28,568 Total List Price)	Cost Avoidance				17,141	17,141	17,141	17,141	17,141	17,141	17,141	17,141
<b>Cloud Connect - TT6186NC</b> <b>C1-ASR1001-HX/K9 Routers Advanced Enterprise License (2)</b> at EOL 2021 - No discount	Cost Avoidance				16,650						16,650	
<b>Cloud Connect - TT6186NC</b> <b>SFP Module (8)</b> (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	Cost Avoidance				1,120						1,120	
<b>Cloud Refresh - TT8186CR</b> AWS billing costs avoided by acquiring Park My Cloud tool and enhancing spin up/spin down strategy	Cost Avoidance	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212	46,212
<b>Cloud Program - TT6186CP</b> 2 FX2s - Bubble capacity cost avoidance	Cost Avoidance	244,520		244,520			244,520		244,520			
<b>Cloud Program - TT6186CP</b> SSD and additional disk- Bubble capacity cost avoidance	Cost Avoidance	236,248					236,248					
<b>Cloud Program - TT6186CP</b> <b>Y1 - 2</b> Microsoft Server License - Bubble capacity & data center cost avoidance	Cost Avoidance	41,772	41,772									
<b>Cloud Program - TT6186CP</b> <b>Y3 - 10</b> Microsoft Server License - Bubble capacity & data center cost avoidance	Cost Avoidance			83,544	83,544	83,544	83,544	83,544	83,544	83,544	83,544	83,544



**Oakland County -- Cloud Program**  
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Savings Detail

Benefit/Savings Description	Project Savings Category	Potential Savings Extensions									
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Cloud Program - TT6186CP Backup (Avamar) - License bubble capacity cost avoidance	Cost Avoidance	16,380		16,380			16,380		16,380		
Cloud Program - TT6186CP VM Ware License - Bubble capacity cost avoidance	Cost Avoidance	134,064		134,064	134,064		134,064	134,064		134,064	134,064
Cloud Program - TT6186CP LaserFiche (Imaging) Offset	Tangible Benefit										
Cloud Program - TT6186CP Oracle License for Clarity	Intangible Benefit	0	0	0	0	0	0				
Cloud Program - TT6186CP Storage Gateway Savings Vignette	Intangible Benefit	0	0	0	0	0	0				
Cloud Program - TT6186CP Oracle Upgrade for Clarity	Intangible Benefit	0	0	0	0	0	0				
Cloud Program - TT6186CP Y1 - 2 Power costs of the bubble hardware	Tangible Benefit	13,000	13,000								
Cloud Program - TT6186CP Y3 - 10 Power costs of the bubble hardware	Tangible Benefit			26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000
Cloud Program - TT6186CP Resiliency - Improved resiliency by the cloud model vs our two data centers	Intangible Benefit										
Cloud Program - TT6186CP Improved DR on premise in a full disaster we run in a degraded state	Intangible Benefit										
Cloud Program - TT6186CP Nimbleness (e.g.(Clarity Oracle started working in the new environment in days	Intangible Benefit										

**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	Y7	Y8	Y9	Y10
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)	Cost Avoidance		215,208	215,208	215,208	215,208	215,208	215,208	215,208	215,208	215,208
<b>Cloud Program - TT6186CP</b> 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)	Intangible Benefit										
<b>Refresh -</b> 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	Intangible Benefit										
<b>Cloud Program - TT6186CP</b> Improved citizen engagement models: It will empower us to use APIs and begin connecting disparate apps and giving a better citizen experience	Intangible Benefit										
<b>Cloud Program - TT6186CP</b> 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	Intangible Benefit										

**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	Y7	Y8	Y9	Y10
<b>Cloud Program - TT6186CP</b> Containerization - With Cloud, we will be able to leverage containerization for custom built apps that are migrated	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
<b>Tangible Benefit:</b>											
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>	<b>303,000</b>	<b>13,000</b>	<b>712,000</b>	<b>182,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>26,000</b>	<b>1,366,000</b>
<b>Cost Avoidance:</b>											
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
<b>Cost Avoidance Subtotal:</b>	<b>858,196</b>	<b>570,821</b>	<b>1,057,262</b>	<b>785,653</b>	<b>529,439</b>	<b>1,299,651</b>	<b>793,503</b>	<b>940,339</b>	<b>785,653</b>	<b>663,503</b>	<b>8,284,019</b>
<b>Intangible Benefit:</b>											
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											
<b>Savings Total:</b>	<b>1,161,196</b>	<b>583,821</b>	<b>1,769,262</b>	<b>967,653</b>	<b>555,439</b>	<b>1,325,651</b>	<b>819,503</b>	<b>966,339</b>	<b>811,653</b>	<b>689,503</b>	<b>9,650,019</b>



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	103	128,153		x												
Cloud AD - TT6186AD IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	1,326	76	100,544		x												
Cloud AD - TT6186AD Professional Services (Turing Group/Strategic Solutions)	Development Svcs	Technical Services & Ntwkg	EA	1	56,852	56,852		x												
Streams - TT8186CS IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	455	116	52,979		x												
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	154	117	17,963		x												
Cloud Refresh (Phase I YEAR 1) - TT8186CR IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	329	126	41,273		x												
Cloud Refresh (Phase I YEAR 2) - TT8186CR IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	790	126	99,255			x											
Cloud Optimization - TT9186CO IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	EA	250	148	36,891			x	x										
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware	Technical Services	EA	1	332,209	332,209		x												
Cloud Program - TT6186CP Y2 - 10 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware	Technical Services & Ntwkg	EA	1	117,942	117,942			x	x	x	x	x	x	x	x	x	x	x	x
Cloud Program Streams costs for CAMS @ 35% utilization	Software	Technical Services & Ntwkg	EA	1	4,236	4,236		x	x	x	x	x	x	x	x	x	x	x	x	x

**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 Program - TT6186CP Disk Storage	Hardware	Technical Services &	EA	1	180,000	180,000		x	x	x	x	x	x	x	x	x	x	x	x	
Cloud Refresh (Phase I) - TT6186CR Professional Services (TBD)	Development Svcs	Technical Services & Ntwkg	EA	1	144,000	144,000		x												
Cloud Connect - TT6186NC IT Labor - Implementation (Actuals)	Development Svcs	Technical Services & Ntwkg	EA	276	110	30,432		x												
Cloud Connect - TT6186NC IT Labor - Implementation (Future ETC)	Development Svcs	Technical Services & Ntwkg	EA	928	147	136,416		x												
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)	Infrastructure	Technical Services & Ntwkg	ANN	12	9,789	117,465		x	x	x	x	x	x	x	x	x	x	x	x	
Cloud Connect - TT6186NC Windstream Direct Connection Services - (1G @ each site = 2@\$1,610 = \$3,220 x 12mths)	Infrastructure	Technical Services & Ntwkg	ANN	12	3,220	38,640		x	x	x	x	x	x	x	x	x	x	x	x	
Cloud Connect - TT6186NC AWS (Amazon)10GB Connection Services \$0.30/hr ; \$2,628x2= \$5,256/year (note: X 2 redundant connections = \$39,420/year)	Infrastructure	Technical Services & Ntwkg	ANN	2	2,628	5,256		x	x	x	x	x	x	x	x	x	x	x	x	
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2) (*Prices reflects an 66% discount per Presidio contract. \$346,000 Total List Price)	Hardware	Technical Services & Ntwkg	EA	2	76,120	152,240		x							x					
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)	Software	Technical Services & Ntwkg	ANN	2	14,837	29,674		x	x	x	x	x	x	x	x	x	x	x	x	
Cloud Connect - TT6186NC CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	Software	Technical Services & Ntwkg	ANN	2	12,500	25,000		x												
Cloud Connect - TT6186NC CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	Hardware	Technical Services & Ntwkg	EA	8	140	1,120		x							x					

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			
<b>Cloud Connect - TT6186NC</b> WAN Routers Professional Services - ASR1006-X (No discount)	Development Svcs	Technical Services & Ntwkg	EA	1	65,000	65,000		x												
<b>Cloud Connect - TT6186NC</b> CheckPoint SFP+ transceiver for 10G fiber Ports - short range (10GBase-SR)	Hardware	Technical Services & Ntwkg	EA	8	797	6,376			x							x				
<b>Cloud Connect - TT6186NC</b> Check Point SFP+ interface card - 4 Port 10GBase. Requires an additional 10GBase SFP+ transceiver per interface port.	Hardware	Technical Services & Ntwkg	EA	2	15,144	30,288			x							x				
<b>Cloud Connect - TT6186NC</b> Check Point Direct Enterprise Premium Support - Licenses	Software	Technical Services & Ntwkg	EA	1	8,151	8,151			x							x				
<b>Cloud Connect - TT6186NC</b> CheckPoint SFP Shipping Charge	Other	Technical Services & Ntwkg	EA	1	248	248			x							x				
<b>Cloud Connect - TT6186NC</b> CheckPoint Appliance CPAP-SBTE2000X-40VM - SandBlast TE Appliance TE2000X (*Prices reflects an 30% discount per Optiv contact. \$179,000 Total List Price)	Infrastructure	Technical Services & Ntwkg	EA	1	125,300	125,300		x												
<b>Cloud Connect - TT6186NC</b> CheckPoint Appliance Licenses (*Prices reflects an estimated 20% of hardware cost))	Software	Technical Services & Ntwkg	ANN	1	25,000	25,000		x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Cloud DNS - TT8186DN</b> IT Labor - Implementation	Development Svcs	Technical Services & Ntwkg	ANN	508	123	62,478		x												
<b>Cloud DNS - TT8186DN</b> AWS Services for DNS	Infrastructure	Technical Services & Ntwkg	ANN	10	10	100		x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Cloud Program - TT6186CP</b> Cloud Tools (Park My Cloud, Check Point, Alert Logic)	Software	Technical Services & Ntwkg	EA	12	8,300	99,600		x	x	x	x	x	x	x	x	x	x	x	x	x
<b>Cloud Program - TT6186CP</b> Cloud Strategic Bill - YR 1	Software	Technical Services & Ntwkg	EA	1	156,731	156,731		x												
<b>Cloud Program - TT6186CP</b> Cloud Strategic Bill - YR 2-6	Software	Technical Services & Ntwkg	EA	1	115,593	115,593			x	x	x	x	x	x	x	x	x	x	x	x

**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			
Program Management (19/20) - TT9186CP IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	HR	650	144	93,303			x	x										
GovCloud - Checkpoint Implementation - TT8186CP IT Hours - New Development	Development Svcs	Technical Services & Ntwkg	ANN	453	142	64,177		x												
GovCloud - Checkpoint Implementation - TT8186CP Professional Services	Development Svcs	Technical Services & Ntwkg	ANN																	

**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	Y7	Y8	Y9	Y10
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	128,153									
Cloud AD - TT6186AD IT Hours - New Development	Development Svcs	100,544									
Cloud AD - TT6186AD Professional Services (Turing Group/Strategic Solutions)	Development Svcs	56,852									
Streams - TT8186CS IT Hours - New Development	Development Svcs	52,979									
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	Development Svcs	17,963									
Cloud Refresh (Phase I YEAR 1) - TT8186CR IT Hours - New Development	Development Svcs	41,273									
Cloud Refresh (Phase I YEAR 2) - TT8186CR IT Hours - New Development	Development Svcs		99,255								
Cloud Optimization - TT9186CO IT Hours - New Development	Development Svcs		36,891	36,891							
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware	332,209									
Cloud Program - TT6186CP Y2 - 10 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	Hardware		117,942	117,942	117,942	117,942	117,942	117,942	117,942	117,942	117,942
Cloud Program Streams costs for CAMS @ 35% utilization	Software	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236

**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	Y7	Y8	Y9	Y10
Cloud Program - TT6186CP Disk Storage	Hardware	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000
Cloud Refresh (Phase I) - TT8186CR Professional Services (TBD)	Development Svcs	144,000									
Cloud Connect - TT6186NC IT Labor - Implementation (Actuals)	Development Svcs	30,432									
Cloud Connect - TT6186NC IT Labor - Implementation (Future ETC)	Development Svcs	136,416									
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)	Infrastructure	117,465	117,465	117,465	117,465	117,465	117,465	117,465	117,465	117,465	117,465
Cloud Connect - TT6186NC Windstream Direct Connection Services - (1G @ each site = 2@ \$1,610 = \$3,220 x 12mths)	Infrastructure	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640
Cloud Connect - TT6186NC AWS (Amazon) 10GB Connection Services \$0.30/hr ; \$2,628x2= \$5,256/year (note: X 2 redundant connections = \$39,420/year)	Infrastructure	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2) (*Prices reflects an 66% discount per Presidio contract. \$346,000 Total List Price)	Hardware	152,240					152,240				
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)	Software	29,674	29,674	29,674	29,674	29,674	29,674	29,674	29,674	29,674	29,674
Cloud Connect - TT6186NC CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	Software	25,000									
Cloud Connect - TT6186NC CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	Hardware	1,120					1,120				

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	Y7	Y8	Y9	Y10	
<b>Cloud Connect - TT6186NC</b> WAN Routers Professional Services - ASR1006-X (No discount)	Development Svcs	65,000										
<b>Cloud Connect - TT6186NC</b> CheckPoint SFP+ transceiver for 10G fiber Ports - short range (10GBase-SR)	Hardware		6,376						6,376			
<b>Cloud Connect - TT6186NC</b> Check Point SFP+ interface card - 4 Port 10GBase. Requires an additional 10GBase SFP+ transceiver per interface port.	Hardware		30,288						30,288			
<b>Cloud Connect - TT6186NC</b> Check Point Direct Enterprise Premium Support - Licenses	Software		8,151						8,151			
<b>Cloud Connect - TT6186NC</b> CheckPoint SFP Shipping Charge	Other		248						248			
<b>Cloud Connect - TT6186NC</b> CheckPoint Appliance CPAP-SBTE2000X-40VM - SandBlast TE Appliance TE2000X (*Prices reflects an 30% discount per Optiv contact. \$179,000 Total List Price)	Infrastructure	125,300										
<b>Cloud Connect - TT6186NC</b> CheckPoint Appliance Licenses (*Prices reflects an estimated 20% of hardware cost))	Software	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000
<b>Cloud DNS - TT8186DN</b> IT Labor - Implementation	Development Svcs	62,478										
<b>Cloud DNS - TT8186DN</b> AWS Services for DNS	Infrastructure	100	100	100	100	100	100	100	100	100	100	100
<b>Cloud Program - TT6186CP</b> Cloud Tools (Park My Cloud, Check Point, Alert Logic)	Software	99,600	99,600	99,600	99,600	99,600	99,600	99,600	99,600	99,600	99,600	99,600
<b>Cloud Program - TT6186CP</b> Cloud Strategic Bill - YR 1	Software	156,731										
<b>Cloud Program - TT6186CP</b> Cloud Strategic Bill - YR 2-6	Software		115,593	115,593	115,593	115,593	115,593	115,593	115,593	115,593	115,593	115,593

**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	Y7	Y8	Y9	Y10
<b>Program Management (19/20) - TT9186CP</b> IT Hours - New Development	Development Svcs		93,303	93,303							
<b>GovCloud - Checkpoint Implementation - TT8186CP</b> IT Hours - New Development	Development Svcs	64,177									
<b>GovCloud - Checkpoint Implementation - TT8186CP</b> Professional Services	Development Svcs										



**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	Year 9	Year 10	Total
<b>Development Services:</b>											
Cloud Infrastructure Optimization - TT6186CO IT Hours - New Development	112,178										112,178
Cloud Infrastructure Optimization - TT6186CO Professional Services (Coalfire/Strategic Solutions)	52,000										52,000
Program Management - TT6186PM IT Hours - New Development	128,153										128,153
Cloud AD - TT6186AD IT Hours - New Development	100,544										100,544
Cloud AD - TT6186AD Professional Services (Turing)	56,852										56,852
Streams - TT8186CS IT Hours - New Development	52,979										52,979
Cloud 1.0 Foundation - TT8186C1 IT Hours - New Development	17,963										17,963
Cloud Refresh (Phase I YEAR 1) - TT8186CR	41,273										41,273
Cloud Refresh (Phase I YEAR 2) - TT8186CR	0	99,255	0	0	0	0					99,255
Cloud Optimization - TT9186CO IT Hours - New Development	0	36,891	36,891								73,782
Program Management (19/20) - TT9186CP IT Hours - New Development	0	93,303	93,303	0	0	0	0				186,606
Cloud Refresh (Phase I) - TT8186CR Professional Services (TBD)	144,000	0	0	0	0	0					144,000
	0										
Cloud Connect - TT6186NC IT Labor - Implementation (Actuals)	30,432										30,432
Cloud Connect - TT6186NC IT Labor - Implementation (Future ETC)	136,416										136,416
Cloud Connect - TT6186NC WAN Routers Professional Services -	65,000										65,000
Cloud DNS - TT8186DN IT Labor - Implementation	62,478										62,478
GovCloud - Checkpoint Implementation - TT8186CP	64,177										64,177
<i>Development Services Subtotal:</i>	<b>1,064,445</b>	<b>229,449</b>	<b>130,194</b>								<b>1,424,088</b>
<b>Hardware:</b>											

**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	Year 9	Year 10	Total
Cloud Program - TT6186CP Y1 Hardware & Liscensing footprint (QA,Prod, Dev) supporting Alert Logic, CAMS, Checkpoint, GIS, Clarity,eLearning, LaserFiche, Neptune, NGINX	332,209										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	117,942	117,942	1,061,478
Cloud Program Streams costs for CAMS @ 35% utilization	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	42,360
Cloud Program - TT6186CP Disk Storage	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	180,000	1,800,000
Cloud Connect - TT6186NC CISCO ASR1002-HX WAN Routers (2)	152,240					152,240					304,480
Cloud Connect - TT6186NC CISCO SFP (8) (*Prices reflects an 80% discount per Presidio contract. \$5,600 Total List Price)	1,120					1,120					2,240
Cloud Connect - TT6186NC CheckPoint Appliance CPAP-SBTE2000X- Cloud Connect - TT6186NC	125,300										125,300
Cloud Connect - TT6186NC CheckPoint SFP+ transceiver for 10G fiber Cloud Connect - TT6186NC		6,376					6,376				12,753
Cloud Connect - TT6186NC Check Point SFP+ interface card - 4 Port		30,288					30,288				60,575
<b>Hardware Subtotal:</b>	<b>795,105</b>	<b>338,842</b>	<b>302,178</b>	<b>302,178</b>	<b>302,178</b>	<b>455,538</b>	<b>338,842</b>	<b>302,178</b>	<b>302,178</b>	<b>302,178</b>	<b>3,741,394</b>
<b>Software:</b>											
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	99,600	99,600	996,000
Cloud Program Streams costs for CAMS @ 35% utilization	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	4,236	42,360
Cloud Program - TT6186CP Cloud Strategic Bill - YR 1	156,731										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	115,593	115,593	1,040,338
Cloud Connect - TT6186NC CISCO ASR1006-X WAN Routers (2) Advanced Enterprise License - No discount	25,000										25,000

**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	Year 9	Year 10	Total
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	29,674	29,674	296,740
Cloud Connect - TT6186NC Check Point Direct Enterprise Premium Cloud Connect - TT6186NC		8,151					8,151				16,302
CheckPoint Appliance Licenses (*Prices	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	25,000	250,000
<i>Software Subtotal:</i>	<b>340,241</b>	<b>282,254</b>	<b>274,103</b>	<b>274,103</b>	<b>274,103</b>	<b>274,103</b>	<b>282,254</b>	<b>274,103</b>	<b>274,103</b>	<b>274,103</b>	2,823,471
<b>Infrastructure:</b>											
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	117,465	117,465	1,174,646
Cloud Connect - TT6186NC Windstream Direct Connection Services - Cloud Connect - TT6186NC	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640	38,640	386,400
AWS (Amazon)10GB Connection Services	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256	5,256	52,560
Cloud DNS - TT8186DN AWS Services for DNS	100	100	100	100	100	100	100	100	100	100	1,000
<i>Infrastructure Subtotal</i>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	<b>161,461</b>	1,614,606
<b>Training:</b>											
<i>Training Subtotal:</i>											
<b>Other:</b>											
Cloud Connect - TT6186NC CheckPoint SFP Shipping Charge		248					248				497
<i>Other Subtotal:</i>		<b>248</b>					<b>248</b>				497
<b>Costs Total:</b>	<b>2,361,251</b>	<b>1,012,254</b>	<b>867,936</b>	<b>737,742</b>	<b>737,742</b>	<b>891,102</b>	<b>782,805</b>	<b>737,742</b>	<b>737,742</b>	<b>737,742</b>	<b>9,604,056</b>

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Assumptions

Date	Project	Assumption Description
20-Apr-18	Program	Year 1 starts with 2018
03-May-18	<b>Program Spend To Date</b>	\$460,664
22-Mar-17	AD - TT6186AD	Consulting services from Strategic will be leveraged and funding will be available.
25-Mar-17	Program	Subsequent phases will include additional scope and leverage the remaining ETC.
14-Dec-17	Program Management	Support and enhancement efforts <200hrs are listed as tasks and managed under the Cloud Program labor costs.
08-Feb-18	Network Connect	The Cloud Network Connect project is only sized through Design and RFP process. The labor and equipment costs have not estimated for implementation.
22-Feb-18	Refresh	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.
22-Feb-18	Refresh	No backup/storage estimates or DR costs included
22-Feb-18	Refresh	DR must be manually failed over. This will require pre-configuring fail over environment in another AWS datacenter
22-Feb-18	Program	Excluded is the shared stewardship (Labor) costs, because they are the same across the board for physical and virtual servers.
10-Apr-18	Program	Apps In Scope: Clarity, CAMs, Imaging, Neptune, eLearning, GIS
10-Apr-18	Program	Costs In Scope (for the 6 Apps): Strategic, Licenses, AWS Server Costs, AWS DB Costs
10-Apr-18	Program	Infrastructure In Scope (for Apps In Scope): Cloud AD, Streams, Refresh (Phase I), Optimization (Refresh Phase II), Security/Cloud Tools
10-Apr-18	Program	Scope assumptions are based on the Coal Fire validated design approved by OA
10-Apr-18	Program	VM Capacity Bubble estimates were based upon the technology and environment configuration available when the specific project was scheduled to be executed.
10-Apr-18	Network Connect	ROI In Scope: Network Connect cost and savings (incl direct connect, upgraded internet)
16-Apr-18	DNS	ROI In Scope: Public DNS to Cloud because Network Connect benefits are not realized unless this is completed
10-Apr-18	Program	Billing, including offsets are in scope for the ROI
10-Apr-18	Refresh	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
26-Apr-18	Program	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
08-Feb-18	Network Connect	The Cloud Network Connect project is only sized through Design and RFP process. The labor and equipment costs have not estimated for implementation.
21-Feb-18	Network Connect	All other Cloud projects are managed under the Cloud Program.
02-Mar-18	Network Connect	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.
05-Mar-18	Network Connect	CISCO products (ASR WAN Router) price in the 'Cost Detail' reflects a 66% discount based on current Presidio agreement.
05-Mar-18	Network Connect	CISCO maintenance price in the 'Cost Detail' reflects a 40% discount per Guy Compton.

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Assumptions

Date	Project	Assumption Description
05-Mar-18	Network Connect	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.
17-Apr-18	Refresh	Consulting Services will be used when practical.
20-Apr-18	Refresh	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
23-Apr-18	Refresh	CheckPoint numbers for redesign are <b>not</b> included
23-Apr-18	Program	In Scope: Park My Cloud
23-Apr-18	Refresh	Out of Scope: Backup Tools standards and implementation are out of scope of this project since it is currently being implemented within Cloud Support
24-Apr-18	Program	Server, DB, and Disk costs includes AWS Services we pay to Strategic
26-Apr-18	Program	SharePoint is not included
26-Apr-18	Program	Efficiency gains resulting from the completion of RAP significantly impacted the cloud program ROI
26-Apr-18	Program	Device being purchased in FIPS capable
27-Apr-18	Program	SQL License Cost Avoidance by reducing enterprise pricing @ renewal is based on the data in the Oakland County SCE True Up workbook 7/16/2017
27-Apr-18	Program	Additional savings will be found when AutoScale is utilized
27-Apr-18	Program	Oakland County could determine if adjustments to the chargeback model for other cloud implementations are necessary. Potential Recovery: Neptune: \$7,905.60 Year 1 and \$4,980.00 Year 2 CAMS: \$44,669.40 Year 1 and \$20,812.31 Year 2 eLearning: \$13,486.32 Year 1 and \$7,658.95 Year 2 GIS: \$ 234,675.60 Year 1 and \$132,940.83 Year 2
02-May-18	Network Connect	Oakland County could determine if adjustments to the chargeback model for Cloud Network Connect mplementations are necessary. Equipment (ASR Routers) - reduced from 40Gbps/HA to 8Gpbs/No HA (Presidio 66% discount applied) Direct Connect services - reduced from 5G to 1G AWS services - reduced from 10Gbps to 1Gpbs AT&T ISP services not change from the 5Gbps estimate. Note: The basic difference is a loss of hardware redundancy in the chassis, loss of expansion, also a reduction in performance. The appliance will meet our cloud connect specification in the short run (3-5 years). If we need to add any FIPS 140-2 throughput the sizing will need to be redone, this is capable, but at a reduced throughput.
02-May-18	Refresh	Automation: Savings Detail Row 53 assumes a reduction of 100 server builds per year.
08-May-18	Network Connect	Costs and Savings in 10yr plan include EOL @ 5yrs.

**Oakland County -- Cloud Program**  
Return on Investment Analysis

Assumptions

Date	Project	Assumption Description
22-Aug-18	IT Hours - New Development Program Management (19/20) - TT9186CP	1/2 of the costs will be incurred in the 2019 fiscal year and 1/2 will be incurred in the 2020 fiscal year.