Project Name: Sizing: CLEMIS CAD Enhancement Program Project ID: DF9183PM

Leadership Group: CLEMIS				
Department: IT		Division: CLEMIS	S	
Project Sponsor: Jeff Nesmith	er No. 183			
Request Type: New Development	•			
IT Team Name: CLEMIS Public Safety	/ Apps	IT Team No: F		
Project Manager/Leader: Brian Smith				
Account 63500 Account Number: Description:	CLEMIS Fur	nds	Customer Name:	CLEMIS
Grant Funded? No		ndate? No ndate Source:		

Project Goal

To enhance the Computer Aided Dispatch (CAD) system for CLEMIS law enforcement agencies so that resources can be dispatched and records can be maintained and shared in a more efficient manner.

Business Objective

To enhance the CAD system by adding features and functionality to make the system more efficient and robust.

Major Deliverables

- CAD System with Split Screen and Call Stacking enhancements
- ESRI Mapping integration with CAD including Street Load Automation enhancement
- Automatic Vehicle Location (AVL) module plus enhancements for internal modems
- Enhancements to in-car CAD client for NG911
- Calls for Service (CFS) interface to FRMS Rewrite
- Support for Consolidated Dispatch Centers
- NG911 Interface

Approach

- Develop Detailed Project Plans, as Needed
- Review Current Business Processes
- Document Business Requirements
- Assess Hardware and Software Requirements
- Develop Implementation Plans
- Develop New Systems/Data

Project Name: Sizing: CLEMIS CAD Enhancement Program Project ID: DF9183PM

- Develop User Acceptance Test Plans
- Test New System/Data
- Develop User Training
- Develop User Documentation, SLA, Disaster Recovery Toolkit, Service Center Knowledge Documents
- Train/Notify Users of New System/Data
- Conduct Change Control
- Release New System/Data into Production

Research & Analysis

Gartner Research Recommendation

Research Conducted - Nothing found

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users 8,000+

Divisions CLEMIS

Leadership Groups CLEMIS

Risk

Business Environment Low - Little or no impact to existing business processes

Technical Environment Medium – Previously implemented technologies with new aspects

and/or new requirements.

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:

Project Name: Sizing: CLEMIS CAD Enhancement Program Project ID: DF9183PM Role: <u>Name</u> **Hours per Day** Project Sponsor: Jeff Nesmith As needed **Facilities** Use existing facilities **Technical** None **Funding CLEMIS Fund** Other None **Priority Constraints** Availability of resources as planned **Exclusions**

Project Name: Sizing: CLEMIS CAD Enhancement Program Project ID: DF9183PM

PROJECT PHASE AUTHORIZATION

Phase(s): All			
Total Estimated Application Services	Hours:	85	
Total Estimated Technical Systems	Hours:	203	
Total Estimated CLEMIS	Hours:	6,212	
Total Estimated Internal Services	Hours:		
IT Application Services Division Manager Approv	al:		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:	6,500	Cost:	\$1,072,500

Project Name: Sizing: CLEMIS CAD Enhancement Program Project ID: DF9183PM

PROJECT COMPLETION AUTHORIZATION

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

CLEMIS CAD Enhancement Program - Size Estimate (+/- 10% to 50%)

1	Туре	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	3	000000	CLEMIS CAD Enhancement Program	6,500	
4				6,500	

Return on Investment Analysis

Project Summary

Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Benefits/Savings:							
Tangible Benefits Subtotal:	0	0	0	0	0	0	0
Cost Avoidance Subtotal:	0	0	0	0	0	0	0
Costs:							
Development Services Subtotal:	1,072,500	33,660	34,333	35,020	35,720	36,435	1,247,668
Hardware Subtotal:	0	0	0	0	0	0	0
Software Subtotal:	0	0	0	0	0	0	0
Infrastructure Subtotal	17,020	17,360	17,708	18,062	18,423	18,791	107,364
Training Subtotal:	0	0	0	0	0	0	0
Other Subtotal:	0	0	0	0	0	0	0
Annual Statistics:							
Annual Total Savings	0	0	0	0	0	0	0
Annual Total Costs	1,089,520	51,020	52,041	53,082	54,143	55,226	1,355,032
Annual Return on Investment	(1,089,520)	(51,020)	(52,041)	(53,082)	(54,143)	(55,226)	(1,355,032)
Annual Costs/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	(1,000,002)
Project Cumulative Statistics:							
Cumulative Total Savings	0	0	0	0	0	0	0
Cumulative Total Costs	1,089,520	1,140,540	1,192,581	1,245,663	1,299,806	1,355,032	1,355,032
Cumulative Return on Investment	(1,089,520)	(1,140,540)	(1,192,581)	(1,245,663)	(1,299,806)	(1,355,032)	(1,355,032)
Cumulative Cost/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Ournaliative Cost Cavings Teatio	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070	0.0070
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:			

As Of: 09/26/2018

As Of: 09/26/2018

Return on Investment Analysis

Savings Detail

	Project Savings		Unit		Rate per		Annual
Benefit/Savings Description	Category	Budget Category/Funding Source	Desc	Units	Unit	Total Savings	Multiplier
Improved system performance and							
stability provides improved service	Intangible Benefit					0	
Provides a foundation for far better data							
integration and sharing among CLEMIS							
applications	Intangible Benefit					0	
New frontend functionality will provide							
improved customer experiences and will							
stream line workflow processes							
identified by the CLEMIS CAD							
Committee.	Intangible Benefit					0	
Enhancing the CLEMIS CAD mapping							
functionality using ESRI tools will							
provide for standardized CAD map							
maintenance making it easier to							
maintain.	Intangible Benefit					0	
Map enhancement will provide for							
increased amount of data to be utilized							
by the customers while handling							
emergency situations.	Intangible Benefit					0	
Addition of MABAS data in CAD will							
allow users to dispatch multiple							
agencies during emergency situations							
more effectively and efficiently.	Intangible Benefit					0	
Development of Central Dispatch CAD							
will streamline the dispatch process for							
agencies that dispatch multiple							
agencies.	Intangible Benefit					0	
Streamlining CAD workflow reduces							
Business Analyst staff time to answer							
questions regarding customer support							
issues.	Intangible Benefit					0	
						0	
						0	
						0	

Savings Detail

		Af	ffec	ts F	Pro	jec	t ROI? Potential Savings Extensions								
	Project Savings	.,,												\/-	1/2
Benefit/Savings Description	Category	Y1	ΥZ	2 Y:	3	Y4 ;	Y5	Y6	ő	Y1	Y2	Y3	Y4	Y5	Y6
Improved system performance and			ļ		-	ļ		ļ							
stability provides improved service	Intangible Benefit		<u> </u>												
Provides a foundation for far better data			ĺ	1	İ	į						i !		•	
integration and sharing among CLEMIS			ĺ	Ì	İ	İ		ĺ							
applications	Intangible Benefit		<u> </u>					<u> </u>							
New frontend functionality will provide			1	Ì		ĺ						i I I	i I I		
improved customer experiences and will			ļ		-	ļ									
stream line workflow processes			į	1	-	į								•	
identified by the CLEMIS CAD			ĺ	Î	- [į		ĺ							
Committee.	Intangible Benefit		-	Ì	Ì	į									
Enhancing the CLEMIS CAD mapping			į		Ţ	į									
functionality using ESRI tools will			ļ		-	į									
provide for standardized CAD map			į	į	-	į		į							
maintenance making it easier to			ĺ	Î	ı	į		ĺ							
maintain.	Intangible Benefit		ļ	į	- [ļ		ļ] 		
Map enhancement will provide for			İ		Ţ	į									
increased amount of data to be utilized			į		ı	į						i !	į	•	
by the customers while handling			ĺ		Î	ĺ									
emergency situations.	Intangible Benefit		1	1	-	ļ						 	! !		
			I		Ī										
Addition of MABAS data in CAD will			İ	į	ı	į		į							
allow users to dispatch multiple			-	Ì	Ì	į									
agencies during emergency situations			ļ	į	į	ļ						! ! !			
more effectively and efficiently.	Intangible Benefit		ļ		-	į									
Development of Central Dispatch CAD			İ		Ī	Ī									
will streamline the dispatch process for			-	Ì	Ì	į									
agencies that dispatch multiple			ļ	į	-	ļ						I I !	! ! !		
agencies.	Intangible Benefit		ļ		-	ļ									
Streamlining CAD workflow reduces			İ	İ	T	i									
Business Analyst staff time to answer			ĺ	İ	İ	į		İ							
questions regarding customer support			1		į	ļ									
issues.	Intangible Benefit		1		-	ļ									
			Ī	İ	İ	į									
			Î	Ì	T	į		Î							
			į .	i	Ţ	İ		į				1 1 1	1 1 1		

As Of: 09/26/2018

Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Tangible Benefit:							
Tangible Benefits Subtotal:							
Cost Avoidance:							
Cost Avoidance Subtotal.							
Intangible Benefit:							
Improved system performance and stability							
provides improved service							
Provides a foundation for far better data							
integration and sharing among CLEMIS							
applications							
New frontend functionality will provide							
improved customer experiences and will							
stream line workflow processes identified by							
the CLEMIS CAD Committee.							

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Oakland County -- CLEMIS CAD Enhancement Program Return on Investment Analysis

As Of: 09/26/2018

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Enhancing the CLEMIS CAD mapping functionality using ESRI tools will provide for							
standardized CAD map maintenance making							
it easier to maintain.							
Map enhancement will provide for increased							
amount of data to be utilized by the							
customers while handling emergency							
situations. Addition of MABAS data in CAD will allow							
users to dispatch multiple agencies during							
emergency situations more effectively and							
efficiently.							
Development of Central Dispatch CAD will							
streamline the dispatch process for agencies							
that dispatch multiple agencies.							
Streamlining CAD workflow reduces							
Business Analyst staff time to answer questions regarding customer support							
issues.							
Savings Total:							

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								Af	fect	s Pr	oiec	t RC)I?
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual				-,		
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y 1	Y2	Υ3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs			6,500	165	1,072,500	1.020	Х		•			П
IT Hours - System Maintenance	Development Svcs			50	165	8,250	1.020			Х	Х	Х	Х
IT Hours - Customer Support	Development Svcs			100	165	16,500	1.020			Х	Χ	Х	Х
IT Hours - Planned Maintenance	Development Svcs			50	165	8,250	1.020		Х	Х	Х	Х	Х
User Hours - New Development	Development Svcs					0							
User Hours - PTNE/OT	Development Svcs					0							
Contractor Professional Services	Development Svcs					0							
PC System - Acquisition	Hardware				687	0							
PC System - Maintenance	Hardware				2,936	0				Ī			i
Notebook - Acquisition	Hardware				1,115	0							
Notebook - Maintenance	Hardware				3,024	0							
Tablet Notebook - Acquisition	Hardware				1,421	0							
Tablet Notebook - Maintenance	Hardware				2,800	0							
Laserprinter - Acquisition	Hardware				1,432	0							
Laserprinter - Maintenance	Hardware				1,408	0							
PC Maintenance User Owned	Hardware				2,720	0							
Printer Maintenance User Owned	Hardware				1,264	0				Ī			i
File Space (100GB)	Hardware		ANN		23	0							i
Package Software - Acquisition	Software					0							
Package Software - Maintenance	Software					0							
Business Objects Access	Software					0							í
Term Emulation SFTW-Acquisition	Software					0							i
Term Emulation SFTW-Maintenance	Software					0							
Server - Acquisition/Upgrade	Infrastructure				8,000	0							•
Server - Maintenance	Infrastructure				360	0							i
Server Sftwre - Acquisition/Upgrade	Infrastructure				335	0							i
Server Sftwre - Maintenance	Infrastructure					0							
Server Rack Mount	Infrastructure				400	0							
Oracle Enterprise Per Processor -													
Includes Year 1 Maintenance	Infrastructure				21,372	0						į '	i l
Oracle Enterprise Per Processor - Year													
2 and Beyond	Infrastructure				3,432	0				<u> </u>			

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Return on Investment Analysis

	1							Aff	ect	s Pro	oiect	: ROI?
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual	l				
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	Y3	Y4	Y5 Y6
SQL Server Enterprise - Per Processor								ŀ		\Box	ŀ	!
(4 cores) - Purchased Sept 2016-Aug										i	į	İ
2017 - Includes Maintenance thru Aug								1		1	į	
2019	Infrastructure				24,533	0		į			į	į
SQL Server Enterprise - Per Processor										i i	į	i
(4 cores) - Purchased Sept 2017-Aug								l		1 1	į	
2018 - Includes Maintenance thru Aug								1 1		1 1	i	
2019	Infrastructure				20,759	0					į	į
SQL Server Enterprise - Per Processor								li			ĺ	İ
(4 cores) - Purchased Sept 2018-Aug								li		1	į	
2019 - Includes Maintenance thru Aug								1 1		1 1	i	
2019	Infrastructure				16,985	0					į	į
SQL Server Enterprise - Maintenance,										i 1	į	- 1
Per Processor (4 cores) - Sept 2019								l		1 1	į	
and Beyond	Infrastructure				4,218	0		1			į	į
SQL Server Standard - Per Processor								li		i i	į	
(4 cores) - Purchased Sept 2016-Aug								li		<u>i I</u>	i	
2017 - Includes Maintenance thru Aug								li		1	į	
2019	Infrastructure				6,398	0		į			į	
SQL Server Standard - Per Processor								1 1		i i	ĺ	i
(4 cores) - Purchased Sept 2017-Aug										<u>i I</u>		
2018 - Includes Maintenance thru Aug								li		1	į	
2019	Infrastructure				5,414	0		Li			į	
SQL Server Standard - Per Processor								1 1		i i	ĺ	i
(4 cores) - Purchased Sept 2018-Aug										1 1	ŀ	!
2019 - Includes Maintenance thru Aug								1 1		1 1	i	
2019	Infrastructure				4,429	0				∟i	į	į
SQL Server - Standard Maintenance,										i İ	İ	İ
Per Processor (4 cores) - Sept 2019										<u>i I</u>		
and Beyond	Infrastructure				1,100	0					ļ	
Websphere Basic Per Processor											į	
Single/Dual Core - Includes Year 1										į į	į	
Maintenance	Infrastructure				3,506	0						ļ

	1							Aff	ects	Pro	iect	ROI?
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual	l		Ī		
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	Y3 \	Y4 `	Y5 Y6
Websphere Basic Per Processor												
Single/Dual Core - Year 2 and Beyond	Infrastructure				701	0					İ	İ
Websphere ND Per Processor	iiiiasiiaotaic				701	0		H				-
Single/Dual Core - Includes Year 1								li		- 1	ı	İ
Maintenance	Infrastructure				13,180	0				- 1	- 1	İ
Maintenance	iiiiastiaotaio				13,100	0		H		-	+	-
Websphere ND Per Processor												
Single/Dual Core - Year 2 and Beyond	Infrastructure				2,635	0		li	į	i	ı	i
SSL Certificate	Infrastructure				845	0						
Internet Access	Infrastructure				180	0						
Imperva Web Application Firewall												
(External Web Applications Only)	Infrastructure		ANN		500	0		li		- 1	ı	İ
App Code Directories on Consolidated												
IIS Server (Virtual)	Infrastructure		ANN		415	0					- 1	
Database (5 GB) on Consolidated SQL												
Instance Server	Infrastructure		ANN		930	0						<u> </u>
Database Instance (125 GB DB) on												
Consolidated SQL Server	Infrastructure		ANN		2,395	0				1		
Database SQL Maint Server	Infrastructure		ANN		834	0						
Database SQL Server Physical	Infrastructure		ANN		19,158	0					L	i
DB Maintenance (Annual Cycle \$610)	Infrastructure		ANN		610	0				<u> </u>		
DB Maintenance (Semi-Annual Cycle								1 1		- 1	- 1	
\$1220)	Infrastructure		ANN		1,220	0					L	
DB Maintenance (Semi-Annual Cycle									ļ	- !	- !	
\$2440)	Infrastructure		ANN		2,440	0						
Dedicated Virtual Server	Infrastructure		ANN		4,150	0		Ĺ			i	
DB Instance Setup	Infrastructure				976	0					1	
DBA MS SQL Database Creation on									ļ	- 1	- 1	İ
Exisitng Instance	Infrastructure				366	0				<u>į</u>		
								[
Extra Small - 2 Core 8GB RAM, 500GB											- 1	
Drive, 10 GB NIC - Cloud/Virtual = \$601											I	
On Premise Physical Server = N/A	Infrastructure		ANN			0				<u> </u>	<u> </u>	i

As Of: 09/26/2018

Return on Investment Analysis

								Af	fect	s Pr	ojec	t RC) ?
On at Demonstration	Project Cost	Budget Category/Funding	Unit	11!4	Rate per	T-4-1 04	Annual	V/4	\ <u>/</u> 0	\	V.4	V.5	V 0
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	¥1	Y2	Y 3	¦ Y4	Y5	Y 6
Small - 4 Core 16GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = \$951													
, , , , , , , , , , , , , , , , , , ,	Infrastructure		ANN			0			<u> </u>	<u> </u>	<u> </u>		
Medium - 8 Core 32GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = \$1,702 On Premise Physical Server =													
\$9,751	Infrastructure		ANN	10	1,702	17,020	1.020	Х	Х	Х	Х	Х	Х
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,										<u> </u>	<u> </u>		j
500GB Drive, 10 GB NIC - Cloud/Virtual = \$7,564 On Premise Physical Server =	Infrastructure		ANN			0							

Return on Investment Analysis

	Potential Cost Extensions						
	Project Cost						
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs	1,072,500.00					
IT Hours - System Maintenance	Development Svcs		8,415.00	8,583.30	8,754.97	8,930.07	9,108.67
IT Hours - Customer Support	Development Svcs		16,830.00	17,166.60	17,509.93	17,860.13	18,217.33
IT Hours - Planned Maintenance	Development Svcs		8,415.00	8,583.30	8,754.97	8,930.07	9,108.67
User Hours - New Development	Development Svcs						
User Hours - PTNE/OT	Development Svcs						
Contractor Professional Services	Development Svcs						
PC System - Acquisition	Hardware						
PC System - Maintenance	Hardware						
Notebook - Acquisition	Hardware						
Notebook - Maintenance	Hardware						
Tablet Notebook - Acquisition	Hardware						
Tablet Notebook - Maintenance	Hardware						
Laserprinter - Acquisition	Hardware						
Laserprinter - Maintenance	Hardware						
PC Maintenance User Owned	Hardware						
Printer Maintenance User Owned	Hardware						
File Space (100GB)	Hardware						
Package Software - Acquisition	Software						
Package Software - Maintenance	Software						
Business Objects Access	Software						
Term Emulation SFTW-Acquisition	Software						
Term Emulation SFTW-Maintenance	Software						
Server - Acquisition/Upgrade	Infrastructure						
Server - Maintenance	Infrastructure						
Server Sftwre - Acquisition/Upgrade	Infrastructure						
Server Sftwre - Maintenance	Infrastructure						
Server Rack Mount	Infrastructure						
Oracle Enterprise Per Processor -							
Includes Year 1 Maintenance	Infrastructure						
Oracle Enterprise Per Processor - Year							
2 and Beyond	Infrastructure						

		Potential Cost Extensions						
	Project Cost							
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6	
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						i		
2019	Infrastructure							
SQL Server Enterprise - Maintenance,								
Per Processor (4 cores) - Sept 2019	ĺ					I I I		
and Beyond	Infrastructure		<u>!</u>					
SQL Server Standard - Per Processor								
(4 cores) - Purchased Sept 2016-Aug			İ					
2017 - Includes Maintenance thru Aug								
2019	Infrastructure		<u> </u>					
SQL Server Standard - Per Processor								
(4 cores) - Purchased Sept 2017-Aug								
2018 - Includes Maintenance thru Aug						I I I		
2019	Infrastructure							
SQL Server Standard - Per Processor								
(4 cores) - Purchased Sept 2018-Aug						į		
2019 - Includes Maintenance thru Aug						I I I		
2019	Infrastructure							
SQL Server - Standard Maintenance,						i		
Per Processor (4 cores) - Sept 2019						İ		
and Beyond	Infrastructure					! !		
Websphere Basic Per Processor								
Single/Dual Core - Includes Year 1								
Maintenance	Infrastructure							

		Potential Cost Extensions								
	Project Cost				! !	! !	:			
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6			
							:			
Websphere Basic Per Processor										
Single/Dual Core - Year 2 and Beyond	Infrastructure] 				
Websphere ND Per Processor			į			i !	•			
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	mirastructure									
(External Web Applications Only)	Infrastructure				! ! !	 	!			
	mirastructure						<u> </u>			
App Code Directories on Consolidated	l f						!			
IIS Server (Virtual)	Infrastructure					: :	!			
Database (5 GB) on Consolidated SQL	la fara taura taura									
Instance Server	Infrastructure				<u> </u>	<u> </u>	Į .			
Database Instance (125 GB DB) on							į			
Consolidated SQL Server	Infrastructure				; !] }				
Database SQL Maint Server	Infrastructure						<u> </u>			
Database SQL Server Physical	Infrastructure				<u> </u>		<u> </u>			
DB Maintenance (Annual Cycle \$610)	Infrastructure		1		! !	 	!			
DB Maintenance (Semi-Annual Cycle							•			
\$1220)	Infrastructure					 	<u> </u>			
DB Maintenance (Semi-Annual Cycle										
\$2440)	Infrastructure									
Dedicated Virtual Server	Infrastructure				! !	! ! !	!			
DB Instance Setup	Infrastructure									
DBA MS SQL Database Creation on					i					
Exisitng Instance	Infrastructure									
Extra Small - 2 Core 8GB RAM, 500GB										
Drive, 10 GB NIC - Cloud/Virtual = \$601			į		į					
On Premise Physical Server = N/A	Infrastructure						•			
OTT Terrise Friysical Server - N/A	mmastructure		<u> </u>		<u> </u>	<u> </u>	1			

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Return on Investment Analysis

	Potential Cost Extensions									
Cost Description	Project Cost Category	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	17,020.00	17,360.40	17,707.61	18,061.76	18,423.00	18,791.46			
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									

Oakland County -- CLEMIS CAD Enhancement Program Return on Investment Analysis

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development Services:							
IT Hours - New Development	1,072,500						1,072,500
IT Hours - System Maintenance	, , , , , , , , ,	8,415	8,583	8,755	8,930	9,109	43,792
IT Hours - Customer Support		16,830	17,167	17,510	17,860	18,217	87,584
IT Hours - Planned Maintenance		8,415	8,583	8,755	8,930	9,109	43,792
User Hours - New Development			,	,	,	,	-, -
User Hours - PTNE/OT							
Contractor Professional Services							
Development Services Subtotal:	1,072,500	33,660	34,333	35,020	35,720	36,435	1,247,668
Hardware:	1,012,000	00,000	0.,000	00,020	00,720	30,100	1,2 11,000
 							
Hardware Subtotal:							
Software:							
Software Subtotal:							
Infrastructure:							
Medium - 8 Core 32GB RAM, 500GB Drive,							
10 GB NIC - Cloud/Virtual = \$1,702 On							
Premise Physical Server = \$9,751	17,020	17,360	17,708	18,062	18,423	18,791	107,364
Infrastructure Subtotal	17,020	17,360	17,708	18,062	18,423	18,791	107,364
Training:		,				ŕ	·
Training Subtotal:							
Other:							
Other Subtotal:							
Costs Total:	1,089,520	51,020	52,041	53,082	54,143	55,226	1,355,032
ousis i Ulai.	1,009,320	31,020	JZ,U4 I	J3,U0Z	J4, 14J	33,220	1,300,032

As Of: 09/26/2018

Return on Investment Analysis

Assumptions

Date	Assumption Description
01-Jun-18	Assuming 10 virtual servers need to be built out for the ESRI Mapping project.
01-Jun-18	Assuming 8,600 core development hours for the program.
01-Jun-18	Assuming PMO standard: 20% for Project Management, 15% for Contingency, and 7% for Scope.

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