Project Name: Network Capacity Project ID: TT0186NC

Leadership Group: Information Technology Steering Committee												
Department: Informat	ion Technology		Division: Tec	hnical Systems a	and Networking							
Project Sponsor: EJ	Widun	Date Requeste	<b>d:</b> 5/14/2020	PM Custom	er No. 186							
Request Type: New Development												
IT Team Name: Enterprise Architecture IT Team No: T												
Project Manager/Lead	der: Mike Zemina	ı										
Account 17030 Number:	Account Description:	Technical Sy Networking	ystems and	Customer Name:	Information Technology							
Grant Funded? No		Ма	ndate? No									

### **Project Goal**

To improve monitoring capabilities (Integrated view of monitoring tools) so that Oakland County can ensure network health/performance and excellent customer experience.

# **Business Objective**

Develop a Network Capacity plan (similar to Server Capacity plan) in order to reduce risks and pinpoint areas which can be optimized.

#### **Major Deliverables**

- Metrics of the network which relates to customer experience
- Reporting template for networking performance

#### Approach

- Identify network areas to measure
- Identify Tools & functionality currently available to Oakland County
- Define requirements for template
- Gap Analysis to determine tool(s) to use for reporting
- Create process into an operational plan

# Research & Analysis

N/A

#### **Benefits**

See Return on Investment (ROI) Analysis Document

Project Name: Network Capacity Project ID: TT0186NC

<u>Impact</u>

**Number of Users** 

DivisionsTBDLeadership GroupsIT

**Risk** 

**Business Environment** Low = Project requires examining to existing business processes **Technical Environment** Med = Previously implemented technologies, 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:

Role: Name

Sponsor/ TSN Stakeholder: Joe Tabor Security Stakeholder: TJ Fields

CLEMIS Stakeholder: Jeff Nesmith

Internal Services Stakeholder: Janette McKenna Apps Stakeholder: Tammi Shepherd

**Facilities** 

•

**Technical** 

•

**Funding** 

•

Project Name: Network Capacity Project ID: TT0186NC

Other

•

**Priority** 

• TBD

**Constraints** 

•

**Exclusions** 

•

Project Name: Network Capacity Project ID: TT0186NC

#### PROJECT PHASE AUTHORIZATION

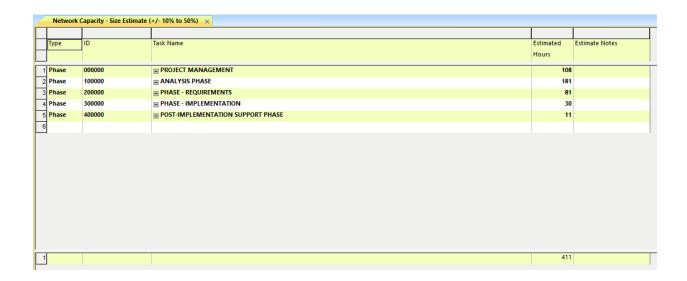
Phase(s): All			
Total Estimated Application Services	He	ours:	
Total Estimated Technical Systems	H	ours: 411	
Total Estimated CLEMIS	H	ours:	
Total Estimated Internal Services	H	ours:	
IT Application Services Division Manager	Approval:		Date:
IT Technical Systems Division Manager A	pproval:		Date:
IT CLEMIS Division Manager Approval:			Date:
IT Internal Services Division Manager App	oroval:		Date:
IT Management Approval:			
Approved:	Yes	No	Date:
Reason:			
Project Sponsor Approval:			
Title:			Date:
PF	ROJECT SUMMAI	RY	
Authorized Development new phase (see	ahove) F	lours:	

Authorized Development new phase (see above)	Hours:	
Preliminary Estimated Development for Future Phases	Hours:	
Grand Total Estimated Development	Hours: 411	Cost: \$67,815

Project Name: Network Capacity Project ID: TT0186NC

#### PROJECT COMPLETION AUTHORIZATION

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



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:	67,815	0	0	0	0	0	67,815
Hardware Subtotal:	0	0	0	0	0	0	0
Software Subtotal:	0	0	0	0	0	0	0
Infrastructure Subtotal	0	0	0	0	0	0	0
Training Subtotal:	0	0	0	0	0	0	0
Other Subtotal:	0	0	0	0	0	0	0
Annual Statistics:							
Annual Total Savings	0	0	0	0	0	0	0
Annual Total Costs	67,815	0	0	0	0	0	67,815
Annual Return on Investment	(67,815)						(67,815)
Annual Costs/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	(0.,0.0)
Project Cumulative Statistics:							
Cumulative Total Savings	0	0	0	0	0	0	0
Cumulative Total Costs	67,815	67,815	67,815	67,815	67,815	67,815	67,815
Cumulative Return on Investment	(67,815)	(67,815)	(67,815)	(67,815)	(67,815)	(67,815)	(67,815)
Cumulative Cost/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
V 5 5							NO DAY(DA 01)
Year Positive Payback Achieved							NO PAYBACK
State or Federal Mandate?							
Signatures:							
Benefits Reviewed By Project Sponsor				_ Date:			
Costs (including IT Resources) Reviewed By							
Information Technology Project Manager				Date:			

# Oakland County -- Network Capacity Return on Investment Analysis

#### Savings Detail

Benefit/Savings Description	Project Savings Category	Budget Category/Funding Source	Unit Desc	Units	Rate per Unit	Total Savings	Annual Multiplier
Reduces risk and exposure	Intangible Benefit					0	
Pinpoint areas to be optimized	Intangible Benefit					0	
Create process into an operational plan	Intangible Benefit					0	
oreate process into air operational plan	mangible Benefit					0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
						0	
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						0	
						0	
						0	

Return on Investment Analysis

#### Savings Detail

	Duningt Continue	Af	fect	s P	roje	ct l	ROI	?		Po	tential Savi	ngs Extension	ons	,
Benefit/Savings Description	Project Savings Category	Y1	Y2	<b>Y</b> 3	<b>Y</b> 4	ΙY	/5 Y	<b>/</b> 6	Y1	Y2	Y3	Y4	Y5	Y6
Reduces risk and exposure	Intangible Benefit		<u> </u>	!	-	T	T				ļ	}	1	
Pinpoint areas to be optimized	Intangible Benefit				-	-	-							
Create process into an operational plan	Intangible Benefit					-	-							
						+	+							
		1				+	-	_						<u> </u>
		$\pm$				+	$\downarrow$							
		+	<u> </u> 	-	-	+	+					 		
					-	Ŧ	7	4						
						‡	$\downarrow$							<u> </u>
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						-	-							
						‡	‡	_						<u> </u>
						+	+							
		+				+	+	$\dashv$				<u> </u>		<u> </u>
						+	1							
						1								

Return on Investment Analysis

#### Savings Summary

Return on Investment Analysis

								Aff	ects	ROI	?		
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual	ŀ	l				
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	Y3	Y4   `	Y5   Y	<b>/</b> 6
<b>.</b>										-			
IT Hours - New Development - Year 1	Development Svcs	Technical Services & Networking	HR	411	165	67,815		Х	_		_ <u></u>	_ <u></u>	
										į		ŀ	
					165	0		İ					
IT Hours - Customer Support	Development Svcs				165	0		ŀ				-	
IT Hours - Planned Maintenance	Development Svcs				165	0							
User Hours - New Development	Development Svcs					0							
User Hours - PTNE/OT	Development Svcs					0							
Contractor Professional Services	Development Svcs					0		i		- 1			
PC System - Acquisition	Hardware				687	0							
PC System - Maintenance	Hardware				2,936	0			-	- 1			
Notebook - Acquisition	Hardware				1,115	0							
Notebook - Maintenance	Hardware				3,024	0		i					
Tablet Notebook - Acquisition	Hardware				1,421	0		Ì		1			
Tablet Notebook - Maintenance	Hardware				2,800	0		i		İ			
Laserprinter - Acquisition	Hardware				1,432	0				- 1			
Laserprinter - Maintenance	Hardware				1,408	0							
PC Maintenance User Owned	Hardware				2,720	0							
Printer Maintenance User Owned	Hardware				1,264	0							
File Space (100GB)	Hardware		ANN		23	0		i		- 1			
Package Software - Acquisition	Software					0			-	İ			
Package Software - Maintenance	Software					0							
Business Objects Access	Software					0				- 1			
Term Emulation SFTW-Acquisition	Software					0				İ			
Term Emulation SFTW-Maintenance	Software					0		i		İ			
Server - Acquisition/Upgrade	Infrastructure				8,000	0				- 1			
Server - Maintenance	Infrastructure				360	0							
Server Sftwre - Acquisition/Upgrade	Infrastructure				335	0				1		1	
Server Sftwre - Maintenance	Infrastructure					0							
Server Rack Mount	Infrastructure				400	0				- 1			
Oracle Enterprise Per Processor -										Ť	- 1		
Includes Year 1 Maintenance	Infrastructure				21,372	0			ļ				
Oracle Enterprise Per Processor - Year					-								
2 and Beyond	Infrastructure				3,432	0				İ	İ	İ	

Return on Investment Analysis

								Affe	ROI?			
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual	1		!	1	-
Cost Description	Category	Source	Desc	Units	Unit	<b>Total Cost</b>	Multiplier	Y1	Y2	Y3 \	Y4	Y5 Y6
SQL Server Enterprise - Per Processor										-		$\equiv$
(4 cores) - Purchased Sept 2016-Aug										-		Ì
2017 - Includes Maintenance thru Aug										-		-
2019	Infrastructure				24,533	0		li		ļ		
SQL Server Enterprise - Per Processor										į		
(4 cores) - Purchased Sept 2017-Aug								li		į		İ
2018 - Includes Maintenance thru Aug									ı	- 1	- 1	İ
2019	Infrastructure				20,759	0				-		-
SQL Server Enterprise - Per Processor												
(4 cores) - Purchased Sept 2018-Aug								li	- 1	ŀ		
2019 - Includes Maintenance thru Aug								li	İ			
2019	Infrastructure				16,985	0		li	- 1	į	- 1	İ
SQL Server Enterprise - Maintenance,												
Per Processor (4 cores) - Sept 2019										ł		-
and Beyond	Infrastructure				4,218	0						
SQL Server Standard - Per Processor												
(4 cores) - Purchased Sept 2016-Aug									ı	- 1	- 1	İ
2017 - Includes Maintenance thru Aug										-	- 1	-
2019	Infrastructure				6,398	0				- }		
SQL Server Standard - Per Processor									I			
(4 cores) - Purchased Sept 2017-Aug								li		į		
2018 - Includes Maintenance thru Aug								li	Ì	- 1		
2019	Infrastructure				5,414	0				ł		-
SQL Server Standard - Per Processor												
(4 cores) - Purchased Sept 2018-Aug								li		İ		İ
2019 - Includes Maintenance thru Aug								li	į			
2019	Infrastructure				4,429	0		li	ı	į		İ
SQL Server - Standard Maintenance,									- 1		-	
Per Processor (4 cores) - Sept 2019											-	
and Beyond	Infrastructure				1,100	0						
Websphere Basic Per Processor												
Single/Dual Core - Includes Year 1									ı	İ	İ	İ
Maintenance	Infrastructure				3,506	0			[			

Return on Investment Analysis

								Affe	Affects Project F					
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual		- {			-		
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	۲3 ¦ ۲	<u> </u>	/5¦Y6		
Wahanhara Basia Dar Draggasar														
Websphere Basic Per Processor	Infrastructura				704	0		li		ŀ	i			
Single/Dual Core - Year 2 and Beyond Websphere ND Per Processor	imrastructure				701	0		H	ij		$\dashv$	_ <del> </del> _		
								li	į	İ	- 1	İ		
Single/Dual Core - Includes Year 1 Maintenance	Info-atom				40.400	0			- 1		-	-		
Maintenance	Infrastructure				13,180	0		-	_					
Websphere ND Per Processor														
Single/Dual Core - Year 2 and Beyond	Infrastructure				2,635	0			ļ	-		ļ		
SSL Certificate	Infrastructure				845	0			- !		+	+		
Internet Access	Infrastructure				180	0			-	-	$\dashv$	+		
Imperva Web Application Firewall	IIIIIastiucture				100	U		H	ij	- }	$\dashv$			
(External Web Applications Only)	Infrastructure		ANN		500	0		li	į	İ		İ		
App Code Directories on Consolidated	IIIIIasiiuciuie		AININ		300	U		H	-i		+			
IIS Server (Virtual)	Infrastructure		ANN		415	0			ļ	-	-			
Database (5 GB) on Consolidated SQL	IIIIIasiiuciuie		AININ		415	U		H	!		+	+		
Instance Server	Infrastructure		ANN		930	0		li	į	İ	į	-		
Database Instance (125 GB DB) on	iiiiasiiuciuie		AININ		930	U		H	-i	÷	+	-i $-$		
Consolidated SQL Server	Infrastructure		ANN		2,395	0		l !	į	-		İ		
Database SQL Maint Server	Infrastructure		ANN		834	0					+	+		
Database SQL Server Physical	Infrastructure		ANN		19,158	0			- !		+	-		
DB Maintenance (Annual Cycle \$610)	Infrastructure		ANN		610	0		H			÷			
DB Maintenance (Semi-Annual Cycle	iiiiiasiiuciuie		AININ		610	U		H	-i	÷	+	+		
\$1220)	Infrastructure		I <sub>ANN</sub>		1,220	0		li	į	İ	- 1	İ		
DB Maintenance (Semi-Annual Cycle	IIIIIasiiuciuie		AININ		1,220	U		<b>-</b> -			+			
\$2440)	Infrastructure		ANN		2,440	0			ļ	-		ļ		
Dedicated Virtual Server	Infrastructure		ANN		4,150	0		H	- !	-	+	+		
DB Instance Setup	Infrastructure		AININ		976	0		H	-i	- †	$\dashv$			
DBA MS SQL Database Creation on	IIIIIasiiuciuie				970	U		H	-i		+			
Exisiting Instance	Infrastructure				366	0			Ì	-		İ		
Extra Small - 2 Core 8GB RAM, 500GB					300	U				-	+	-		
Drive, 10 GB NIC - Cloud/Virtual =									ļ					
\$601 On Premise Physical Server =									į	-				
	Infractructure					^			į					
N/A	Infrastructure		ANN			0		l i	į	į	į	<u>i</u>		

Return on Investment Analysis

								Aff	ects	Pro	ject	ROI	?
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual		- 1	- 1			
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	Y3	Y4¦`	Y5   Y	<b>6</b>
Small - 4 Core 16GB RAM, 500GB										- 1	- 1		
Drive, 10 GB NIC - Cloud/Virtual =									- 1	-	- 1		
\$951 On Premise Physical Server =													
\$9,288	Infrastructure		ANN			0				į	į	į	
Medium - 8 Core 32GB RAM, 500GB													
Drive, 10 GB NIC - Cloud/Virtual =								li	İ	į	- 1	İ	
\$1,702 On Premise Physical Server =												-	
\$9,751	Infrastructure		ANN			0							
Large - 16 Core 64GB RAM, 500GB										į		į	
Drive, 10 GB NIC - Cloud/Virtual =								li	i	į	- [	į	
\$3,167 On Premise Physical Server =								l	İ	- 1		- 1	
\$10,446	Infrastructure		ANN			0		ŀ		-	- 1		
Extra Large - 40 Core 160GB RAM,													
500GB Drive, 10 GB NIC -										į		į	
Cloud/Virtual = \$7,564 On Premise										İ	ı		
Physical Server = \$12,906	Infrastructure		ANN			0			İ	Ì			

Return on Investment Analysis

	1		Po	tential Cost	Extensions		
	Project Cost						1
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6
IT Have New Davidson at Vess 4	Davidonment Cue	07.045.00					
IT Hours - New Development - Year 1	Development Svcs	67,815.00		<u> </u>			ŀ
							}
	D 1 10						
IT Hours - Customer Support	Development Svcs						<u> </u>
IT Hours - Planned Maintenance	Development Svcs						
User Hours - New Development	Development Svcs						<u> </u>
User Hours - PTNE/OT	Development Svcs						
Contractor Professional Services	Development Svcs						
PC System - Acquisition	Hardware						
PC System - Maintenance	Hardware	į		İ			İ
Notebook - Acquisition	Hardware						}
Notebook - Maintenance	Hardware						
Tablet Notebook - Acquisition	Hardware			ļ			i i
Tablet Notebook - Maintenance	Hardware						i !
Laserprinter - Acquisition	Hardware						
Laserprinter - Maintenance	Hardware	ļ					<u> </u> 
PC Maintenance User Owned	Hardware			ļ			<u> </u>
Printer Maintenance User Owned	Hardware						 
File Space (100GB)	Hardware	i					
Package Software - Acquisition	Software			<u> </u>			İ
Package Software - Maintenance	Software						i I
Business Objects Access	Software						 
Term Emulation SFTW-Acquisition	Software			<u> </u>			<u> </u>
Term Emulation SFTW-Maintenance	Software						
Server - Acquisition/Upgrade	Infrastructure						
Server - Maintenance	Infrastructure	i		<u> </u>			<u> </u>
Server Sftwre - Acquisition/Upgrade	Infrastructure	İ		<u> </u>			<u> </u> 
Server Sftwre - Maintenance	Infrastructure						
Server Rack Mount	Infrastructure			1			<u> </u>
Oracle Enterprise Per Processor -	iiiii adii adiai c			<del> </del>			}
Includes Year 1 Maintenance	Infrastructure	ļ					İ
Oracle Enterprise Per Processor - Year	in in a strategical co			!			!
•	Infrastructure	ļ					-
2 and Beyond	Infrastructure						

Return on Investment Analysis

		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			-	<u> </u>			
(4 cores) - Purchased Sept 2017-Aug					İ		
2018 - Includes Maintenance thru Aug					•		
2019	Infrastructure						
SQL Server Enterprise - Per Processor							
(4 cores) - Purchased Sept 2018-Aug			-				
2019 - Includes Maintenance thru Aug			-		İ	į	
2019	Infrastructure				İ		
SQL Server Enterprise - Maintenance,			 	 		 	 
Per Processor (4 cores) - Sept 2019							
and Beyond	Infrastructure						
SQL Server Standard - Per Processor				<u> </u>			
(4 cores) - Purchased Sept 2016-Aug					İ		
2017 - Includes Maintenance thru Aug							! !
2019	Infrastructure		-		!	!	
SQL Server Standard - Per Processor			!	İ			
(4 cores) - Purchased Sept 2017-Aug				İ	İ	į	
2018 - Includes Maintenance thru Aug							
2019	Infrastructure						
SQL Server Standard - Per Processor							
(4 cores) - Purchased Sept 2018-Aug			-				
2019 - Includes Maintenance thru Aug			-		İ		
2019	Infrastructure				İ		
SQL Server - Standard Maintenance,			!	!	!	! !	
Per Processor (4 cores) - Sept 2019							
and Beyond	Infrastructure				İ		
Websphere Basic Per Processor							
Single/Dual Core - Includes Year 1							
Maintenance	Infrastructure		<u> </u>	<u> </u>	<u> </u>	<u> </u>	

Return on Investment Analysis

		Potential Cost Extensions							
	Project Cost		-			!	-		
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6		
			!	-		!	ļ		
Websphere Basic Per Processor									
Single/Dual Core - Year 2 and Beyond	Infrastructure			<u> </u>	<u> </u>		<u> </u>		
Websphere ND Per Processor					į	ļ			
Single/Dual Core - Includes Year 1									
Maintenance	Infrastructure			<u> </u>			<u> </u>		
Wahanhara ND Day Dyaasaa					ļ		İ		
Websphere ND Per Processor	 		İ				1		
Single/Dual Core - Year 2 and Beyond	Infrastructure		<u> </u>	ļ	ļ	ļ	<u> </u>		
SSL Certificate	Infrastructure		<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>		
Internet Access	Infrastructure		<u> </u>	<u> </u>	<u> </u>	ļ	<u> </u>		
Imperva Web Application Firewall									
(External Web Applications Only)	Infrastructure		<u> </u>	1	<u> </u>		<u> </u>		
App Code Directories on Consolidated					ļ				
IIS Server (Virtual)	Infrastructure								
Database (5 GB) on Consolidated SQL							1		
Instance Server	Infrastructure		<u> </u>	<u> </u>			İ		
Database Instance (125 GB DB) on						İ			
Consolidated SQL Server	Infrastructure		<u> </u>		<u> </u>				
Database SQL Maint Server	Infrastructure				l				
Database SQL Server Physical	Infrastructure		}		<u> </u>				
DB Maintenance (Annual Cycle \$610)	Infrastructure			-	ļ		-		
DB Maintenance (Semi-Annual Cycle						•			
\$1220)	Infrastructure		1	1	•		İ		
DB Maintenance (Semi-Annual Cycle					į	İ			
\$2440)	Infrastructure						İ		
Dedicated Virtual Server	Infrastructure								
DB Instance Setup	Infrastructure								
DBA MS SQL Database Creation on									
Exisitng Instance	Infrastructure						-		
Extra Small - 2 Core 8GB RAM, 500GB			1	1	-		İ		
Drive, 10 GB NIC - Cloud/Virtual =					1				
\$601 On Premise Physical Server =									
N/A	Infrastructure		-						

Return on Investment Analysis

		Potential Cost Extensions							
	Project Cost	V4	Va	V0	V4	\/F	\ \v_0		
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6		
Small - 4 Core 16GB RAM, 500GB				 	:	i i	! !		
Drive, 10 GB NIC - Cloud/Virtual =				 			! !		
\$951 On Premise Physical Server =						! !			
\$9,288	Infrastructure						<u> </u>		
Medium - 8 Core 32GB RAM, 500GB				!   		<u> </u> 	 		
Drive, 10 GB NIC - Cloud/Virtual =					İ				
\$1,702 On Premise Physical Server =				i ! !	İ		i !		
\$9,751	Infrastructure			i ! !	İ	i I	i ! !		
Large - 16 Core 64GB RAM, 500GB				i i		!	 		
Drive, 10 GB NIC - Cloud/Virtual =							<u> </u>		
\$3,167 On Premise Physical Server =									
\$10,446	Infrastructure			i ! !		i I	i ! !		
Extra Large - 40 Core 160GB RAM,				 			 		
500GB Drive, 10 GB NIC -							! !		
Cloud/Virtual = \$7,564 On Premise									
Physical Server = \$12,906	Infrastructure				İ				

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 - Year 1	67,815						67,815
IT Hours - Customer Support							
IT Hours - Planned Maintenance							
User Hours - New Development							
User Hours - PTNE/OT							
Contractor Professional Services							
Development Services Subtotal:	67,815						67,815
Hardware:							
Hardware Subtotal:							
Software:							
Software Subtotal:							
Infrastructure:							
Infrastructure Subtotal							
Training:							
Training Subtotal:							
Other:							

As Of: 8/6/2020

Return on Investment Analysis

#### Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Other Subtotal:							
Costs Total:	67.815						67.815

As Of: 8/6/2020

Return on Investment Analysis

### Assumptions

Date	Assumption Description