#### Project Name: GIS Enterprise Program (2021-22)

Project ID: D11182GB

Leadership Group: Land											
Departmen	t: Informatior	Technology			Division: Applic	ation Services					
Project Sponsor: Mike Timm Date Requ					<b>d</b> : 3/15/2020	PM Custom	<b>er No.</b> 182				
Request Type: <u>New Development</u>				E	Enhancement	Custome	er Support				
Planned System Maintenance or Upgrade											
IT Team Na	ime: Infrastru	cture and GIS			IT Team No: 1						
Project Ma	nager/Leade	r: Susan Moore									
Account Number:	17321	Account Description:	Enterpr	Enterprise GIS Fund			Application Services				
Grant Funded? Yes No X			Mandate? Mandate Source:		Yes	No X					

# Project Goal

To provide a progressive, location-based solution so that informed decision making is promoted, citizen services are improved, and collaboration across all levels of government is encouraged.

# **Business Objective**

To expand Oakland County's location-based services to reach anyone, at any time, from anywhere.

To create and sustain innovative partnerships and collaboration opportunities.

To strategically implement and promote focused, location-based services to facilitate citizen access to information.

#### Major Deliverables

Examples include:

- Expanded use of spatial technologies by County departments and local cities, villages, and townships (CVTs).
  - Meet with additional County departments regarding spatial location, providing sample applications relevant to their business use ("roadshows").
  - Coordinate GIS "industry parties", the goal of which is for County and CVT staff with similar business processes to learn about, and collaborate on, GIS solutions.
  - Provide new, or enhancements to existing, solutions for roadshows and industry parties.
  - Track contact with CVTs with a centralized system (potentially existing, such as Salesforce)
  - Additional Maps of the Month (partnering with eGovernment).

## Project Name: GIS Enterprise Program (2021-22)

- Campus Locator application for citizens to use when navigating the County campus.
- Updated GIS marketing and communication materials and plans.
- Research and evaluation regarding Oakland County's participation in national and regional programs.
- GIS Data Distribution Workflow improvements
  - Create GIS data availability reports.
  - Create workflow, and potentially application, for identification and distribution of sensitive data.

#### Approach

- Develop Detailed Project Plans, as Needed
- Review Current Business Processes
- Document Business Requirements
- Research New Collaboration Opportunities, and Evaluate their Value
- Document Data Policy Changes
- Assess Hardware and Software Requirements
- Develop Implementation Plans
- Develop New Systems/Data
- 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

# **Business Objective**

To foster a sustainable technological environment for Oakland County location-based services.

To leverage accurate and current location-based data to support decision making in Oakland County.

#### Major Deliverables

Examples include:

- New products derived from imagery, such as impervious surface or other feature extraction.
- New map caches using vector (rather than raster) tile format.
- Evaluation of new, relevant GIS technologies as they become available.
- Standard Enterprise GIS application templates that can be repurposed for specific department uses, such as:
  - Crowd sourcing
  - Simple editing/markup
  - o Notification pushes
- New, or enhanced, enterprise GIS datasets, as they are requested.

#### Project Name: GIS Enterprise Program (2021-22)

- Expose additional customer data to make it available for analysis and decisionmaking by a larger group.
- Enhance GIS enterprise data maintenance and publishing workflows, as needed.
- Implement new functionality offered by ArcGIS Online during the scheduled quarterly releases.
- Improved administration of the County's ArcGIS Online account.
  - Create scripts to automate tasks.
  - Document standards and best practices.
  - Create and implement communication plan that will notify users of enhancements and further attract their interest in spatial technologies.
- Consumption of additional Esri Marketplace applications within the County's ArcGIS Online Organization account to further refine administrative functions and end user experience.
- New analysis products related to the Census 2020 data

#### Approach

- Develop Detailed Project Plans, as Needed
- Document Research Findings
- Share Research Findings at GIS Meetings.
- Review Current Business Process
- Conduct Needs Assessment with Customer
- Document Business Requirements
- Negotiate terms of contracts/SLAs with Vendors and Partners, as Needed
- Create Presentation for Board of Commissioners, as Needed
- Document Data Model Design and System Requirements
- Document System Architecture
- Determine and Document Automation/Conversion
- Assess Hardware and Software Requirements
- Develop Implementation Plan
- Develop New System/Data
- Develop User Acceptance Test Plan
- Test New System/Data
- Acquire User Acceptance Sign-Off
- 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

Project Name: GIS Enterprise Program (2021-22) Project ID: D11182GB

# **Research & Analysis**

Gartner Research - Research Conducted, Nothing Found

# **Benefits**

See Return on Investment (ROI) Analysis Document

# Impact

Number of Users Unlimited

**Divisions** All geospatial data and application consumers

Leadership Groups Land

# <u>Risk</u>

**Business Environment** Medium - Project will require some changes 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:

Role:	<u>Name</u>	<u>Hours per Day</u>
Project Sponsor:	Mike Timm	As needed.

#### Facilities

- None
- Technical
  - No additional hardware purchases will be required specifically for this work.

Project Name: GIS Enterprise Program (2021-22)

Project ID: D11182GB

# Funding

• Funded

## Other

• None

## Priority

• TBD

# **Constraints**

• None

## **Exclusions**

• None

Project Name: GIS Enterprise Program (2021-22)

Project ID: D11182GB

#### PROJECT PHASE AUTHORIZATION

Phase(s): All							
Total Estimated Application Services	Hours: 5860						
Total Estimated Technical Systems	Hours: 40						
Total Estimated CLEMIS	Hours:						
Total Estimated Internal Services	Hours:						
IT Application Services Division Manager Approval:							
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: 5900
Preliminary Estimated Development for Future Phases	Hours:
Grand Total Estimated Development	Hours: 5900 Cost: \$973,500

Project Name: GIS Enterprise Program (2021-22)

Project ID: D11182GB

#### PROJECT COMPLETION AUTHORIZATION

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

GIS Enterprise Program (2021-22) - Size Estimate (+/- 10% to 50%)

ľ	1	Туре	ID	Task Name	Estimated
I	2				Hours
E	3	Phase	000000	GIS Enterprise Program	5,900
l	4			Υ	5,900
-	_				

Project Summary

Description	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:	7,640	7,716	7,794	7,871	7,950	8,030	47,001
Costs:							
Development Services Subtotal:	519,750	520,080	33,663	34,000	34,340	34,683	1,176,516
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	7,640	7,716	7,794	7,871	7,950	8,030	47,001
Annual Total Costs	519,750	520,080	33,663	34,000	34,340	34,683	1,176,516
Annual Paturn on Investment	(512,110)	(512.264)	(25.970)	(26,129)	(26.200)	(26.654)	(1 120 515)
Annual Ceste/Servinge Betie	(312,110)	(312,304)	(20,070)	(20,120)	(20,390)	(20,004)	(1,129,515)
Annual Cosis/Savings Ratio	0003.01%	07 39.93 %	431.94%	431.9470	431.94%	431.9470	
Project Cumulative Statistics:							
Cumulative Total Savings	7,640	15,356	23,150	31,021	38,972	47,001	47,001
Cumulative Total Costs	519,750	1,039,830	1,073,493	1,107,493	1,141,833	1,176,516	1,176,516
Cumulative Return on Investment	(512 110)	(1 024 474)	(1 050 343)	(1 076 472)	(1 102 861)	(1 129 515)	(1 129 515)
Cumulative Cost/Savings Ratio	6803.01%	6771 31%	4637 13%	3570.09%	2929.91%	2503 15%	2503 15%
	0000.0170	0771.0170	4007.1070	0010.0070	2020.0170	2000.1070	2000.1070
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:			
<i>, , , , , , , , , , , , , , , , , , , </i>							
				1			

	Project Savings		Unit		Rate per		Annual
Benefit/Savings Description	Category	Budget Category/Funding Source	Desc	Units	Unit	Total Savings	Multiplier
Map of the Month program increases							
public awareness of services and							
activities provided by Oakland County							
and local businesses.	Intangible Benefit		_			0	
Creating Enterprise AreCIS Server							
services that can easily be consumed							
by other applications reduces (or even							
eliminates) the development time for							
new applications, which makes the IT							
Department more responsive to							
customer needs	Intangible Benefit					0	
			-				
Creating additional Enterprise ArcGIS							
Server services makes them available						ļ	
to non-programming staff for use within							
their own AGO maps and applications.	Intangible Benefit					0	
· ··				1		1	
Expanding the user base to even more							
County departments and CVTs further							
leverages our current investment of							
GIS technology and data.	Intangible Benefit					0	
Improved AGO administration facilitates							
use of the product by providing clear,							
easy-to-follow guidelines.	Intangible Benefit					0	
Improved data modeling can streamline							
GIS data maintenance and improve							
data accuracy.	Intangible Benefit					0	
Having up-to-date marketing and							
communication plans allows IT to take							
advantage of the latest technologies							
and venues to promote our program							
both internally and externally.	Intangible Benefit					0	

					-		
Panofit/Sovings Description	Project Savings	Budget Category/Funding Source	Unit	Unite	Rate per	Total Savings	Annual Multiplior
Benefit/Savings Description	Category	Budget Category/Funding Source	Desc	Units	Unit	Total Savings	Multiplier
Public engagement improves							
transparency, effectiveness and							
decision making.	Intangible Benefit					0	
New vector caching format improves							
user experience with faster panning							
and the ability to zoom in to a lower							
level.	Intangible Benefit					0	
Creating opportunies for CVTs and							
Departments to work together (e.g.,							
"industry parties") encourages							
collaboration and discussion directly							
among the relevant staff.	Intangible Benefit					0	
Creating new imagery products such as							
impervious surface and other feature							
extraction assists customers such as							
WRC EDCA and Health with analysis	Intangible Benefit					0	
						0	
Using the 2020 Census data to develop							
new products will help County and CVT							
staff along with the public better							
understand the demographic makeup of							
our communities ultimately leading to							
more informed decision making	Intangible Benefit					0	
Streamlining our data distribution	Intangible Benefit					0	
workflow reduces Business Analyst							
staff time to answer questions							
regarding data	Cost Avoidance		HR	13	80	1 040	1 010
				10	00	1,040	1.010
New vector caches reduce the number							
of a caches we need to maintain.	Cost Avoidance		HR	40	165	6,600	1.0 <mark>1</mark> 0
						0	
						0	
						0	

	Affects Project ROI?					Potential Savings Extensions							
	Project Savings												
Benefit/Savings Description	Category	Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Map of the Month program increases						!							
public awareness of services and					1								
activities provided by Oakland County					1		1						
and local businesses.	Intangible Benefit		į	<u>i</u>	<u> </u>	<u>i</u>	<b> </b>						
Creating Enterprise AreCIS Server						1							
creating Enterprise ArcGIS Server				ł	1								
by other applications reduces (or even							ļ						
eliminates) the development time for				l	1								
new applications, which makes the IT							1						
Department more responsive to				1									
customer needs	Intangible Benefit						ļ						
				<u> </u>									
Creating additional Enterprise ArcGIS					1								
Server services makes them available									1				1
to non-programming staff for use within			ļ	ļ			1						
their own AGO maps and applications.	Intangible Benefit												
				l	1	1							
Expanding the user base to even more				l	1								
County departments and CVTs further							1						
leverages our current investment of				1									
GIS technology and data.	Intangible Benefit			<u> </u>	<u> </u>								
				ļ.	l	ļ							
Improved AGO administration facilitates							1						
use of the product by providing clear,			ļ	ļ			1						
easy-to-follow guidelines.	Intangible Benefit	_	ļ	ļ	Į	<b> </b>	I						
Improved data modeling can streamline													
GIS data maintenance and improve	later with the Demost			l	1								
data accuracy.	Intangible Benefit	_		<u> </u>	-	-							
Having up-to-date marketing and						1							
communication plans allows IT to take							1						
advantage of the latest technologies					1								
and venues to promote our program				ł									
both internally and externally.	Intangible Benefit		l	l	1	1							

Return on Investment Analysis

		Affects Project ROI?					01?	Potential Savings Extensions					
	Project Savings	vings								l			
Benefit/Savings Description	Category	Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Public engagement improves						1							
transparency, effectiveness and			1			1							
decision making.	Intangible Benefit		1		1	1	1						
New vector caching format improves							ļ						
user experience with faster panning			ļ			1							
and the ability to zoom in to a lower			1			1							
level.	Intangible Benefit					ŧ.	İ.						
Creating opportunies for CVTs and			1			1							
Departments to work together (e.g.,			1			1							
"industry parties") encourages			ļ			1							
collaboration and discussion directly			ļ			1							
among the relevant staff.	Intangible Benefit		ļ			1	1						
			1			1							
Creating new imagery products such as													
impervious surface and other feature			1	1		1	1						
extraction assists customers such as						1							
WRC, EDCA and Health with analysis.	Intangible Benefit					1							
						1	1						
Using the 2020 Census data to develop						1	1						
new products will help County and CVT						1							
staff, along with the public, better						1							
understand the demographic makeup of						1	1						
our communities, ultimately leading to						1							
more informed decision making.	Intangible Benefit					1	1						
Streamlining our data distribution						1							
workflow reduces Business Analyst			1			1							
staff time to answer questions			ļ			1							
regarding data.	Cost Avoidance	х	х	х	х	х	х	1,040.00	1,050.40	1,060.90	1,071.51	1,082.23	1,093
New vector caches reduce the number				1		1	1						
of a caches we need to maintain.	Cost Avoidance	х	х	х	х	х	х	6,600.00	6,666.00	6,732.66	6,799.99	6,867.99	6,937
						1	1						
				<u> </u>	1	1	1						
			1	1	1	1	1						

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:							
Streamlining our data distribution workflow							
reduces Business Analyst staff time to							
answer questions regarding data.	1,040	1,050	1,061	1,072	1,082	1,093	6,398
New vector caches reduce the number of a							
caches we need to maintain.	6,600	6,666	6,733	6,800	6,868	6,937	40,603
Cost Avoidance Subtotal:	7,640	7,716	7,794	7,871	7,950	8,030	47,001
Intangible Benefit:							
Map of the Month program increases public							
awareness of services and activities							
provided by Oakland County and local							
businesses.							
Creating Enterprise ArcGIS Server services							
that can easily be consumed by other							
applications reduces (or even eliminates) the							
development time for new applications,							
which makes the IT Department more							
responsive to customer needs.							
Creating additional Enterprise ArcGIS							
Server services makes them available to							
non-programming staff for use within their							
own AGO maps and applications.							
Expanding the user base to even more							
County departments and CVTs further							
leverages our current investment of GIS							
technology and data.							

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Improved AGO administration facilitates use							
of the product by providing clear, easy-to-							
follow guidelines.							
Improved data modeling can streamline Gio							
Having up-to-date marketing and							
communication plans allows IT to take							
advantage of the latest technologies and							
venues to promote our program, both							
internally and externally.							
Public engagement improves transparency,							
effectiveness and decision making.							
New vector caching format improves user							
experience with faster panning and the							
ability to zoom in to a lower level.							
Departments to work together (e.g.							
"industry parties") encourages collaboration							
and discussion directly among the relevant							
staff.							
Creating new imagery products such as							
impervious surface and other feature							
extraction assists customers such as WRC,							
EDCA and Health with analysis.							
Using the 2020 Census data to develop new							
products will help County and CVT staff,							
along with the public, better understand the							
demographic makeup of our communities,							
ultimately leading to more informed decision							
Savings Total:	7,640	7,716	7,794	7,871	7,950	8,030	47,001

Return on Investment Analysis

								Affects Project		ct R(	SI?		
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual		ł			1	Ì
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs			5,900	165	973,500	1.010	х	х			<u> </u>	1
IT Hours - System Maintenance	Development Svcs			50	165	8,250	1.010	х	х	х	х	х	х
IT Hours - Customer Support	Development Svcs			100	165	16,500	1.010	х	х	х	х	х	х
IT Hours - Planned Maintenance	Development Svcs			50	165	8,250	1.010	х	х	х	х	х	х
User Hours - New Development	Development Svcs					0			1	1	1	1	1
User Hours - PTNE/OT	Development Svcs					0			1				1
Contractor Professional Services	Development Svcs					0			I				1
PC System - Acquisition	Hardware				687	0			Ī			Ī	
PC System - Maintenance	Hardware				2,936	0			I				I
Notebook - Acquisition	Hardware				1,115	0			I	1	1	1	1
Notebook - Maintenance	Hardware				3,024	0			1			Ī	
Tablet Notebook - Acquisition	Hardware				1,421	0			1	1	1	1	1
Tablet Notebook - Maintenance	Hardware				2,800	0			I				I
Laserprinter - Acquisition	Hardware				1,432	0			I				1
Laserprinter - Maintenance	Hardware				1,408	0			Ī			Ī	
PC Maintenance User Owned	Hardware				2,720	0			Ĭ				l
Printer Maintenance User Owned	Hardware				1,264	0			I	Ī	Ī		1
File Space (100GB)	Hardware		ANN		23	0			1			Ī	
Package Software - Acquisition	Software					0			1	1	1	1	1
Package Software - Maintenance	Software					0			I				ļ
Business Objects Access	Software					0			I				1
Term Emulation SFTW-Acquisition	Software					0			1			Ī	
Term Emulation SFTW-Maintenance	Software					0			ł	1	1	1	ļ
Server - Acquisition/Upgrade	Infrastructure				8,000	0			I				ļ
Server - Maintenance	Infrastructure				360	0			ł	1	1	1	Ì
Server Sftwre - Acquisition/Upgrade	Infrastructure				335	0			1	1	1	1	Î
Server Sftwre - Maintenance	Infrastructure					0			1				1
Server Rack Mount	Infrastructure				400	0			Ī	1	1	1	1
Oracle Enterprise Software Purchase -									Î	1	1	1	Î
Per Processor (4 Cores) - Requires									1				1
Annual Support Below	Infrastructure				42,280	0			1				1
Oracle Enterprise Software Support -									Ì	1	1	1	Ì
Per Processor (4 Cores)	Infrastructure				9,293	0	1.030		1			1	1

Date: 05/28/2020

Return on Investment Analysis

								Af	fect	s Pr	ojec	t RC	) ?
	Project Cost	Budget Category/Funding	Unit		Rate per		Annual						
Cost Description	Category	Source	Desc	Units	Unit	Total Cost	Multiplier	Y1	Y2	Y3	Y4	Y5	Y6
SQL Server Enterprise Software													
Purchase - Per Processor (4 cores) -								1				l	l
Purchased Sept 2019-Aug 2020 -								1				1	ĺ
Includes Support thru Aug 2022	Infrastructure				16,985	0		i i	ĺ				ĺ
SQL Server Enterprise Software									(				ĺ
Purchase - Per Processor (4 cores) -								1			1	i	l .
Purchased Sept 2020-Aug 2021 -								1				1	
Includes Support thru Aug 2022	Infrastructure				12,724	0		i i	ĺ				ĺ
SQL Server Enterprise Software										$\square$			Í
Purchase - Per Processor (4 cores) -								1				ł	l
Purchased Sept 2021-Aug 2022 -								1				1	
Includes Support thru Aug 2022	Infrastructure				8,463	0		i i	ĺ				ĺ
SQL Server Enterprise - Support, Per									(				
Processor (4 cores) - Sept 2022 and								1				1	ĺ
Beyond	Infrastructure				4,261	0		1	İ	1		1	ļ
SQL Server Standard Software									(			ĺ	ĺ
Purchase - Per Processor (4 cores) -								1	ļ	į I	į I	i	<b>i</b>
Purchased Sept 2019-Aug 2020 -								1	İ	1		1	
Includes Support thru Aug 2022	Infrastructure				4,429	0		Ì	1	( I			ĺ
SQL Server Standard Software								1					
Purchase - Per Processor (4 cores) -								1				1	
Purchased Sept 2020-Aug 2021 -								1 1	İ			1	Í
Includes Support thru Aug 2022	Infrastructure				3,317	0		Ì	1	( I			ĺ
SQL Server Standard Software												1	
Purchase - Per Processor (4 cores) -										1			ĺ
Purchased Sept 2021-Aug 2022 -								i i	ĺ				ĺ
Includes Support thru Aug 2022	Infrastructure				2,205	0			1				1
SQL Server - Standard Support, Per												ĺ	Í
Processor (4 cores) - Sept 2022 and								1				1	
Beyond	Infrastructure				1,112	0		i i	ĺ				ĺ
Websphere Basic Per Processor								ľ	1			[	
Single/Dual Core - Includes Year 1								1	İ		1	i	
Maintenance	Infrastructure				3.506	0		1	ĺ			ł	<b>i</b>

Return on Investment Analysis

								Affects Project ROI		OI?			
	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	Y6
										1	ļ		T
Websphere Basic Per Processor													
Single/Dual Core - Year 2 and Beyond	Infrastructure				701	0							
Websphere ND Per Processor													
Single/Dual Core - Includes Year 1													
Maintenance	Infrastructure				13,180	0				ļ			
										l			
Websphere ND Per Processor										1		ł	1
Single/Dual Core - Year 2 and Beyond	Infrastructure				2,635	0				ļ			
SSL Certificate	Infrastructure				845	0			İ		<u> </u>	<u> </u>	
Internet Access	Infrastructure				180	0							
Imperva Web Application Firewall													
(External Web Applications Only)	Infrastructure		ANN		500	0				1		1	
App Code Directories on Consolidated													1
IIS Server (Virtual)	Infrastructure		ANN		415	0				ļ			1
Dedicated Virtual Server	Infrastructure		ANN		4,150	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	486,750.00	486,750.00					
IT Hours - System Maintenance	Development Svcs	8,250.00	8,332.50	8,415.83	8,499.98	8,584.98	8,670.83	
IT Hours - Customer Support	Development Svcs	16,500.00	16,665.00	16,831.65	16,999.97	17,169.97	17,341.67	
IT Hours - Planned Maintenance	Development Svcs	8,250.00	8,332.50	8,415.83	8,499.98	8,584.98	8,670.83	
User Hours - New Development	Development Svcs		1 1 1					
User Hours - PTNE/OT	Development Svcs							
Contractor Professional Services	Development Svcs						1	
PC System - Acquisition	Hardware							
PC System - Maintenance	Hardware						1	
Notebook - Acquisition	Hardware							
Notebook - Maintenance	Hardware							
Tablet Notebook - Acquisition	Hardware							
Tablet Notebook - Maintenance	Hardware							
Laserprinter - Acquisition	Hardware						1	
Laserprinter - Maintenance	Hardware							
PC Maintenance User Owned	Hardware							
Printer Maintenance User Owned	Hardware							
File Space (100GB)	Hardware							
Package Software - Acquisition	Software		î 1 1					
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						1 4 1	
Server Sftwre - Maintenance	Infrastructure							
Server Rack Mount	Infrastructure							
Oracle Enterprise Software Purchase -								
Per Processor (4 Cores) - Requires								
Annual Support Below	Infrastructure							
Oracle Enterprise Software Support -								
Per Processor (4 Cores)	Infrastructure							

Return on Investment Analysis

		Potential Cost Extensions					
	Project Cost						
Cost Description	Category	Y1	Y2	Y3	Y4	Y5	Y6
SQL Server Enterprise Software							
Purchase - Per Processor (4 cores) -							
Purchased Sept 2019-Aug 2020 -							
Includes Support thru Aug 2022	Infrastructure						
SQL Server Enterprise Software							
Purchase - Per Processor (4 cores) -							
Purchased Sept 2020-Aug 2021 -							
Includes Support thru Aug 2022	Infrastructure						
SQL Server Enterprise Software							
Purchase - Per Processor (4 cores) -							
Purchased Sept 2021-Aug 2022 -							
Includes Support thru Aug 2022	Infrastructure						
SQL Server Enterprise - Support, Per							
Processor (4 cores) - Sept 2022 and							
Beyond	Infrastructure						
SQL Server Standard Software							
Purchase - Per Processor (4 cores) -							
Purchased Sept 2019-Aug 2020 -							
Includes Support thru Aug 2022	Infrastructure						
SQL Server Standard Software							
Purchase - Per Processor (4 cores) -							
Purchased Sept 2020-Aug 2021 -							
Includes Support thru Aug 2022	Infrastructure						
SQL Server Standard Software							
Purchase - Per Processor (4 cores) -							
Purchased Sept 2021-Aug 2022 -							
Includes Support thru Aug 2022	Infrastructure						
SQL Server - Standard Support, Per							
Processor (4 cores) - Sept 2022 and							
Beyond	Infrastructure						
Websphere Basic Per Processor							
Single/Dual Core - Includes Year 1							
Maintenance	Infrastructure						

Return on Investment Analysis

		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									
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				ļ					
(External Web Applications Only)	Infrastructure								
App Code Directories on Consolidated									
IIS Server (Virtual)	Infrastructure								
Dedicated Virtual Server	Infrastructure								

Cost Summary

Cost Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Development Services:	Ī						
IT Hours - New Development	486,750	486,750					973,500
IT Hours - System Maintenance	8,250	8,333	8,416	8,500	8,585	8,671	50,754
IT Hours - Customer Support	16,500	16,665	16,832	17,000	17,170	17,342	101,508
IT Hours - Planned Maintenance	8,250	8,333	8,416	8,500	8,585	8,671	50,754
User Hours - New Development							
User Hours - PTNE/OT							
Contractor Professional Services							
Development Services Subtotal:	519,750	520,080	33,663	34,000	34,340	34,683	1,176,516
Hardware:							
Hardware Subtotal:							
Software:							
Software Subtotal:							
Infrastructure:							
	┨─────┼					<del> </del>	
Training Subtotal:							
Other:							
Other Subtotal:							
Costs Total:	519,750	520.080	33,663	34,000	34,340	34,683	1,176,516

Return on Investment Analysis

#### Assumptions

Date	Assumption Description
10-Feb-20	The hourly rate for an Application Analyst Programmer II is \$165
	An Application Analyst Programmer II spends an average of 15 hours/quarter maintaining 3 basemap caches. Replacing these with 1 vector-
10-Feb-20	based cache could reduce this time by approximately 10 hours/quarter (40 hours/year). 40hrs*\$165/hr = \$6600 savings annually.
	A Business Analyst spends approximately 15 minutes every week answering inquiries regarding data25 hours x 52 weeks = 13 hours/year.
26-Feb-20	Total annual savings = 13 hours x \$80/hour = \$1,040
29-Jan-20	The hourly rate for a Business Analyst is \$80.
28-May-20	Assuming 50 hrs/year increase in system maintenace and planned maint, and 100 hrs/year for customer support.