Oakland County
Department of Information Technology
Project Scope and Approach

Project Name: Data Analysis Strategy & Implementation **Project ID: DH9181DA**

Leadership Group: Internal Services		
Department: Information Technology	**Division:** Internal Services	
Project Sponsor: Phil Bertolini	**Date Requested**: 6/12/2018	**PM Customer No.** 181
Request Type: ***New Development X*** ***Enhancement*** ***Customer Support*** ***Planned System Maintenance or Upgrade***		
IT Team Name: Internal Services	**IT Team No**: H	
Project Manager/Leader: TBD		
Account Number: 17010	**Account Description:** Internal Services	**Customer Name:** Internal Services
Grant Funded? **Yes** **No** X	**Mandate? Yes** **No** X **Mandate Source:**	

Project Goal

To support progressive, centralized data analysis so that Oakland County data can be efficiently analyzed, integrated, combined and shared.

Business Objectives

To transform both spatial and non-spatial data into information that can be used to make better informed decisions.

To identify opportunities to unlock data from IT systems and strategically share with additional customers, both internal and external.

Major Deliverables

- Data inventories
- Metadata standards
- Data Reporting standards
- Data analysis process documentation and menu of analysis services and derived products (such as dashboards, reports, maps, etc.)
- Training and/or marketing materials

Approach

- Provide statistical and/or spatial data analysis as a service on County projects
- Identify and document improved methods for collecting, using, and managing existing data
- Identify, document, and enforce metadata standards
- Attend Architecture and/or Tech Review to evaluate data that will be part of new projects to identify opportunities for integration, prevent data duplication, and

prevent (as much as possible) investment in systems in which data will remain siloed, preventing further integrations/analysis
- Review existing systems to identify data integration opportunities either with other Oakland County data, or with external data sources (e.g., demographic information, data from other agencies, etc.)
- Attend customer status meetings and IT Road Shows to better understand customer business workflows and data questions/analysis opportunities
- Create training and/or marketing materials, as needed, to educate staff on data analysis services

Research & Analysis

Gartner Research Recommendation

Gartner has numerous articles supporting strategic data analysis, including multiple articles supporting the creation of a Chief Data Officer (CDO) position to lead these efforts.

The responsibilities of a CDO, according to the article "Making the Case for a Chief Data Officer" (Brian Hellauer, October 31, 2016; p. 2) are as follows:

- *Develops data quality, including monitoring systems and processes. Controls master data and metadata management policies, controls and standards. Oversees the Data Governance Council and the Data Management Committee.*
- *Ensures that business practices maintain data system integration and reporting standards. Works with business units to define data elements and reporting standards.*
- *Develops methods for the use of business intelligence and analytics for decision-making and strategic planning.*
- *Oversees the design, integration and staging of data warehouses and data marts. Identifies emerging methods and technologies related to data management and analysis.*
- *Creates policies and controls to protect enterprise information assets through a defined life cycle. Ensures audit controls for data that is a source in regulatory reports.*

This Strategy and Implementation project would provide hours for these very efforts for a CDO, or similar position at Oakland County, to lead.

Benefits

See Return on Investment (ROI) Analysis Document

Impact

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Number of Users Unlimited (County staff, CVT staff, the public)

Divisions All

Leadership Groups All

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Risk

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:	Name	Hours per Day
Project Sponsor:	Phil Bertolini	As needed.

Facilities

- None at this time

Technical

- None at this time

Funding

- Information Technology

Other

- None at this time

Priority

- TBD

Constraints

- None at this time

Exclusions

-

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PROJECT PHASE AUTHORIZATION

Phase(s):	**All**	
Total Estimated Application Services	**Hours: 125**	
Total Estimated Technical Systems	**Hours: 200**	
Total Estimated CLEMIS	**Hours: 100**	
Total Estimated Internal Services	**Hours: 75**	
IT Application Services Division Manager Approval:		**Date:**
IT Technical Systems Division Manager Approval:		**Date:**
IT CLEMIS Division Manager Approval:		**Date:**
IT Internal Services Division Manager Approval:		**Date:**
IT Management Approval:		
Approved: Yes No		Date:
Reason:		
Project Sponsor Approval:		
Title:		Date:

PROJECT SUMMARY

Authorized Development (see above)	**Hours: 500**	
Preliminary Estimated Development for Future Phases	**Hours:**	
Grand Total Estimated Development	**Hours: 500**	**Cost: $82,500**

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PROJECT COMPLETION AUTHORIZATION

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

Data Analysis Strategy & Implementation - Size Estimate (+/- 10% to 50%)

	Type	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	**3**	**000000**	**DATA ANALYSIS STRATEGY & IMPLEMENTAT**	**500**	
4				500	

Data Analysis Strategy & Implementation

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:	41,250	42,075	0	0	0	0	83,325
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	41,250	42,075	0	0	0	0	83,325
Annual Return on Investment	(41,250)	(42,075)					(83,325)
Annual Costs/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Project Cumulative Statistics:							
Cumulative Total Savings	0	0	0	0	0	0	0
Cumulative Total Costs	41,250	83,325	83,325	83,325	83,325	83,325	83,325
Cumulative Return on Investment	(41,250)	(83,325)	(83,325)	(83,325)	(83,325)	(83,325)	(83,325)
Cumulative Cost/Savings Ratio	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
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:			

Data Analysis Strategy & Implementation

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
Analyzing Oakland County spatial and non-spatial data further leverages our current investment in data by exposing patterns and predicting future trends.	Intangible Benefit						
More informed decisions can be made when data is analysis/summarized vs remaining locked in County source systems.	Intangible Benefit						
Providing and marketing a menu of analysis services makes them more likely to be understood and used.	Intangible Benefit						
Metadata standards that are enforced improves trust and understanding, and thus use, of County data.	Intangible Benefit						
Providing data reporting standards decreases the time individual teams spend researching solutions and prevents multiple similar solutions from being implemented.	Intangible Benefit						
Review of projects from a data perspective during the Tech Review phase reduces the change for data duplication and helps identify potential integration points and future data sharing opportunities.	Intangible Benefit						
Providing data analysis as a service to County projects prevents the need to train statistic experts in each department.	Intangible Benefit						

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Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI? Y1	Y2	Y3	Y4	Y5	Y6	Potential Savings Extensions Y1	Y2	Y3	Y4	Y5	Y6
Analyzing Oakland County spatial and non-spatial data further leverages our current investment in data by exposing patterns and predicting future trends.	Intangible Benefit												
More informed decisions can be made when data is analysis/summarized vs remaining locked in County source systems.	Intangible Benefit												
Providing and marketing a menu of analysis services makes them more likely to be understood and used.	Intangible Benefit												
Metadata standards that are enforced improves trust and understanding, and thus use, of County data.	Intangible Benefit												
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Review of projects from a data perspective during the Tech Review phase reduces the change for data duplication and helps identify potential integration points and future data sharing opportunities.	Intangible Benefit												
Providing data analysis as a service to County projects prevents the need to train statistic experts in each department.	Intangible Benefit												

Data Analysis Strategy & Implementation

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:								
	Analyzing Oakland County spatial and non-spatial data further leverages our current investment in data by exposing patterns and predicting future trends.							
	More informed decisions can be made when data is analysis/summarized vs remaining locked in County source systems.							
	Providing and marketing a menu of analysis services makes them more likely to be understood and used.							
	Metadata standards that are enforced improves trust and understanding, and thus use, of County data.							
	Providing data reporting standards decreases the time individual teams spend researching solutions and prevents multiple similar solutions from being implemented.							
	Review of projects from a data perspective during the Tech Review phase reduces the change for data duplication and helps identify potential integration points and future data sharing opportunities.							
	Providing data analysis as a service to County projects prevents the need to train statistic experts in each department.							
Savings Total:								

Data Analysis Strategy & Implementation

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
IT Hours - New Development	Development Svcs		HR	500	165	82,500	1.020	x	x				
IT Hours - System Maintenance	Development Svcs				165	0	1.020						
IT Hours - Customer Support	Development Svcs				165	0	1.020						
IT Hours - Planned Maintenance	Development Svcs				165	0	1.020						
User Hours - New Development	Development Svcs					0							
User Hours - PTNE/OT	Development Svcs					0							
Contractor Professional Services	Development Svcs					0							
PC System - Acquisition	Hardware				814	0							
PC System - Maintenance	Hardware				2,304	0							
Notebook - Acquisition	Hardware				1,223	0							
Notebook - Maintenance	Hardware				2,372	0							
Tablet Notebook - Acquisition	Hardware				2,012	0							
Tablet Notebook - Maintenance	Hardware					0							
Laserprinter - Acquisition	Hardware				1,432	0							
Laserprinter - Maintenance	Hardware				1,104	0							
Image Workstations - Acquisition	Hardware					0							
Image Workstations - Maintenance	Hardware				3,496	0							
PC Maintenance User Owned	Hardware				2,304	0							
Printer Maintenance User Owned	Hardware				1,072	0							
File Space (100GB)	Hardware		ANN		173	0							
Internet Bandwidth per MB	Hardware		ANN		750	0							
Package Software - Acquisition	Software					0							
Package Software - Maintenance	Software					0							
Business Objects Access	Software					0							
Term Emulation SFTW-Acquisition	Software					0							
Term Emulation SFTW-Maintenance	Software					0							
Server - Acquisition/Upgrade	Infrastructure				8,000	0							
Server - Maintenance	Infrastructure				360	0							
Server Sftwre - Acquisition/Upgrade	Infrastructure				335	0							
Server Sftwre - Maintenance	Infrastructure					0							
Server Rack Mount	Infrastructure				400	0							
Oracle Enterprise Per Processor - Includes Year 1 Maintenance	Infrastructure				21,372	0							
Oracle Enterprise Per Processor - Year 2 and Beyond	Infrastructure				3,432	0							

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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
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure				24,533	0							
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure				20,759	0							
SQL Server Enterprise - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure				16,985	0							
SQL Server Enterprise - Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure				4,218	0							
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure				6,398	0							
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure				5,414	0							
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure				4,429	0							
SQL Server - Standard Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure				1,100	0							
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure				3,506	0							

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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
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							
Websphere ND Per Processor Single/Dual Core - Year 2 and Beyond	Infrastructure				2,635	0							
SSL Certificate	Infrastructure				845	0							
Internet Access	Infrastructure				180	0							
Imperva Web Application Firewall (External Web Applications Only)	Infrastructure		ANN		500	0							
App Code Directories on Consolidated IIS Server (Virtual)	Infrastructure		ANN		415	0							
Database (5 GB) on Consolidated SQL Instance Server	Infrastructure		ANN		930	0							
Database Instance (125 GB DB) on Consolidated SQL Server	Infrastructure		ANN		2,395	0							
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							
DB Maintenance (Semi-Annual Cycle $1220)	Infrastructure		ANN		1,220	0							
DB Maintenance (Semi-Annual Cycle $2440)	Infrastructure		ANN		2,440	0							
Dedicated Virtual Server	Infrastructure		ANN		4,150	0							
DB Instance Setup	Infrastructure				976	0							
DBA MS SQL Database Creation on Exisitng Instance	Infrastructure				366	0							
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $601 On Premise Physical Server = N/A	Infrastructure		ANN			0							

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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
Small - 4 Core 16GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $951 On Premise Physical Server = $9,288	Infrastructure		ANN			0							
Medium - 8 Core 32GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $1,702 On Premise Physical Server = $9,751	Infrastructure		ANN			0							
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, 500GB Drive, 10 GB NIC - Cloud/Virtual = $7,564 On Premise Physical Server = $12,906	Infrastructure		ANN			0							
Project Staff Training	Training					0							
User Training	Training					0							

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Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6
IT Hours - New Development	Development Svcs	41,250.00	42,075.00				
IT Hours - System Maintenance	Development Svcs						
IT Hours - Customer Support	Development Svcs						
IT Hours - Planned Maintenance	Development Svcs						
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						
Image Workstations - Acquisition	Hardware						
Image Workstations - Maintenance	Hardware						
PC Maintenance User Owned	Hardware						
Printer Maintenance User Owned	Hardware						
File Space (100GB)	Hardware						
Internet Bandwidth per MB	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						

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Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		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 2019	Infrastructure						
SQL Server Enterprise - Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure						
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2016-Aug 2017 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2017-Aug 2018 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server Standard - Per Processor (4 cores) - Purchased Sept 2018-Aug 2019 - Includes Maintenance thru Aug 2019	Infrastructure						
SQL Server - Standard Maintenance, Per Processor (4 cores) - Sept 2019 and Beyond	Infrastructure						
Websphere Basic Per Processor Single/Dual Core - Includes Year 1 Maintenance	Infrastructure						

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Return on Investment Analysis

Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		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 (External Web Applications Only)	Infrastructure						
App Code Directories on Consolidated IIS Server (Virtual)	Infrastructure						
Database (5 GB) on Consolidated SQL Instance Server	Infrastructure						
Database Instance (125 GB DB) on Consolidated SQL Server	Infrastructure						
Database SQL Maint Server	Infrastructure						
Database SQL Server Physical	Infrastructure						
DB Maintenance (Annual Cycle $610)	Infrastructure						
DB Maintenance (Semi-Annual Cycle $1220)	Infrastructure						
DB Maintenance (Semi-Annual Cycle $2440)	Infrastructure						
Dedicated Virtual Server	Infrastructure						
DB Instance Setup	Infrastructure						
DBA MS SQL Database Creation on Exisitng Instance	Infrastructure						
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = $601 On Premise Physical Server = N/A	Infrastructure						

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Cost Detail

Cost Description	Project Cost Category	Potential Cost Extensions					
		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						
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						
Project Staff Training	Training						
User Training	Training						

Data Analysis Strategy & Implementation

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	41,250	42,075					83,325
IT Hours - System Maintenance							
IT Hours - Customer Support							
IT Hours - Planned Maintenance							
User Hours - New Development							
User Hours - PTNE/OT							
Contractor Professional Services							
Development Services Subtotal:	***41,250***	***42,075***					***83,325***
Hardware:							
Hardware Subtotal:							
Software:							
Software Subtotal:							
Infrastructure:							
Infrastructure Subtotal							
Training:							
Training Subtotal:							
Other:							
Other Subtotal:							
Costs Total:	***41,250***	***42,075***					***83,325***

Data Analysis Strategy & Implementation

Return on Investment Analysis

Assumptions

Date	Assumption Description
12-Jun-18	There would also be customer support, system maintenace and PMU plans in place to support this New Development program.