

Oakland County Department of Information Technology Project Scope and Approach

Project Name: WRC Legacy App Rewrite Phase 2

Project ID: D52611DR

Leadership Group: Land				
Department: Water Resources Commissioner			Division: Administration	
Project Sponsor: Nancy Basch		Date Requested: 2/1/2022		PM Customer No. : 611
Request Type:				
<u><i>New Development</i></u>		<i>Enhancement</i>		<i>Customer Support</i>
<i>Planned System Maintenance or Upgrade</i>				
IT Team Name: Public & Environmental Services			IT Team No: 5	
Project Manager/Leader: Brian Madison Jr.				
Account Number: 37930	Account Description:	WATER AND SEWER- GENERAL ADMIN	Customer Name:	Water Resources Commissioner
Grant Funded? Yes <input type="radio"/> No <input checked="" type="radio"/>		Mandate? Yes <input type="radio"/> No <input checked="" type="radio"/>		
		Mandate Source: N/A		

Project Goal

To rewrite 6 applications developed by the WRC in the 1990s and early 2000s so that they run in a modern environment, are easier to support, and allow WRC to accomplish their work more efficiently.

Business Objective

- Develop a suitable solution using modern and efficient technologies.
- Eliminate or reduce the risk of having WRC-specific program incompatibilities with future releases of desktop software.
- Reduce the cost associated with program changes due to difficult-to-decipher code.
- Eliminate or reduce the risk of programming errors that are created because the code is overly complex.
- Eliminate “shared” databases. For example, originally one WRC employee was responsible for WRC HR, equipment management, and fiscal rebills. That employee’s database contained data to support all three functions. When the employee’s tasks were done by three different employees, the combined database had to be shared by the three new employees, and the sensitive HR data had to be stripped out.
- Eliminate access issues caused by shared databases.

Major Deliverables

- Detailed Project Plan
- Application Code
- Implementation Plan
- Test Plan
- User Acceptance Test Plan
- Disaster Recovery Toolkit
- Service Center Knowledge Documents
- Legacy Apps Retirement Plan

**Oakland County
Department of Information Technology
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Approach

- Develop Detailed Project Plan
- Develop and Execute Implementation Plan
- Develop and Execute User Acceptance Test Plan
- Acquire User Acceptance Sign off
- Conduct Change Control
- Develop User Documentation, SLA, Disaster Recovery Toolkit, Service Center Knowledge Documents
- Train users on new system
- Release new system into production

Research & Analysis

Research Recommendation

Benefits

See Return on Investment (ROI) Analysis Document

Impact

Number of Users	20-30 WRC Employees
Divisions	Water Resources Commissioner's Office
Leadership Groups	Land

Risk

Business Environment	Medium – Project will require some changes to existing business processes
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Technical Environment	Medium – Previously implemented technologies with new aspects and/or new requirements
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**Oakland County
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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:

<u>Role:</u>	<u>Name</u>	<u>Hours per Day</u>
Project Sponsor:	Nancy Basch	As needed

Facilities

- None

Technical

- None

Funding

- Funded - All costs will be funded by proprietary funds. Each database rewrite will be funded by the appropriate benefitting system.

Other

- None

Priority

- TBD

Constraints

- None

Exclusions

- None

Oakland County Department of Information Technology Project Scope and Approach

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PROJECT PHASE AUTHORIZATION

Phase(s): ALL	
Total Estimated Application Services	Hours: 2,274
Total Estimated Technical Systems	Hours: 178
Total Estimated CLEMIS	Hours:
Total Estimated Internal Services	Hours:
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: 2,452
Preliminary Estimated Development for Future Phases	Hours:
Grand Total Estimated Development	Hours: 2,452 Cost: \$404,580

Oakland County Department of Information Technology Project Scope and Approach

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PROJECT COMPLETION AUTHORIZATION

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

WRC Legacy App Rewrite Phase 2 - Size Estimate (+/- 10% to 50%)

1	Type	ID	Task Name	Estimated	Estimate Notes
2				Hours	
3	Phase	000000	PROJECT MANAGEMENT	487	
4	Phase	500000	DEVELOP APPLICATION	1,734	
5	Phase	600000	IMPLEMENTATION PHASE	155	
6	Phase	800000	POST IMPLEMENTATION SUPPORT	76	
7				2,452	

Oakland County -- WRC Legacy App Rewrite Phase 2

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:	6,750	6,885	7,023	7,163	7,306	7,453	42,580
Cost Avoidance Subtotal:	0	0	0	0	0	0	0
Costs:							
Development Services Subtotal:	212,190	215,688	10,199	13,803	10,507	14,220	476,608
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	6,750	6,885	7,023	7,163	7,306	7,453	42,580
Annual Total Costs	212,190	215,688	10,199	13,803	10,507	14,220	476,608
Annual Return on Investment	(205,440)	(208,803)	(3,177)	(6,640)	(3,201)	(6,768)	(434,028)
Annual Costs/Savings Ratio	3143.56%	3132.72%	145.23%	192.69%	143.81%	190.81%	
Project Cumulative Statistics:							
Cumulative Total Savings	6,750	13,635	20,658	27,821	35,127	42,580	42,580
Cumulative Total Costs	212,190	427,878	438,077	451,880	462,388	476,608	476,608
Cumulative Return on Investment	(205,440)	(414,243)	(417,420)	(424,059)	(427,260)	(434,028)	(434,028)
Cumulative Cost/Savings Ratio	3143.56%	3138.09%	2120.65%	1624.25%	1316.32%	1119.33%	1119.33%
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 -- WRC Legacy App Rewrite Phase 2

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
Reduce time to modify, troubleshoot code issues.	Tangible Benefit		HR	30	165	4,950	1.020
Eliminate lost WRC labor due to uncertainty concerning data location, who should access data	Tangible Benefit		HR	30	60	1,800	1.020
Apps have reached end of life and hence needs rewrite to eliminate risk of apps not working in a newer Win 10 environment	Intangible Benefit					0	
Reduce disagreements over who should have access/who shouldn't	Intangible Benefit					0	
Eliminate or reduce the risk of programming errors that are created because the code is overly complex	Intangible Benefit					0	
Enhance Data security by adding security control modules and upgrading the Database	Intangible Benefit					0	
Improve Efficiency and Productivity by rewriting the apps in newer and efficient technologies	Intangible Benefit					0	
						0	
						0	
						0	
						0	

Oakland County -- WRC Legacy App Rewrite Phase 2

Return on Investment Analysis

Savings Detail

Benefit/Savings Description	Project Savings Category	Affects Project ROI?						Potential Savings Extensions					
		Y1	Y2	Y3	Y4	Y5	Y6	Y1	Y2	Y3	Y4	Y5	Y6
Reduce time to modify, troubleshoot code issues.	Tangible Benefit	x	x	x	x	x	x	4,950	5,049	5,150	5,253	5,358	5,465
Eliminate lost WRC labor due to uncertainty concerning data location, who should access data	Tangible Benefit	x	x	x	x	x	x	1,800	1,836	1,873	1,910	1,948	1,987
Apps have reached end of life and hence needs rewrite to eliminate risk of apps not working in a newer Win 10 environment	Intangible Benefit												
Reduce disagreements over who should have access/who shouldn't	Intangible Benefit												
Eliminate or reduce the risk of programming errors that are created because the code is overly complex	Intangible Benefit												
Enhance Data security by adding security control modules and upgrading the Database	Intangible Benefit												
Improve Efficiency and Productivity by rewriting the apps in newer and efficient technologies	Intangible Benefit												

Oakland County -- WRC Legacy App Rewrite Phase 2

Return on Investment Analysis

Savings Summary

Benefit/Savings Description	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total
Tangible Benefit:							
Reduce time to modify, troubleshoot code issues.	4,950	5,049	5,150	5,253	5,358	5,465	31,225
Eliminate lost WRC labor due to uncertainty concerning data location, who should access data	1,800	1,836	1,873	1,910	1,948	1,987	11,355
<i>Tangible Benefits Subtotal:</i>	6,750	6,885	7,023	7,163	7,306	7,453	42,580
Cost Avoidance:							
<i>Cost Avoidance Subtotal:</i>							
Intangible Benefit:							
Apps have reached end of life and hence needs rewrite to eliminate risk of apps not working in a newer Win 10 environment							
Reduce disagreements over who should have access/who shouldn't							
Enhance Data security by adding security control modules and upgrading the Database							
Improve Efficiency and Productivity by rewriting the apps in newer and efficient technologies							
Eliminate or reduce the risk of programming errors that are created because the code is overly complex							
Savings Total:	6,750	6,885	7,023	7,163	7,306	7,453	42,580

Oakland County -- WRC Legacy App Rewrite Phase 2

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	2,452	165	404,580		x	x						
IT Hours - System Maintenance	Development Svcs		HR	20	165	3,300	1.015	x	x	x	x	x	x		
IT Hours - Customer Support	Development Svcs		HR	40	165	6,600	1.015	x	x	x	x	x	x		
IT Hours - Planned Maintenance	Development Svcs		HR	20	165	3,300	1.015		x		x			x	
User Hours - New Development	Development Svcs														
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									
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									
File Space (100GB)	Hardware		ANN		23	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									

Oakland County -- WRC Legacy App Rewrite Phase 2
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 Existing 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									

Oakland County -- WRC Legacy App Rewrite Phase 2
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									

Oakland County -- WRC Legacy App Rewrite Phase 2

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	202,290.00	202,290.00				
IT Hours - System Maintenance	Development Svcs	3,300.00	3,349.50	3,399.74	3,450.74	3,502.50	3,555.04
IT Hours - Customer Support	Development Svcs	6,600.00	6,699.00	6,799.49	6,901.48	7,005.00	7,110.07
IT Hours - Planned Maintenance	Development Svcs		3,349.50		3,450.74		3,555.04
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						

Oakland County -- WRC Legacy App Rewrite Phase 2
Return on Investment Analysis

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						

Oakland County -- WRC Legacy App Rewrite Phase 2
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 Existing Instance	Infrastructure						
Extra Small - 2 Core 8GB RAM, 500GB Drive, 10 GB NIC - Cloud/Virtual = \$601 On Premise Physical Server = N/A	Infrastructure						

Oakland County -- WRC Legacy App Rewrite Phase 2
Return on Investment Analysis

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						

Oakland County -- WRC Legacy App Rewrite Phase 2

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	202,290	202,290					404,580
IT Hours - System Maintenance	3,300	3,350	3,400	3,451	3,502	3,555	20,558
IT Hours - Customer Support	6,600	6,699	6,799	6,901	7,005	7,110	41,115
IT Hours - Planned Maintenance		3,350		3,451		3,555	10,355
User Hours - New Development							
User Hours - PTNE/OT							
Contractor Professional Services							
<i>Development Services Subtotal:</i>	212,190	215,688	10,199	13,803	10,507	14,220	476,608
Hardware:							
<i>Hardware Subtotal:</i>							
Software:							
<i>Software Subtotal:</i>							
Infrastructure:							
<i>Infrastructure Subtotal</i>							
Training:							
<i>Training Subtotal:</i>							
Other:							
<i>Other Subtotal:</i>							
Costs Total:	212,190	215,688	10,199	13,803	10,507	14,220	476,608

