INFORMATION TECHNOLOGY PROJECTS IN 2013-15

(THAT EQUAL OR EXCEED $150,000)

Agency Name:	DEPARTMENT OF ENVIRONMENTAL QUALITY			
Project Name:	DEQ ELECTRONIC DISCHARGE MONITORING REPORT PROJECT			
Mandated Project?	☒ Yes No		By: Legislature, Federal Gov, Other (identify it)	Oregon Legislature, U.S. EPA and specific commitments to the regulated community.
Budget?	☒ Base ☐ POP		Which agency or state plans or goals does it align with and/or support?	The eDMR application will support the National Pollution Discharge Elimination System permitting program.
Project Purpose	☐ Routine Lifecycle Replacement ☐ Upgrade/Enhance Existing System ☒ New System			
Project Status	☐ Concept Stage ☒ Planning Stage ☐ Ready to Implement ☐ Continuation of Existing Project			
SDC Involvement	☒ None ☐ Minor ☐ Active ☐ Participating Partner			
Estimate SDC Costs	**$ 0.00** ☒ Preliminary Estimate ☐ Project Design Estimate			

Project Description:

eDMR is an outward facing (Internet) system that will allow permitted sources to electronically submit their required permitted water quality discharge data to DEQ. Data submitted though the system will be automatically entered into DEQ's water quality databases. The agency will use the data for decision making, such as initial compliance determinations and assessment the health of watersheds.

DEQ currently collects this data monthly, in hardcopy, from approximately 700 permit holders and manually enters the data for approximately 70 of the largest of them. All other discharge data is collected and maintained only in hardcopy files, necessitating manual compliance review by DEQ science and engineering staff, and hindering DEQ's required reporting to EPA. This project will allow Oregon water pollution permit holders to report their monthly discharge data via an Internet application or from their own environmental management systems, and DEQ to efficiently manage and report a far greater portion of the data for all permit holders.

DEQ's 2007 Policy Option Package #120 included a recommendation developed by the Water Quality Blue Ribbon Committee to implement eDMR. The 2007 Legislature approved funding to develop eDMR and DEQ received a federal grant to execute the project. The current Performance Partnership Agreement between DEQ and EPA requires eDMR. Additionally, EPA has announced its intention to promulgate a rule mandating eDMR within approximately the time frame of this project.

This project is closely aligned with the DEQ CROMERR project.

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

Cost Summary							
Total estimated cost by fund (13-15):	General Fund	Lottery Funds	Other Funds	Non-Limited	Federal Funds	Non-Limited	Total Funds
	$10,000	$	$14,000	$	$124,000	$	$148,000
Total estimated cost by fund (all biennia):	$ 15,000	$	$ 20,000	$	$ 185,000	$	$ 220,000

Estimated Cost by category (13-15):	Personal Services	Services & Supplies	Capital Outlay	Special Payments	Debt Service
	$ 64,000	$ 84,000	$	$	$
Estimated Cost by category (all biennia):	$ 95,000	$ 125,000	$	$	$

		Positions: Internal	
Expected Start Date:	June 2013	Contractor	X
Expected Completion Date:	June 2014	FTE:	

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

(THAT EQUAL OR EXCEED $150,000)

Agency Name:	DEPARTMENT OF ENVIRONMENTAL QUALITY			
Project Name:	CROSS-MEDIA ELECTRONIC REPORTING RULE (CROMERR)			
Mandated Project?	☒ Yes No		By: Legislature, Federal Gov, Other (identify it)	CROMERR is a federal rule mandating certain technology and procedures to ensure enforceability of electronically reported environmental data. Several DEQ programs have existing or planned systems that will depend upon this CROMERR project to legally collect required data. Some of those systems (such as the Water Quality Permit Program's eDMR system) are mandated by the EPA, the Oregon Legislature and commitments to the regulated community.
Budget?	☒ Base ☐ POP		Which agency or state plans or goals does it align with and/or support?	The CROMERR application will support multiple DEQ programs. Initially it will directly support the Water Quality National Pollutant Discharge Elimination Ssystem permitting program
Project Purpose	☐ Routine Lifecycle Replacement ☐ Upgrade/Enhance Existing System ☒ New System			
Project Status	☐ Concept Stage ☒ Planning Stage ☐ Ready to Implement ☐ Continuation of Existing Project			
SDC Involvement	☒ None ☐ Minor ☐ Active ☐ Participating Partner			
Estimate SDC Costs	**$ 0.00** ☒ Preliminary Estimate ☐ Project Design Estimate			

Project Description:

The U.S. Environmental Protection Agency has developed an electronic reporting standard rule, known as CROMERR, which DEQ must follow in order to accept required reports and data from regulated entities via a web-enabled document exchange program or other electronic means. CROMERR specifies what is required for electronic discharge monitoring reporting (eDMR) and other electronic reporting applications to assure that collected data is legal and able to be used in enforcement and compliance actions. This project puts into place the necessary infrastructure for DEQ to comply with this rule. Several DEQ programs will use the CROMERR infrastructure to come into compliance with federal requirements and to fulfill commitments to the legislature and the regulated community. This project is closely aligned with the DEQ eDMR project.

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

Cost Summary							
Total estimated cost by fund (13-15):	General Fund	Lottery Funds	Other Funds	Non-Limited	Federal Funds	Non-Limited	Total Funds
	$ 10,000	$	$ 27,000	$	$ 100,000	$	$ 137,000
Total estimated cost by fund (all biennia):	$ 15,000	$	$ 40,000	$	$ 150,000	$	$ 205,000

Estimated Cost by category (13-15):	Personal Services	Services & Supplies	Capital Outlay	Special Payments	Debt Service
	$ 10,000	$ 127,000	$	$	$
Estimated Cost by category (all biennia):	$ 15,000	$ 190,000	$	$	$

		Positions: Internal	
Expected Start Date:	June 2013	Contractor	X
Expected Completion Date:	June 2014	FTE:	

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

(THAT EQUAL OR EXCEED $150,000)

Agency Name:	DEPARTMENT OF ENVIRONMENTAL QUALITY			
Project Name:	AUTOMATED COMPLIANCE AND ENFORCEMENT SYSTEM			
Mandated Project?	☐ Yes ☒ No		By: Legislature, Federal Gov, Other (identify it)	
Budget?	☒ Base ☐ POP		Which agency or state plans or goals does it align with and/or support?	DEQ's strategic directions: • Improves Oregon's air and water by enforcing environmental laws and regulations. Protects Oregonians from toxic pollutants by preventing and reducing toxic chemical releases • Improves Oregon's air and water by strengthening connection between public and environmental health • Improves Oregon's air and water by meeting air quality health standards for fine particulates and smog
Project Purpose	☐ Routine Lifecycle Replacement ☐ Upgrade/Enhance Existing System ☒ New System			
Project Status	☐ Concept Stage ☒ Planning Stage ☐ Ready to Implement ☐ Continuation of Existing Project			
SDC Involvement	☒ None ☐ Minor ☐ Active ☐ Participating Partner			
Estimate SDC Costs	**$ 0.00** ☒ Preliminary Estimate ☐ Project Design Estimate			

Project Description:
During 2011-13, DEQ's highest IT priority has been the agency-wide Automated Compliance and Enforcement System (ACES) project; the system will allow for easy retrieval of compliance and enforcement data. The agency plans to complete the system in 2013-15, with anticipated implementation by the third quarter of 2013. Currently, the information is stored in about 16 incompatible, non-integrated databases distributed throughout the agency, which creates extra data entry for staff and makes it difficult to quickly retrieve comprehensive information for internal and external stakeholders. An executive steering committee determined the project's scope and approved the project plan. After completing a "build or buy" analysis, which included a Request for Information, the steering committee decided that DEQ internal staff would develop the application. The development project follows process improvement efforts, which standardized compliance and enforcement process across agency programs. The development of enforcement and compliance performance measures will use ACES as a data source.

DAS approved DEQ's business case for this project in July 2011. DEQ estimates the development costs to be $791,000 and five-year operational costs to be $534,200.

Following are DEQ's primary objectives for the Automated Compliance and Enforcement System:

Objective 1: Process definition and improvement – development of standardized complaints, compliance and enforcement processes
Objective 2: Data management application – development of an application to manage data integral to these processes
Objective 3: Improve operations quality and efficiency – definition and measurement of baseline measures for business processes and outputs
Objective 4: Use business intelligence for more effective decision making – use of ACES data to measure program effectiveness and performance improvements

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

Key system users and stakeholders:

- Inspectors, environmental law specialists and support staff doing compliance and enforcement work
- Managers, for managing personal and staff workload evaluating productivity and whether programs are meeting compliance objectives
- Other internal and external and external stakeholders, such as the Legislature, Environmental Quality Commission, media and environmental groups

Cost Summary							
Total estimated cost by fund (11-14):	General Fund	Lottery Funds	Other Funds	Non-Limited	Federal Funds	Non-Limited	Total Funds
	$~1,225,200	$	$	$	$	$	$~1,225,200
Total estimated cost by fund (all biennia):	$~1,225,200	$	$	$		$	$~1,225,200

Estimated Cost by category (11-14):	Personal Services	Services & Supplies	Capital Outlay	Special Payments	Debt Service
	$~1,225,200		$	$	$
Estimated Cost by category (all biennia):	$~30,000	$	$	$	$

		Positions: Internal	TBD
Expected Start Date:	July 1, 2010 (planning and analysis authorized)	Contractor	X
Expected Completion Date:	Jan 31, 2014 (ACES implementation per project charter objective)	FTE:	TBD

Business Case for *ACES (Agency-wide Compliance and Enforcement System)*

Department of Environmental Quality

Date: 7/25/11
Version: 3.0, Final
Authors: Ernie Weber, PMP

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Business Case – Authorizing Signatures

PROPOSAL NAME AND DOCUMENT VERSION #	**ACES Development and Implementation**		
AGENCY	DEQ	DATE	7/19/11
DIVISION	Multiple	DAS CONTROL #	
AGENCY CONTACT	Ernie Weber, PMP	PHONE NUMBER	503-229-6765

The person signing this section is attesting to reviewing and approving the business case as proposed.

This table to be completed by the submitting agency	
Signature:	Date: 7-25-11
Agency Head or Designee	
Joni Hammond: Deputy Director	
Signature:	Date: 7-25-11
Executive Sponsor	
Joni Hammond, Deputy Director	
Signature	Date: 07-26-2011
Program Sponsor	
Dave Belyea, Western Region Program Manager	
Signature	Date: 7-26-11
Signature	Date: 7/26/11
Chief Information Officer (CIO) and Agency Technology Manager	
Sohng Shin, Business Systems Development Manager	
Rebecca Kirk, Information Technology Manager	
Signature	Date:
State Data Center Representative if required by the State CIO	
(Name)	

This Section to be completed by DAS Enterprise Information Strategy and Policy Division (EISPD) IT Investment and Planning Section	
DAS Analyst	
(Name)	(Date)
Signature	
State CIO	
(Name)	(Date)
Signature	

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Executive Summary

The Oregon Department of Environmental Quality selected the Agencywide Compliance and Enforcement System (ACES) project as the top agency application development priority due to DEQ's inability to adequately manage and access information on its compliance and enforcement activities. This data is stored in many different automated forms (databases, spreadsheets, etc), is geographically dispersed, and formatted inconsistently; making aggregating and synthesizing it is time consuming, expensive and of dubious quality.

DEQ and its programs have a legal and public obligation to disseminate compliance information in a timely manner to oversight groups such as the U.S. Environmental Protection Agency, legislative committees and the Oregon Environmental Quality Commission. Public interest groups, environmental groups and anyone filing public records requests also seek this information. DEQ program managers require summary and statistical information to assess the effectiveness of their programs, to manage staff activities and plan and budget for the future.

Goal: Improve Compliance and Enforcement processes and data management.

> **Objective 1**: Process definition and improvement – entails development of standardized complaints, compliance and enforcement processes.
>
> **Objective 2**: Data management application – entails development of an application to manage data integral to these processes
>
> **Objective 3**: Improve operations quality and efficiency – entails definition and measurement of baseline measures for business processes and outputs.
>
> **Objective 4**: Use business intelligence for more effective decision making – entails the use of ACES data to measure program effectiveness and performance improvements.
>
> **Objective 4**: Use business intelligence for more effective decision making – entails the use of ACES data to measure program effectiveness and performance improvements.

Strategic Alignment

1) This project aligns with Governor Kitzhaber's position that Oregon's budget shortfall represents an opportunity to change and improve the way the state does business. We cannot rely on the ways we've done things in the past even though they're familiar to us.
   The project will remove current workload burdens in responding to information requests and make available new kinds of information we are not now able to supply. Also, it would allow evaluation of the effectiveness of compliance and enforcement activities and enable DEQ to better focus its resources on high-quality highly-effective work.
2) The ACES Steering Committee, comprised primarily of DEQ senior managers, judged that ACES supported five of DEQ's key strategies.
3) Other agency business values supported include: a) ensuring operational effectiveness and efficiency, b) supporting state policy on access to public information and stakeholder benefits, and c) ensuring enterprise value management.

Key Assumptions and Critical Success Factors

They include:

1) Aligning with the DEQ Agencywide IT Managers (DAITM) group's selection of ACES as the agency's highest priority project.
2) Creating DEQ's primary repository for the agency's Compliance and Enforcement data.
3) Providing DEQ stakeholders with new capabilities, such as:
   a) **Transparency** - a single source for cross program compliance and enforcement information for all regulated facilities and individuals
   b) **Credibility** - Consistent data entry by staff performing the work resulting in more accurate and timely data
4) Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
5) Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
6) Having a product life-cycle of five years.
7) Being compatible with the DEQ technical architecture.
8) Satisfactorily supporting defined and standardized compliance and enforcement business processes.
9) Providing DEQ with a standardized approach for managing compliance and enforcement data.
10) Providing a consistent application for responding to information requests about DEQ's compliance and enforcement work.
11) Providing primary benefits that are qualitative (accessibility and transparency of data) vs. quantitative (e.g. human resources savings).
12) Honoring schedule (as opposed to scope or budget) as a primary project driver.
13) Eliminating the need and use of 12 complaints databases and an equal number of NON databases and ledgers.

ACES Project's Functional Requirements are to:

1) Define and standardize complaints and compliance processes, integrating enforcement processes with complaints processes.
2) Develop an application for the management and reporting of data for key process activities, including:
   a) Site visits for technical assistance and inspection
   b) Violations
   c) Reporting requirements
   d) Office of Compliance and Enforcement (OCE) Formal Enforcement Actions (FEA)
   e) OCE FEA milestone dates
   f) Code table maintenance for key data such as violation group and type, programs, and environmental interests
   g) Significant violators, which are monitored and reported to EPA
   h) Reports
   i) User Dashboard for work management and productivity

Primary driver is schedule (duration of ACES development project), which has been set at 18 months.

Proposed Solution:

The ACES Steering committee, after reviewing and discussing the options, propose Option #3, the use of DEQ internal development staff should be used to build ACES. Some stated that outsourced help may reduce the schedule and provide a more robust solution. Ultimately, the factors that resulted in this proposal were:

1. The DEQ budget constraints – there are no funds dedicated for contracting this effort. Contracting with these constraints would result in cuts in other areas.
2. The DEQ internal development staff has the technical skills to develop this application.

3. The DEQ Advisory IT Managers (DAITM) group agreed to reductions in other development and maintenance work in order to staff this project.
4. This proposal met all of the selection criteria outlined in the body of this business case.
5. It had the lowest negative life-cycle cash flow (-$198,000). The ACES Executive Steering Committee strongly believes that non-financial benefits of this project greatly outweigh the financial position of this proposal.

Options considered:

1) Option 1 – Status Quo - No build of ACES and continued reliance on the several existing distributed applications that collect non-standardized data.

   Cost (through 6/30/118): $472,800 **Duration**: N/A

   Costs: Attributed to expenses of inefficient data reporting efforts and costs of maintaining compliance portions of legacy databases.

   Benefits: only real benefits are that it would allow DEQ to work on other business system needs (which have already been judged as lower-priority work) and it would allow DEQ to delay making a decision about this expenditure perhaps until better economic times.

   Risks: DEQ would be unable to easily answer questions about its compliance and enforcement operations, unable to evaluate the effectiveness of its programs, and unable to provide compelling information about how it is meeting its mission. DEQ would continue to be non-transparent in their compliance and enforcement operations. There would be continued operational inefficiencies in times of serious resource constraints. Harm to DEQ's public credibility in a period where public access to information is expected.

2) Option 2 – Procure IT Professional Services contractor – Develop the application through a contractual agreement with an IT software development firm.

   Costs $1,419,100 (FY12 -13) $434,200 (FY 14 – 18) **Duration**: 9 – 12 months

   Costs: Approximately $1,040,000 is development cost for contracted services with balance being DEQ technical and client team costs. Four percent of contract cost is for audit expenses. The second cost is for 5 years of maintenance.

   Benefits: Financial benefits are $1,027,100. Savings from more efficient data output, and maintenance on legacy applications over the expected five year application lifecycle. Non-Financial benefits include: a) a new automated systems in place of multiple old legacy systems, b) better alignment with current Agency software/hardware technology, c) implementation of newer, leaner business processes with integrated application support, d) improved services to internal and external stakeholders, and e) other IT projects could continue using BSD developers.

   Risks: The Agency is experiencing significant budget reductions and may not have contracting dollars to pay the full costs in the near term. There is a dependency on Central Entity Management (CEM) governance, processes and application, which is currently in the analysis phase. Lower schedule risk due to fewer resource availability constraints by contractors and use of more efficient methods and tools.

3) Option 3 – Use DEQ development staff - Develop the ACES application with existing DEQ development staff.

Costs $791,000 (FY12 -13) $434,200 (FY 14 – 18) **Duration**: 13 – 16 months

Costs: Development costs are for DEQ technical and client team costs,. Four percent of development costs for audit. The second cost is for 5 years of maintenance.

Benefits: Financial benefits are $1,027,100. Savings from more efficient data output, and maintenance on legacy applications. Other qualitative savings are: greater efficiency by the eliminations of some redundant data entry into Complaints and NON applications b) elimination of multiple deployments of Complaints and NON databases and cost for operating and maintaining them. Development cost is an opportunity cost vs. using funding for outsourcing.

Non-Financial benefits include: a) a new automated systems in place of multiple old legacy systems, b) better alignment with current Agency software/hardware technology, c) implementation of newer, leaner business processes with integrated application support, d) improved services to internal and external stakeholders, e) ability to measure program effectiveness and performance improvements, and f) possibility of variety of contractor payment options that would allow amortization of the costs over a longer period of time.

Risks: Include a) Potential to lose Federal grants, if internal resources were unavailable to perform the work, b) delayed or no development of new applications to meet other DEQ program regulatory mandates, c) schedule risk as internal resources cannot be fully allocated to project work due to administrative and emergency maintenance obligations, and higher team costs due to longer project duration.

4) Option 4 – Hybrid of Options 2 and 3 – Collaborative build using both a contractor and DEQ staff, if the Agency doesn't have adequate internal resources to do all the work.

Costs $1,130,100 (FY12 -13) $434,200 (FY 14 – 18) **Duration**: 11 – 15 months

Costs: Approximately $500,000 is for contracted development services, four percent of development cost for audit with balance being DEQ technical and client team costs, PM allocation to effort would increase due to the extra oversight and coordination required. The second cost is for 5 years of maintenance.

Benefits: Financial benefits are 1,027,100. Savings from more efficient data output, and maintenance on legacy applications. Other qualitative savings are: greater efficiency by the eliminations of some redundant data entry into Complaints and NON applications b) elimination of multiple deployments of Complaints and NON databases and cost for operating and maintaining them

Non-Financial benefits include: a) a new automated systems in place of multiple old legacy systems, b) better alignment with current Agency software/hardware technology, c) implementation of newer, leaner business processes with integrated application support, d) improved services to internal and external stakeholders, and e) increased opportunity for technology transfer.

Risks: The comingling of contractor and Agency technical staff on the same development project produces increased risks of contract disputes, and ultimately a risk to the contract itself if DEQ work ends up on the critical path and delays contractor performance of their scope of work.

Executive Summary Checklist

This section should answer the following questions by taking the information from the body of the business case.

Does the Executive Summary...

- ☐ Describe the proposed IT investment and the problem(s) it solves?
- ☐ Identify the IT investment time period covered?
- ☐ Identify solution requirements
- ☐ Identify alternatives that are compared with the recommended action?
- ☐ Explain how the IT investment aligns with and supports agency strategic business objectives and business plans?
- ☐ Explain how the IT investment aligns with and supports
  - The Governor's goals, priorities and initiatives?
  - The Enterprise Information Resources Management Strategy?
  - Other IT-related statewide plans, initiatives, goals and objectives?
- ☐ Estimate total the cost and total cost of ownership (TCO) for IT investment?
- ☐ Recommend funding sources?
- ☐ Project whether or not the IT investment will break even or have a quantifiable return on investment (ROI)?
- ☐ Identify key assumptions, critical success factors and contingencies that must be managed in order to achieve desired results?
- ☐ Identify risks that must be watched: IT risks, project risks, business risks, and service delivery risks?
- ☐ Present the important practical recommendations for project implementation?
- ☐ Describe the consequences of failure to act on the recommendation

Background

Background

The Department of Environmental Quality's (DEQ) Agency Mission is to be an active leader in restoring, maintaining, and enhancing the quality of Oregon's air, water and land. The Agency works to accomplish its Mission by working toward a Vision of working cooperatively with all Oregonians for a healthy, sustainable environment. The Agency measures its success against its values of environmental results, customer service, partnership, excellence and integrity, employee growth, teamwork, and diversity.

DEQ's complaints, inspection and legal staff assist the Department in achieving its mission by monitoring and obtaining compliance with Federal and State environmental regulations and permit conditions. Complaints are received and investigated. Permitted sites and facilities are inspected, and required reports by regulated entities are reviewed to monitor compliance. DEQ initiates progressive actions from Warning Letters through Formal Enforcement Actions to get an entity back into compliance.

DEQ and its programs have a legal and public obligation to disseminate compliance information to oversight groups, such as US EPA, legislative committees and the Environmental Quality Commission (EQC). Public interest groups, environmental groups and public records requests are also consumers of this information. DEQ program managers require summary and statistical information to manage staff activities and plan and budget for future periods.

Currently, data about these activities are very distributed and not integrated.

- **Complaints** – DEQ has 13 regional offices, each with their own complaints database

- **Compliance Monitoring** – There are approximately 15 program database applications that keep compliance information. These program databases were typically built in response to enabling environmental laws or delegation of federal authority to DEQ, and often maintain permitting data, as well as compliance data.
- **Enforcement** – DEQ has one Enforcement application for managing our formal enforcement activities. Field level enforcement data for issuance of Warning Letters and Pre-Enforcement Letters are maintained in separate office databases in much the same way as complaints cited above.

Due to the distributed nature and inconsistent forms of this data, aggregating and synthesizing it is time consuming, expensive and of dubious quality. The lack of integration between these applications results in operational inefficiencies as data must be reentered into other applications and rekeyed into correspondence and referral information needed by DEQ's office of Compliance and Enforcement (OCE).

The current state prevents DEQ from adequately informing the public about its compliance activities. DEQ has difficulty responding to requests about these activities. Agency managers are unable to get a comprehensive overview and analysis of compliance operations and trends, which adversely impacts their effectiveness in program oversight.

The DEQ did not have consistent documented business processes for their complaints and compliance activities, which compounded the challenges of integrating data for analysis and reporting, and served as an impediment to agency-wide automated support for these processes.

Two application development efforts occurred over the past 10 years.

- An Oracle-based application for field enforcement actions was developed by a systems analyst without the benefit of sponsorship, project management and requirements and development participation by an established client team. The product was never embraced by the user community.
- More recently a project to develop a centralized compliance database was halted. It suffered from many of the same conditions cited above and was unable to support divergent business processes.

Project Goal and Objectives

Goal: Improve Compliance and Enforcement processes and data management.

Objective 1: Process definition and improvement

a. By January 2011, Kaizen Team will develop uniform compliance (complaints, inspections, report reviews, and TA follow-up visits) and enforcement processes and outputs for 75 percent of the tasks identified during the July 2010 Kaizen event.
b. Within 3 months of the conclusion of complaints training and the implementation of the Complaints SharePoint application, DEQ will implement up to 75 percent of the developed complaints processes
c. Within 3 month of the implementation of ACES, DEQ implement up to 75 percent of the developed compliance processes

Objective 2: Data management application

a. By December 31, 2010, DEQ will decide on a "build or buy" option that will result in an ACES application.

b. Three months prior to the scheduled implementation of ACES, each owner of a system containing compliance and enforcement data will submit a proposal describing the amount of recommended system integration of their application with ACES. A proposal could be that the existing level of integration is satisfactory.

c. Eighteen months after

   - Beginning the design phase for an internal DEQ build or
   - executing a contract to procure a solution,

   DEQ will implement an ACES application. In general, this will exclude integration with existing program applications.

d. Within three years after the implementation of ACES, all systems shall be integrated with ACES, consistent with their approved proposal (see 2b above) for efficient data entry and reporting.

Objective 3: Improve operations quality and efficiency

a. By June 30, 2012, DEQ's compliance process owner will define and execute a process for generating baseline measures for business processes and outputs included in the ACES application.

b. Six months after the implementation of ACES, quality and efficiency measures will show a 25 percent improvement over baseline measures for 80 percent of business processes and outputs included in the ACES application.

Objective 4: Use business intelligence for more effective decision making

- Six months after the implementation of ACES, DEQ will use data to measure program effectiveness and performance improvements (for example, number of inspections resulting in non-compliance findings, length of time to return to compliance).

Alignment with Agency Strategies

The ACES project was judged by the Project Steering Committee to be well aligned with DEQ strategies of:

- DEQ improves Oregon's air and water by enforcing environmental laws and regulations.
- DEQ protects Oregonians from toxic pollutants by preventing and reducing toxic chemical releases.
- DEQ improves Oregon's air and water by strengthening connection between public and environmental health.
- DEQ improves Oregon's air and water by meeting air quality health standards for fine particulates and smog.
- DEQ improves Oregon's air and water by issuing timely and protective permits.

Background Checklist

Does the Purpose and Background Section;

- ☐ Clearly describe how work is being performed today?
- ☐ Identify the business objectives, mandatory requirements, solution requirements, or specific problems that are the reason for the proposed IT investment?
- ☐ Describe important background information that reviewers need to know in order to understand the problems or opportunities developed more fully in the next section?

Problem or Opportunity Definition

Governor Kitzhaber has stated that Oregon's budget shortfall represents an opportunity to change and improve the way the state does business. We cannot rely on the ways we have done things in the past - even though they are familiar to us.

The present condition prevents meaningful compilation and synthesis of this data to guide agency executives and program managers in the oversight of key environmental compliance and enforcement processes. Aggregating basic information is extremely time consuming, expensive and of dubious quality. DEQ cannot respond timely and often meaningfully to requests for information about complaints, inspections and environmental violations during a period or within an area, such as county.

The ACES project represents an opportunity to move from distributed, program-centric repositories of complaint, compliance and enforcement data to a integrated data managements system built to support agencywide standardized and streamlined processes. It would allow DEQ to be more transparent in sharing information with external stakeholders, including oversight groups such as US EPA, the Oregon legislature, environmental interest groups, media and the public.

The ACES project directly supports DEQ's strategies to improve Oregon's air and water by enforcing environmental laws and regulations, and to protect Oregonians from toxic pollutants by preventing and reducing toxic chemical releases among others.

Other business value includes:

1) Ensuring Operational Effectiveness and Efficiency
   a) Improved accuracy of summarized data. This improves DEQ credibility in the eyes of our stakeholders.
   b) Improved collaboration across programs and geographically in managing complaint, compliance and enforcement data.
   c) Improved internal processes with greater integration and consistency with inputs and outputs.
   d) Cost and cost avoidance – There are at least 15 systems (more if you count the same one independently replicated in different offices), which manage complaint, compliance and enforcement data. There are IT costs in maintaining all the code for these functions in the different systems; staff time and costs for duplicate data entry in nonintegrated systems, and the significant costs of retrieving and aggregating data from so many systems
2) Supporting state policy on access to public information and stakeholder benefits.
   a) Decision and policy making – will enable managers and state policy makers to obtain better, real time data to produce better informed, improved operational and policy decisions.

b) Government transparency – increases access to DEQ information and processes.

3) Ensuring enterprise value management

a) ACES project is consistent with DEQ's technical architecture

b) ACES positions DEQ to conduct business more strategically – ACES integrates functions currently executed independently by multiple environmental programs and office locations. Properly designed to be scalable, additional programs will be able to manage compliance data without the need to build a new application. This can serve as forerunner to consolidation of other processes currently executed as described above. Permitting and invoicing are prime examples.

c) ACES is supported by sound project management practices, which lower overall risk and improve the probability that envisioned value will be obtained. The executive sponsor is the DEQ deputy director. Project activities are monitored by an executive steering committee. An experience project manager has been assigned to the project, and is following PMI's project management methodologies.

Problem or Opportunity Definition Checklist

Does the Problem or Opportunity Section;

- ☐ Present the problem or opportunity in terms of agency program or business terms?
- ☐ Link the problem or opportunity to agency mission, goals, or program requirements?
- ☐ Describe how the "current state" meets or does not meet agency program needs. Why does the "current state" need to be addressed/changed?
- ☐ Identify relevant metrics or data that help define the scope of the problem or opportunity?

Alternatives Analysis

Assumptions

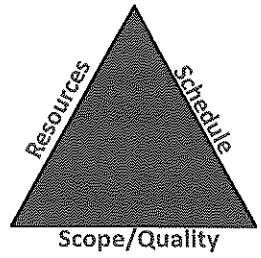
The ACES project team assumes that a selected option will:

1) Align with the DEQ Agencywide IT Managers (DAITM) group's selection of ACES as the agency's highest priority project.
2) Be DEQ's primary repository of the Agency's Compliance and Enforcement data.
3) Have a life-cycle of 5 years
4) Be compatible with the DEQ technical architecture
5) Satisfactorily support defined and standardized compliance and enforcement business processes
6) Provide DEQ a standardized approach for the management of compliance and enforcement data.
7) Provide a consistent application for responding to information requests about DEQ"s compliance and enforcement activities
8) Significantly reduce the herculean effort and improve consistency in responding to information requests.
9) Will provide primary benefits that are qualitative (accessibility and transparency of data) vs. quantitative (e.g. FTE savings)

10) Will honor schedule as its primary driver among the triple project constraints illustrated below

ACES Project Triple Constraints

1. Scope - expressly lays out the functions, features, data, content, etc. that will be included in the project at hand.
2. Resources - what needs to be applied or assigned to the project in terms of *money and effort* in order to make things happen.
3. Schedule - The amount of time required to complete each and every component of a project, which leads to an estimate of the duration of the project as well as what and how many/much resources need to be dedicated to that particular project.



The ACES Steering Committee decided that schedule should be the primary driver for ACES implementation 18 months after the start of design or the execution of a contract was a key objective.

Selection Criteria and Alternatives Ranking

Important selection criteria for choosing among proposed alternatives are:

1. The degree to which proposed option supports the project objectives (see Goals and Objectives)
2. The degree to which the proposed option is able to meet Functional Requirements
3. The degree to which the proposed option is able to meet Technical Requirements
4. The degree to which the proposed option supports documented business processes.
5. The degree to which the proposed option can alleviate the problems and achieve opportunities (described above).
6. The degree to which the proposed option demonstrates sufficient quantitative and qualitative benefits.
7. The degree to which the proposed option has a level of risk which is acceptable to the agency
8. The degree to which the proposed option is within budgetary (staffing resources) of the agency.
9. The degree to which the proposed option, once initiated, can best meet the desired timeline of 18 months (design through implementation).

Solution Requirements

All alternatives must at a minimum be evaluated against a set of solution requirements that address the problem statement and meet the functional requirements of the proposed IT investment. This section should identify such items as:

- *High level functional requirements such as inputs, outputs, or specific functionality that describes what a technology solution should/must accomplish*
- *High level non-functional requirements such as quality, performance, fit within the technology environment (hardware, software, staff skills/expertise, etc.) of the agency, security or cost.*

Process Requirements

A key requirement is that DEQ will develop ACES predicated upon the existence of standardized and streamlined business processes; specifically for Complaints, Compliance and Enforcement.

1. Complaints – A complaints focus group started meeting in January 2011 to work on the following scope::
   - Intake, referral and assignment of complaints that come to DEQ.
   - Roles and processes necessary to triage complaints.
   - Data collection and management associated with complaints.

   The group succeeded in developing a standardized statewide process for the management of complaints. A more centralized approach (similar to a Help Desk model) is being developed with corresponding adjustments to existing position descriptions. A statewide SharePoint Complaints application with a corresponding external web form are being designed and developed to support the processes and to centralize data management of complaints.

2. Compliance – A one week Compliance Kaizen was conducted in July 2010, and included 120 days of follow-up actions. The scope of the process improvement was to analyze, improve, and standardize compliance processes from start of compliance activity to enforcement referral.

   The group succeeded in developing a standardized statewide process for inspections planning and execution (both on-site and report reviews), inspector-initiated compliance actions and field-level enforcement mechanisms, and a process for referral to the Office of Compliance and Enforcement for formal enforcement actions. Several low cost proposals to eliminate waits and improve process effectiveness were proposed and many will be implemented. Training on the complaints and compliance processes is planned for the summer of 2011.

3. Enforcement – The Enforcement section broke new ground at DEQ by being the first to conduct a Lean Kaizen on their processes in May 2008.

   The Office of Compliance and Enforcement succeeded in standardizing the management of their Formal Enforcement Action Cases. They mapped the process and established standards for timely processing and decision-making.

   A revision of the process map to be more consistent with complaints and compliance has been completed.

Functional Requirements

As a result of the process improvement efforts described above, it was decided that the management of complaints data would be outside of the scope of the ACES application. A complaint application built in SharePoint will be implemented with the business process training planned for the summer of 2011.

The high level primary functional requirements of the ACES application are:

1. Site Visit (inspection and Technical Assistance) - To view and maintain information about a site visit.
2. Violations - To view and maintain information about violations discovered during a site visit, reporting requirement review, or identified in informal or formal enforcement actions.

3. Reporting Requirements - To view and maintain information about permit conditional or compliance reporting requirements.
4. Program Enforcement - To view and maintain information about field staff (inspectors) program enforcement action.
5. OCE Enforcement - To view and maintain information about an Office of Compliance and Enforcement (OCE) formal enforcement action.
6. OCE Enforcement Activity Dates - To view and maintain dates for various enforcement activities, from inception through closure, about an OCE enforcement action.
7. Violation Group and Type - To view and maintain violation group and type information. (a code table) to be standardized for use in citing and reporting on violations in ACES.
8. Significant Violators - To view and maintain information on facilities which are Air Quality (AQ) high-priority violators (HPV), Water Quality (WQ) and Hazardous Waste (HW) significant non-compliers (SNC), which are tracked and reported to the US. EPA.
9. Reports - to meet a wide range of reporting functions. Some hard-copy reports will be required as well as the ability to extract information for use in other tools such as Microsoft Excel. The ACES user interface will need to incorporate reporting capability through use of search screens.
10. User Dashboard – to be used for work management and productivity purposes for inspectors and enforcement staff. Things such as scheduled inspections and reports due within a defined period would permit staff to view and quickly navigate to maintenance screens for current work.

Technical Requirements

1. Architectural Compatibility – DEQ's primary database management system is Microsoft SQL Server. Primary development tools are Microsoft Visual Studio. (*See Appendix B for details.)* Architectural compatibility allows DEQ to better manage costs, reduce staff training in divergent skill sets, and manage, integrate and report information in a uniform technical environment.
2. Browser-based and web services based development – Browser based applications eliminates many of the technical configuration issues and maintenance costs encountered when installing "client" software on individual computers. A browser-based application, properly designed will position agency staff to operate more effectively using portable devices, such as notebooks, tablet PCs, etc.
3. Integration with Central Entity Management (CEM) system – The CEM project seeks to integrate, govern and manage the data about the facilities and the individuals that are subject to environmental laws and regulations, permits, licenses and certifications administered by DEQ. Many of ACES reporting requirement are dependent upon this capability.

Alternatives Identification

Option 1 – Status Quo - No build of ACES and continued reliance on the several existing distributed applications that collect non-standardized data.

Option 2 – Procure IT Professional Services contractor – Develop the application through a contractual agreement with an IT software development firm. The scope of work would be defined by the analysis and process work done to date and be specified in detail in the procurement documents

Option 3 – Use DEQ development staff - Develop the ACES application with existing DEQ development staff.

Option 4 – Hybrid of Options 2 and 3 – Procure services to design and build the database, stored procedures, application business logic and user interface for retrieving and managing the ACES data, to develop query tools, and/or develop predefined reports according to DEQ specifications and design, where the opportunities and augmentations needed and required. The selection of deliverables chosen for internal staff would be off the critical path of development work assigned to a contractor

Alternatives Analysis

Option not evaluated

DEQ issued two Requests for Information (RFI) to learn more about the commercial offerings available to satisfy the ACES project requirements. The responses to the RFIs consisted of written responses as well as demonstration of products or solutions. The responses were evaluated by a team of DEQ managers. The COTS products were either not compatible with DEQ's technical architecture, would require extensive configuration, and may not align well with the leaner and standardized business processes that DEQ has developed. It was the judgment of the committee, which based on the information at hand, that Custom Developed Solution (CDS) would be the preferred option, if the Agency decided to procure a solution. Due to this decision, COTS products are not included in the options of this business case.

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Option 1 – Status Quo

Cost
While items 1 and 2 are shown as separate line item benefits (savings) in the alternative proposal, they are combined and shown as a "Permanent State staff cost" that would continue under the status quo.

1. Cost of labor intensive effort required to obtain even the most basic data on complaints and compliance activities across programs or statewide.

   Assumptions and source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on needed information, which is assumed to be 5 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Cost increases by 2% per year for inflation.

2. The costs of maintaining and/or enhancing the compliance and enforcement portions of the program specific legacy applications.

   Assumptions and data source: Cost calculated based on 25% reduction of 2010 costs for maintenance and enhancement if ACES was built. Systems chosen were those known to track compliance and enforcement data. Many also track permitting and invoice activities, so the assumption is that parts of these applications dealing with compliance and enforcement would continue to be used, and enhanced. The cost is incremented by 2% annually to cover inflation. Data source is SFMA accounting data.

3. Costs of maintaining and operating multiple complaints and NON databases. Cost of continuing to use the Enforcement application in use by the Office of Compliance and Enforcement – no cost estimate available.

Benefit

The benefits associated with this option are savings in staff time, because no new application would be developed. On the downside, the agency would not realize the benefits that are some of the primary drivers behind this project. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:
There are none.

Non-Financial:

1. The only real benefits are that it would allow DEQ to work on other business system needs (which have already been judged as lower-priority work) and it would allow DEQ to delay making a decision about this expenditure perhaps until better economic times.Staff avoids the stress of having to change the way they execute their jobs.
2. Client staff workload would not be diverted from their primary job functions to participate in process change and system design, development and testing activities.

Risk

1. DEQ would be unable to easily answer questions about its compliance and enforcement operations, unable to evaluate the effectiveness of its programs, and unable to provide compelling information about how it is meeting its mission..
2. DEQ would be unable to respond to in a timely and consistent manner to important stakeholder requests for information about complaint, compliance and enforcement information.
3. DEQ's public credibility, in a period where public access to information is expected, because the agency cannot produce timely and accurate information.
4. There would be continued operational inefficiencies in times of serious resource constraints. The data for these activities are kept in many distributed systems. There is much repetitive entry of the same data.
5. Compliance processes, which were streamlined and standardized in the anticipation of ACES, would be at risk of regressing back to former program silo practices.

Option 2 – Procure IT Professional Services

Cost

Estimated duration of this approach is 9 – 12 months.

1. Contractual costs – These cost are based on a range of estimates obtained in an RFI process.
2. Cost of system maintenance over life cycle – Used 60% of ISS6 over five years. Compared estimate with 2010 actual cost data on GHG Reporting, which is a much smaller application but architected similarly. However, given that this application is agencywide, greater than average

maintenance will likely be required during the first few years as processes mature, and business rules are clarified.

3. Cost of internal staff and client team

   Assumptions and data source: Assumes that the activity would be spread over two fiscal years. Costs in year one include procurement cost of solicitation and selection and 50% of the internal Agency development, project management and client team participating in the project. Project manager was 40% dedicated, while technical development staff to oversee work was dedicated about 30%. Client team was estimated at 15 hr/mo. Estimates were based classifications of those likely to be assigned work and estimated using budget formulation methods.

   Note: Year 2 does not include cost of 150 staff getting 2 hr of system training for $21,000. Discussions with Accounting stated that staff training should not be a capitalized cost, and should likely be borne by the programs and not directly charged to the project. Cost of developing training materials are included in the estimate but will be charged as a non-capitalized cost.

4. Audit

   Assumptions and data source: Assumes that 3rd party auditor would be used calculated at 4% of the contract cost.

Benefit

The benefits associated with this option are both real dollar savings in staff time and in increase services to the Agency. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:

1. Savings from the labor intensive effort to gather statewide complaints, warning letter and inspection data from distributed applications. This could be in response to either internal or external request/need for compliance and enforcement information.

   Assumptions and data source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on cost avoidance to produce needed information, which is conservatively assumed to be required monthly or 12 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Based on effort estimates used classification costs in same manner used by agency in budget projections. Benefits are increased at 2% annually for inflation.

2. Savings from modernizing older technology with current technology to reduce maintenance and enhancement resources, which getting us nowhere.

   Assumptions and data source: Benefit calculated based on 25% reduction of 2010 costs for maintenance and enhancement. Systems chosen were those known to track compliance and enforcement data. Many also track permitting and invoice activities, so the assumption is that parts of these applications dealing with compliance and enforcement would no longer are used much, and certainly not enhanced. The reduction is incremented by 2% annually to cover inflation. Data source is SFMA accounting data.

3. Improved services to internal and external stakeholders,
4. Ability to measure program effectiveness and performance improvements,
5. Possibility of variety of contractor payment options that would allow amortization of the costs over a longer period of time.
   Savings from retirement of multiple geographically distributed Complaints and NON databases.

The agency's Enforcement database would no longer be actively used. Legacy data would be queried for historical reporting. *(no metrics for estimates available)*

Non-Financial:

1. Implementing a new automated solution in place of multiple, aging, fragmented, and largely unmanaged applications
2. Aligns with current Agency software/server technology
3. Implements a comprehensive compliance and enforcement application, predicated on leaner and standardized process is a high priority business plan for the agency
4. High compliance and enforcement process alignment and support from development of ACES
5. Providing DEQ stakeholders with new capabilities, such as:
    a. Transparency - a single source for cross program compliance and enforcement information for all regulated facilities and individuals
    b. Credibility - Consistent data entry by staff performing the work resulting in more accurate and timely data
6. Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
7. Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
8. Improved services to stakeholders, internal and external, by more streamlined, standardized process and data quality.
9. Other internal IT projects could continue. Many may have been launched in response to new or changed regulatory requirements or need to improve operational effectiveness or efficiencies.

Risk

1. Budgetary – The State and Agency are experiencing significant budget reductions. This project was not explicitly budgeted, so funds would need to come from programs already experiencing staff and service reductions.
2. Dependency on CEM application and data governance framework and processes – As noted in the technical requirement, ACES depends on using integrated data about those regulated by DEQ. The CEM project should start before ACES as ACES would use CEM interface protocols to manage and view data on regulated entities.
3. Schedule – Use of outsourced professionals lowers the risk of on exceeding schedule delivery of projects. Professional IT service firms usually fully dedicate key staff to their clients' projects. Since application development is the primary focus of their business, they become more efficient in their development processes and tools. Agency development staff traditionally cannot be fully utilized due to administrative tasks, meetings, emails, etc, emergency maintenance where they are the subject matter experts and leave.

Option 3 – Use DEQ Development Staff

Cost

Estimated duration of this approach is 13 – 16 months.

1. Costs of development staff and project manager assigned to project.
2. Cost of client team during the duration of the project

Assumptions and data source for 1 and 2: Assumes that the activity would be spread over two fiscal years. Costs in year one include DEQ developers, project manager and client team participating in the project. Project manager was 40% dedicated, while technical development staff to oversee work was dedicated about 30%. Each member of the core client team was estimated at 15 hr/mo. Estimates were based classifications of those likely to be assigned work and estimated using budget formulation methods.

Year 2 has training material preparation costs, but does not include cost of 150 staff getting 2 hr of system training for $21,000. Discussions with Accounting stated that staff training should not be a capitalized cost, and should likely be borne by the programs. Cost of developing training materials will be charged as a non-capitalized cost.

Estimates for internal development were derived using a modified Delphi method. Three groups of 2 developers met to discuss common project resource (3 developers at 65%allocation) assumptions, architectural assumptions, etc. The data model and requirements document were distributed and some questions were answered by the modeler. Each team agreed to provide a Most Likely and Pessimistic duration. A PERT calculation was run on the 3 pairs of estimates to derive a forecasted range.

Leave use at a historical 20% (many senior staff in DEQ's application development unit) was used to increase estimated project duration.

3. Cost of system maintenance over life cycle

   Assumptions and data source: Used 60% of ISS6 over five years. Compared estimate with 2010 actual cost data on the GHG Reporting application, which is a much smaller application but architected similarly. However, given that this application is agencywide, greater than average maintenance will likely be required during the first few years as processes mature, and business rules are clarified.

4. Audit

   Assumptions and data source: Assumes that 3rd party auditor would be used calculated at 4% of the internal development staff costs and excluded client cost charged to project.

Benefit

The benefits associated with this purchase are both real dollar savings in staff time and in increase services to the Agency. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:

1. Savings from the labor intensive effort to gather statewide complaints, warning letter and inspection data from distributed applications. This could be in response to either internal or external request/need for compliance and enforcement information.

   Assumptions and data source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on cost avoidance to produce needed information, which is conservatively assumed to be required monthly or 12 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Based on effort estimates used classification costs in same manner used by agency in budget projections. Benefits are increased at 2% annually for inflation.

2. Savings from modernizing older technology with current technology to reduce maintenance and enhancement resources, which getting us nowhere.

Assumptions and data source: Benefit calculated based on 25% reduction of 2010 costs for maintenance and enhancement. Systems chosen were those known to track compliance and enforcement data. Many also track permitting and invoice activities, so the assumption is that parts of these applications dealing with compliance and enforcement would no longer are used much, and certainly not enhanced. The reduction is incremented by 2% annually to cover inflation. Data source is SFMA accounting data.

3. Savings from efficient operations. Don't have multiple data entry into Complaints and NON applications.
4. Development cost is primarily an opportunity cost, because staff resources are already budgeted. DEQ developers working on ACES could not be doing other development work. As funding was not specifically requested for this project, there'd be little to no cash outlays.

Non-Financial:

10. Implementing a new automated solution in place of multiple, aging, fragmented, and largely unmanaged applications
11. Gaining a comprehensive compliance and enforcement solution, predicated on leaner and standardized process is a high priority business objective for the agency
12. High compliance and enforcement process alignment and support from development of ACES
13. Increases services to clients, internal and external, by including quality control data
14. Providing DEQ stakeholders with new capabilities, such as:
    a. Transparency - a single source for cross program compliance and enforcement information for all regulated facilities and individuals
    b. Credibility - Consistent data entry by staff performing the work resulting in more accurate and timely data
15. Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
16. Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
17. Aligns with current Agency software/server technology

Risk

1. Loss of Federal grant funds if developers were pulled from federally funded projects, such as EPA's exchange Network. Or there could be scope reductions if the Exchange Network had to spend time and dollars to outsource to work on grant projects, because contracted resources cost more than agency development staff.
2. There may be some programs that would be unable/late in meeting a regulatory requirement needing automated support due to lack of agency resources to work on their projects.
3. Schedule risk – use of internal resources takes longer to deliver products due to administrative duties and emergency maintenance, which erodes resource availability. Also traditional leave use and furloughs would add to the expected project duration.
4. Higher client team costs – team would be engaged for a longer duration due to factors cited in previous bullet.

Option 4 – Hybrid of Options 2 & 3

This option would be used if:

1. DEQ could not provide the required staff assumed in the internal build option. Use of some resources from DAS Managed Service provider list would need to be considered.
2. If CEM and ACES projects are run in parallel, it is likely that 5 developers would be needed for the combined effort, which is half of the development staff in DEQ's BSD section. Given the 43% maintenance and enhancement time historically worked by development staff, it is likely that maintenance and enhancement efforts and new application development work would need to be significantly reduced. If DEQ was unable to significantly curtail both of these activities, use of contracted resources would be required.
3. Other options could be explored, such as increasing the schedule to spread the resource requirements over a longer period.

Cost

1. Contracting cost would be lower than if complete project was outsourced

   Assumptions and data source: The same data source as the outsourced option was used. Costs were reduced by 50%

2. Cost of developer time to do part of project

   Assumptions and data source: DEQ developer resources are assumed to be half of those used in the internal build option. Costs were reduced by 50%

3. Project Duration would likely be closer to the duration for internal build, due to the coordination of contractors and internal staff on the same project.

   Assumptions and data source: Outsourced was estimated at 12 months while internal development was estimated at 16 moths. Estimate is at 15 months. Time needed for procurement efforts would likely push back the start to the project.

4. Some additional PM effort to coordinate efforts – due to level of coordination of internal and external staff, as well as contract oversight, PM allocation is increased from 40% to 50%.

5. Audit

   Assumptions and data source: Assumes that 3rd party auditor would be used calculated at 4% of the contract and internal development staff costs and excluded client cost charged to project.

Benefit

The benefits associated with this purchase are both real dollar savings in staff time and in increase services to the Agency. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:

1. Savings from the labor intensive effort to gather statewide complaints, warning letter and inspection data from distributed applications. This could be in response to either internal or external request/need for compliance and enforcement information.

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2. Savings from modernizing older technology with current technology to reduce maintenance and enhancement resources, which getting us nowhere.

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4. Development cost is primarily an opportunity cost, because staff resources are already budgeted. DEQ developers working on ACES could not be doing other development work. As funding was not specifically requested for this project, there'd be little to no cash outlays.

Non-Financial:

1. Implementing a new automated solution in place of multiple, aging, fragmented, and largely unmanaged applications
2. Gaining a comprehensive compliance and enforcement solution, predicated on leaner and standardized process is a high priority business plan for the agency
3. High compliance and enforcement process alignment and support from development of ACES
4. Increases services to clients, internal and external, by including quality control data
5. Providing DEQ stakeholders with new capabilities, such as:
   a. Transparency - a single source for cross program compliance and enforcement information for all regulated facilities and individuals
   b. Credibility - Consistent data entry by staff performing the work resulting in more accurate and timely data
6. Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
7. Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
8. May provide greater opportunities for technology transfer
9. Aligns with current Agency software/server technology

Risk

1. Contractual risk – if DEQ staff work ends up being on the critical path, the contractor would have grounds to forgo contractual agreement due to DEQ's failure to meet some contractual obligations, which would then become DEQ's risk.
2. Contractor/ DEQ disputes – Increased likelihood of differences of opinion in approach and work boundaries when splitting a project with a contractor. Would require extra vigilance in drafting contract, and selection of vendor who is receptive to collaborative development and has a successful track record of the same.

Alternatives Analysis Checklist

Does the Alternatives Analysis Section...

- ☐ Document the current state – how is work being performed today? How are manual and/or automated processes meeting and addressing agency or program requirements?
- ☐ Present assumptions and constraints that are credible, based on best available information, and solid rationale? Present assumptions that is not overly optimistic, pessimistic or biased?
- ☐ Clearly identify the alternatives to be compared? (e.g., Alternative 1, Alternative 2, and "Status Quo")
- ☐ Are solution criteria clearly defined – Such as the total cost of ownership, benefits and risks as well as the high level solution requirements?
- ☐ Do the identified alternatives meet the solution requirements?
- ☐ Explain which cost and which benefit items from each alternative will be estimated and analyzed?
- ☐ Provide enough information to determine whose costs and whose benefits will be analyzed, over which time period?
- ☐ Identify the major sources of data and other information for the business case?
- ☐ Identify relevant costs for the business case with a clear and comprehensive cost model (such as the cost model in the appendix)?
- ☐ Identify benefits to be analyzed in terms of tangible contributions to agency mission or goals? Or, identify benefits in terms of solutions to problems.
- ☐ Identify the important financial criteria, or financial metrics that will be analyzed for each alternative?

Conclusions and Recommendations

Conclusions

The Oregon Department of Environmental Quality selected the Agencywide Compliance and Enforcement System (ACES) project as the top agency application development priority due to DEQ's inability to adequately manage and access information on its compliance and enforcement activities.

DEQ has a legal and public obligation to disseminate compliance information in a timely manner to oversight groups such as the U.S. Environmental Protection Agency, legislative committees and the Oregon Environmental Quality Commission. Public interest groups, environmental groups and anyone filing public records requests also seek this information. DEQ program managers require summary and statistical information to manage staff activities and to develop future strategies and plans.

This data is housed in many program database "silo" and is extremely hard to retrieve and synthesize. The condition works against DEQ standards of high transparency and credibility. The ACES project aligns well with DEQ mission and key strategies.

DEQ has spend a year giving careful consideration to a project charter, developing an executive steering committee, doing Lean Kaizen work to analyze, improve and standardize compliance and enforcement business processes. DEQ has worked closely with stakeholders to develop requirements.

DEQ executed two Requests for Information to understand and consider what may be commercially available. None of the Commercial Off-the-shelf software presented to the agency was considered desirable by an ACES RFI committee of agency managers.

Four options were analyzed: 1) do nothing, 2) outsource the application development, 3) build the application using internal resources, and 4) do a combination (hybrid) of options 2 and 3.

All options, except the first were judged to have pretty equal benefits. Option 3 was selected by the Executive Steering committee as the most desirable. It had the most favorable Net Cash flow (-197,900) of options 2 – 4. All costs for personnel were budgeted, whereas DEQ would have to decrease budgets for other business activities to outsource. Project duration was within acceptable limits. Considering all the criteria for option selection, option 3 came out most favorably.

Recommendations

The ACES Steering committee, after reviewing and discussing the options, propose Option #3, the use of DEQ internal development staff should be used to build ACES. Some stated that outsourced help may reduce the schedule and provide a more robust solution. Ultimately, the factors that resulted in this proposal were:

1. The DEQ budget constraints – there are no funds dedicated for contracting this effort. Contracting with these constraints would result in cuts in other areas.
2. The DEQ internal development staff has the technical skills to develop this application.
3. The DEQ Advisory IT Managers (DAITM) group agreed to reductions in other development and maintenance work in order to staff this project.
4. This proposal met all of the selection criteria outlined in the body of this business case.
5. It had the lowest negative life-cycle cash flow (-$198,000). The ACES Executive Steering Committee strongly believes that non-financial benefits of this project greatly outweigh the financial position of this proposal.

Consequences of Failure to Act

The consequences of no action are the continued inability to generate timely and consistent data about compliance and enforcement activities for internal and external stakeholders. DEQ's activities in the Compliance and Enforcement programs would continue to be "non-transparent", which would be harmful to the Agency's credibility in the eyes of many external stakeholders. There are associated costs when asking staff statewide for different programs to gather and submit data, and cost of someone working to synthesize dissimilar data from multiple sources. The benefits from time and effort expended to define leaner and standard compliance processes would not be fully realized without automated support.

Conclusions and Recommendations Checklist

Does the Conclusions and Recommendations Section ....

- ☐ Compare alternative actions on the basis of contributions to business objectives, problems solved, financial outcomes, and risks?
- ☐ Identify the best choice alternative based on these factors?
- ☐ Provide practical recommendations and estimated costs and timeframes for implementing the proposed alternative?
- ☐ Provide practical recommendations that recognize risks that should be managed or watched, as well as opportunities that might be pursued.
- ☐ Clearly express the consequences of failure to act on the recommended alternative?

Complete Case Checklist

Checklist for the Completed Case

- ☐ Has the case clearly defined what the case is about, the purpose for the proposed solution, what business problems the proposed solution attempts to solve, and the scope of the proposal?
- ☐ Has the cash flow, the flow expenditures, and the intake of financial benefits been presented over a common time period for the case, for each alternative action considered (including the "status quo"/current state alternative).
- ☐ Are the assumptions and methods for assessing the proposal's impacts clearly defined, understandable, and acceptable? Do not forget risk impacts!
- ☐ Does the business case include the non-financial costs and benefits?
- ☐ Are the factors critical to the success of the proposal clearly defined?
- ☐ Are there critical success factors that can be managed? Is there a risk analysis that identifies and measures the relevant risks to the proposal?
- ☐ Are recommendations and conclusions based on a clear comparison of alternatives in terms of contributions to business objectives, problems solved, financial outcomes, and risks?
- ☐ Does the case clearly identify the estimated timeframes, costs, and implementation strategy required to successfully deliver the recommended solution?
- ☐ Does the case clearly express to consequences of failure to act on the recommended alternative?

Appendixes and References

Appendix A – Financial Model and Cash Flow Projections

Financial Model and Cash Flow Projections

Cash Flow Projections

Proposed Alternative Cash Flow Projections
Estimated cash inflows and outflows for the analysis period are as follows:

Proposed Alternative Cash Flow Table

OPTION 3: DEQ BUILD PROPOSAL CASH FLOW

$ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	154.4	161.8	164.2	168.1	171.5	824.4
Benefit item 2	0.0	0.0	39.0	39.7	40.5	41.3	42.3	202.8
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(371.7)	(396.5)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1202.2)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (audit)	(11.4)	(11.4)	0.0	0.0	0.0	0.0	0.0	(22.8)
Total Costs	(383.1)	(407.9)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1225.0)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
Costs	(383.1)	(407.9)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1225.0)
NET CASH FLOW	**(383.1)**	**(407.9)**	**114.0**	**116.2**	**118.6**	**120.9**	**123.4**	**(197.9)**
Cumulative Net CF	(383.1)	(791.0)	(677.0)	(560.8)	(442.2)	(321.3)	(197.9)	(197.9)
Discounted Cash Flow								**NPV**
At 0.0%	(383.1)	(407.9)	114.0	116.2	118.6	120.9	123.4	(197.9)

OPTION 2: OUTSOURCE PROPOSAL CASH FLOW

$ in 1000s

Discount rate | Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2	0.0	0.0	39.0	39.7	40.5	41.3	42.2	202.8
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(182.8)	(196.3)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(813.1)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	(500.0)	(500.0)	0.0	0.0	0.0	0.0	0.0	(1000.0)
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (audit)	(20.0)	(20.0)	0.0	0.0	0.0	0.0	0.0	(40.0)
Total Costs	(702.8)	(716.3)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1853.1)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
Costs	(702.8)	(716.3)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1853.1)
NET CASH FLOW	**(702.8)**	**(716.3)**	**114.0**	**116.2**	**118.6**	**120.9**	**123.4**	**(826.0)**
Cumulative Net CF	(702.8)	(1419.1)	(1305.1)	(1188.9)	(1070.3)	(949.4)	(826.0)	(826.0)
Discounted Cash Flow								**NPV**
At 0.0%	(702.8)	(716.3)	114.0	116.2	118.6	120.9	123.4	(826.0)

OPTION 4: HYBRID PROPOSAL CASH FLOW

$ in 1000s

Discount rate | Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2	0.0	0.0	39.0	39.7	40.5	41.3	42.2	202.8
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(290.3)	(303.8)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1028.1)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	(250.0)	(250.0)	0.0	0.0	0.0	0.0	0.0	(500.0)
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (audit)	(18.0)	(18.0)	0.0	0.0	0.0	0.0	0.0	(36.0)
Total Costs	(558.3)	(571.8)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1564.1)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
Costs	(558.3)	(571.8)	(83.4)	(85.1)	(86.8)	(88.5)	(90.3)	(1564.1)
NET CASH FLOW	**(558.3)**	**(571.8)**	**114.0**	**116.2**	**118.6**	**120.9**	**123.4**	**(537.0)**
Cumulative Net CF	(558.3)	(1130.1)	(1016.1)	(899.9)	(781.3)	(660.4)	(537.0)	(537.0)
Discounted Cash Flow								**NPV**
At 0.0%	(558.3)	(571.8)	114.0	116.2	118.6	120.9	123.4	(537.0)

Baseline Data for Current State Table

CURRENT STATE (BASELINE) CASH FLOW

$ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(63.6)	(64.9)	(66.2)	(67.5)	(68.8)	(70.2)	(71.6)	(472.8)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Costs	(63.6)	(64.9)	(66.2)	(67.5)	(68.8)	(70.2)	(71.6)	(472.8)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Costs	(63.6)	(64.9)	(66.2)	(67.5)	(68.8)	(70.2)	(71.6)	(472.8)
NET CASH FLOW	**(63.6)**	**(64.9)**	**(66.2)**	**(67.5)**	**(68.8)**	**(70.2)**	**(71.6)**	**(472.8)**
Cumulative Net CF	(63.6)	(128.5)	(194.6)	(262.1)	(331.0)	(401.2)	(472.8)	(472.8)
Discounted Cash Flow								NPV
At 0.0%	(63.6)	(64.9)	(66.2)	(67.5)	(68.8)	(70.2)	(71.6)	(472.8)

Proposed Alternative Incremental Cash Flow Table

INCREMENTAL CASH FLOW 2
All figures represent (Option #3: DEQ Build) - (Current State Value) $ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2.....	0.0	0.0	39.0	39.7	40.5	41.3	42.2	202.8
Benefit item 3.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff.....	(308.1)	(331.6)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(729.4)
State Temp Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other.....	(11.4)	(11.4)	0.0	0.0	0.0	0.0	0.0	(22.8)
Total Costs	(319.5)	(343.0)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(752.2)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains.....	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
Costs.....	(319.5)	(343.0)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(752.2)
NET CASH FLOW	**(319.5)**	**(343.0)**	**180.1**	**183.7**	**187.4**	**191.2**	**195.0**	**274.9**
Cumulative Net CF.....	(319.5)	(662.5)	(482.4)	(298.6)	(111.2)	79.9	274.9	274.9
Discounted Cash Flow								**NPV**
At 0.0%.....	(319.5)	(343.0)	180.1	183.7	187.4	191.2	195.0	274.9

Incremental Cash Flow Alternative 2 Table

PROPOSED ALTERNATIVE INCREMENTAL CASH FLOW
All figures represent (Option #2: Outsource) - (Current State Value) $ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2.....	0.0	0.0	39.0	39.7	40.5	41.3	42.2	202.8
Benefit item 3.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff.....	(119.2)	(131.4)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(340.3)
State Temp Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation.....	(500.0)	(500.0)	0.0	0.0	0.0	0.0	0.0	(1000.0)
Operational Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other.....	(20.0)	(20.0)	0.0	0.0	0.0	0.0	0.0	(40.0)
Total Costs	(639.2)	(651.4)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(1380.3)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains.....	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
Costs.....	(639.2)	(651.4)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(1380.3)
NET CASH FLOW	**(639.2)**	**(651.4)**	**180.1**	**183.7**	**187.4**	**191.2**	**195.0**	**(353.2)**
Cumulative Net CF.....	(639.2)	(1290.6)	(1110.5)	(926.7)	(739.3)	(548.2)	(353.2)	(353.2)
Discounted Cash Flow								**NPV**
At 0.0%.....	(639.2)	(651.4)	180.1	183.7	187.4	191.2	195.0	(353.2)

PROPOSED ALTERNATIVE INCREMENTAL CASH FLOW

All figures represent (Option #4: Hybrid) - (Current State Value) $ in 1000s

Discount rate | Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2.....	0.0	0.0	39.0	39.7	40.5	41.3	42.2	202.8
Benefit item 3.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff.....	(226.7)	(238.9)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(555.3)
State Temp Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade..	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation.....	(250.0)	(250.0)	0.0	0.0	0.0	0.0	0.0	(500.0)
Operational Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other.....	(18.0)	(18.0)	0.0	0.0	0.0	0.0	0.0	(36.0)
Total Costs	(494.7)	(506.9)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(1091.3)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains.....	0.0	0.0	197.4	201.3	205.3	209.5	213.6	1027.1
Costs.....	(494.7)	(506.9)	(17.2)	(17.6)	(17.9)	(18.3)	(18.7)	(1091.3)
NET CASH FLOW	**(494.7)**	**(506.9)**	**180.1**	**183.7**	**187.4**	**191.2**	**195.0**	**(64.2)**
Cumulative Net CF.....	(494.7)	(1001.6)	(821.5)	(637.7)	(450.3)	(259.2)	(64.2)	(64.2)
Discounted Cash Flow								**NPV**
At 0.0%.....	(494.7)	(506.9)	180.1	183.7	187.4	191.2	195.0	(64.2)

Financial Metrics Summary Tables

	#3: DEQ Build Proposal	#2: Outsource Alt Proposal	Current State	Incr Proposal	Incr Alt Prop
Net Cash Flow	($197.9)	($826.0)	($472.8)	$274.9	($353.2)
NPV at 0.0%	($197.9)	($826.0)	($472.8)	$274.9	($353.2)
Total Benefits	$1,027.1	$1,027.1	$0.0	$1,027.1	$1,027.1
Total Costs	($1,225.0)	($1,853.1)	($472.8)	($752.2)	($1,380.3)

	#3: DEQ Build Proposal	#4: Hybrid Alt Proposal	Current State	Incr Proposal	Incr Alt Prop
Net Cash Flow	($197.9)	($537.0)	($472.8)	$274.9	($64.2)
NPV at 0.0%	($197.9)	($537.0)	($472.8)	$274.9	($64.2)
Total Benefits	$1,027.1	$1,027.1	$0.0	$1,027.1	$1,027.1
Total Costs	($1,225.0)	($1,564.1)	($472.8)	($752.2)	($1,091.3)

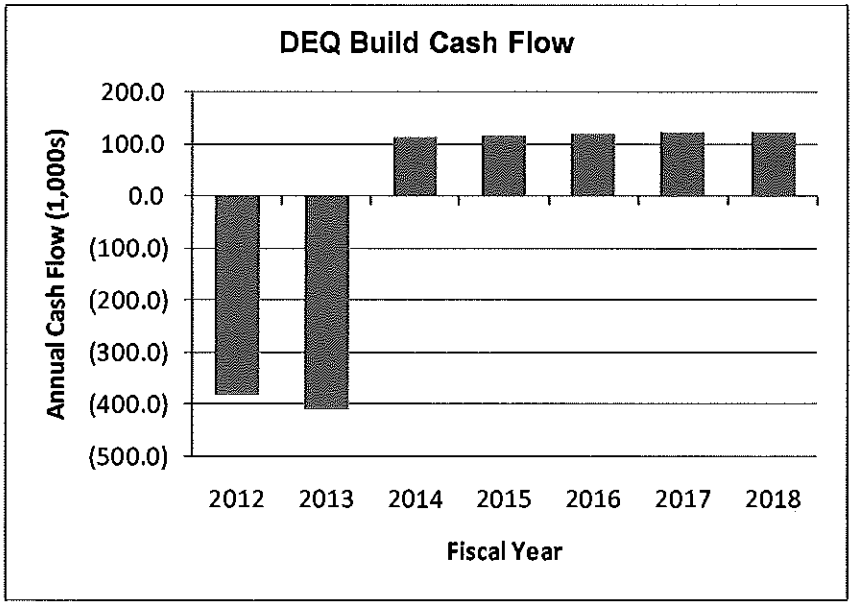
$ in $1,000s
Numbers in parenthesis are negative numbers

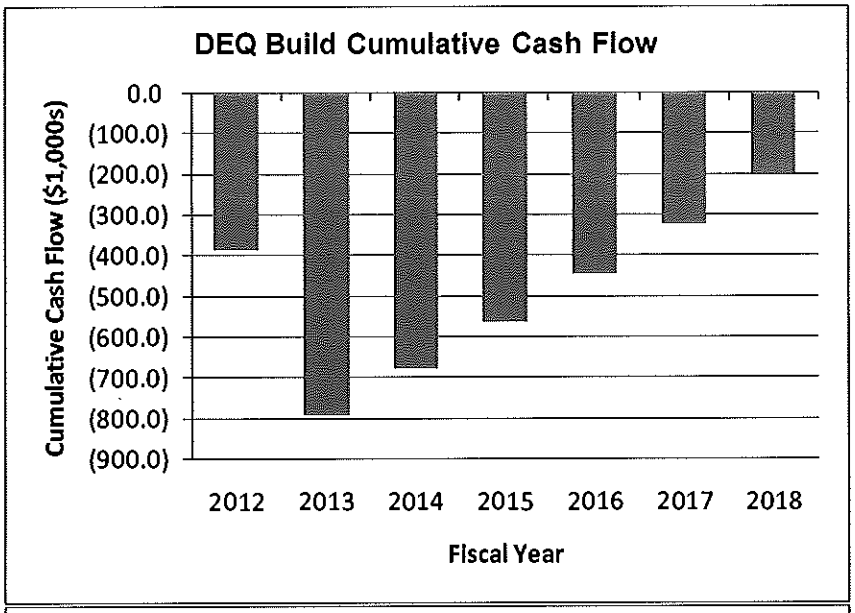
Cash Flow Graphs – Net Cash Flow

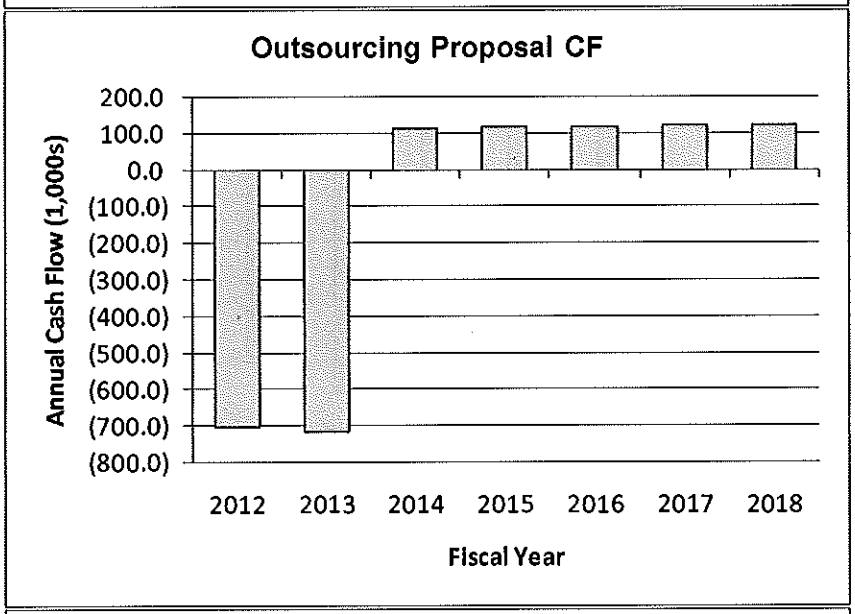
The "Bottom line" or net cash flow results for each alternative scenario in the business case are summarized in graphical form, on both an annual basis (upper left) and a cumulative basis over the years (upper right).

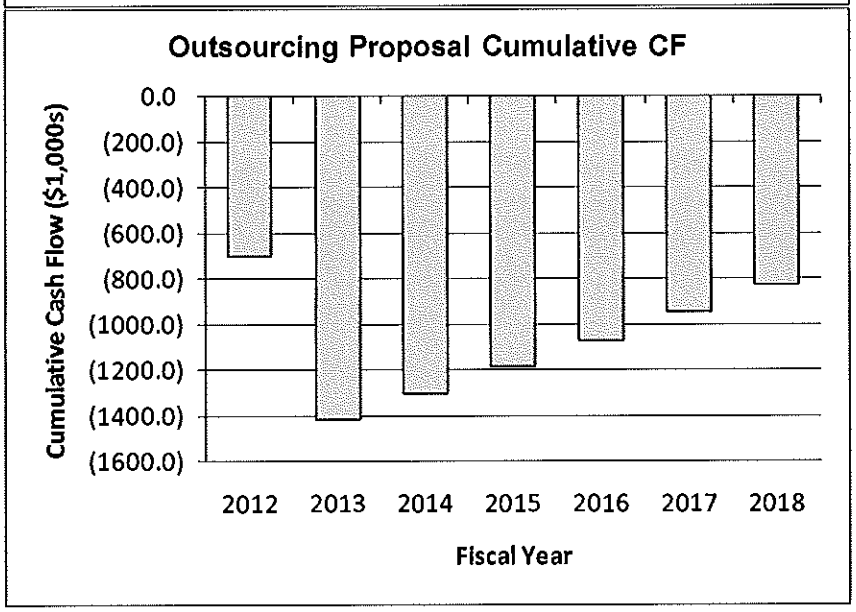
Also, the incremental cash flow projections (the difference between proposal and business as usual) are illustrated on an annual basis (lower left) and cumulative basis over the years (lower right).

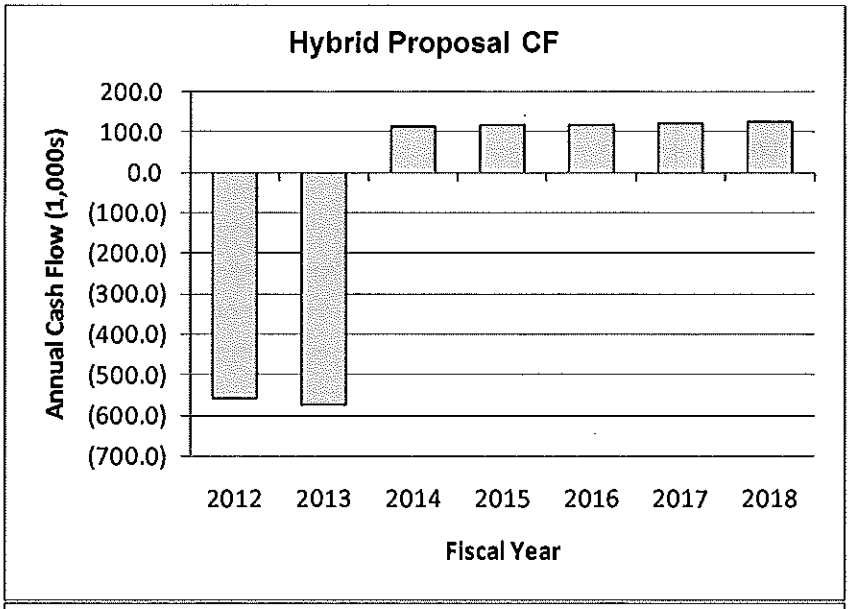
Note that these graphs are automatically created based on the data that is entered into the excel cash flow tables. The resulting graphs can be pasted into the business case here to replace the example graphs.

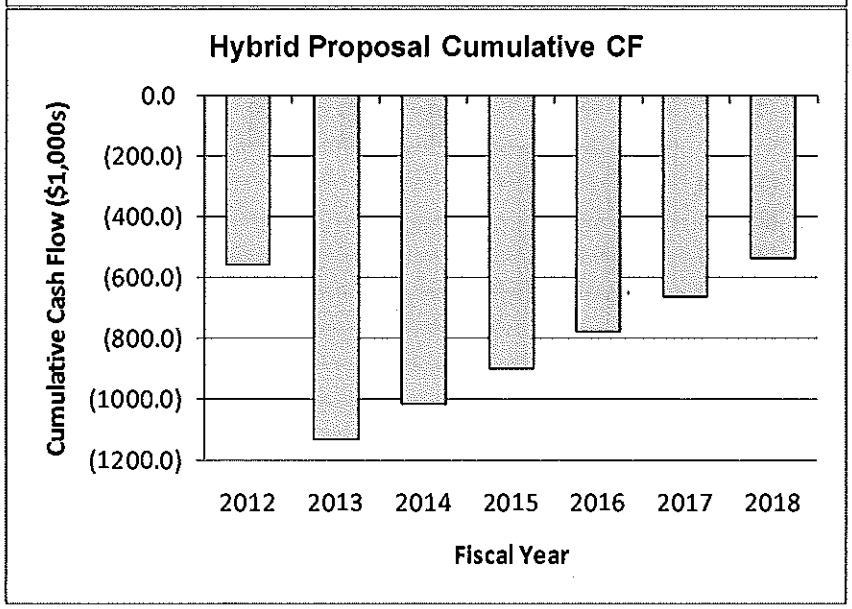


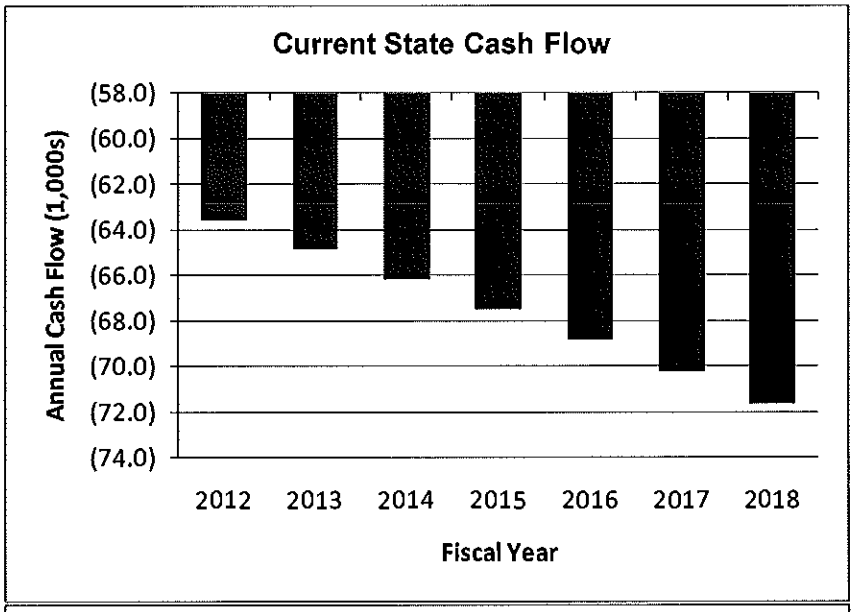

DEQ Build Cumulative Cash Flow
Cumulative Cash Flow ($1,000s)
0.0
(100.0)
(200.0)
(300.0)
(400.0)
(500.0)
(600.0)
(700.0)
(800.0)
(900.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year

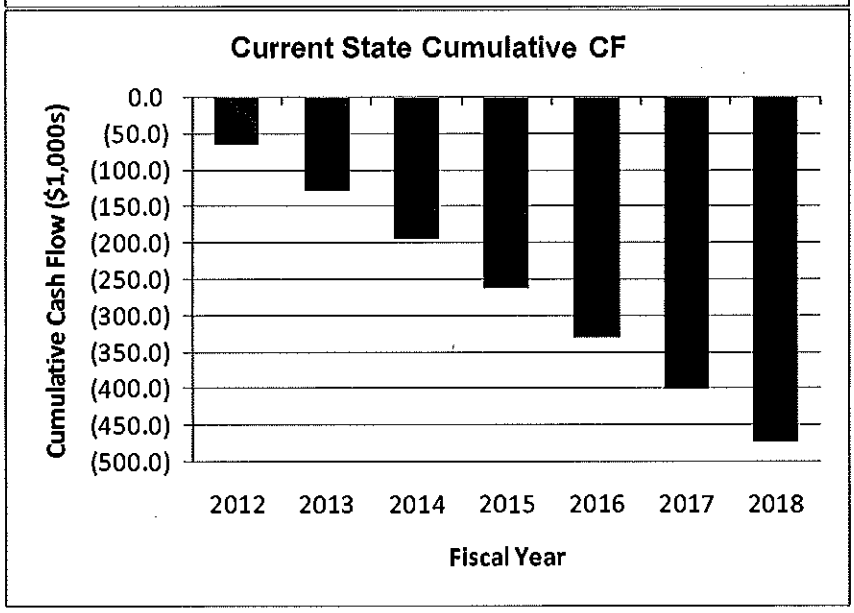

Outsourcing Proposal CF
Annual Cash Flow (1,000s)
200.0
100.0
0.0
(100.0)
(200.0)
(300.0)
(400.0)
(500.0)
(600.0)
(700.0)
(800.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Outsourcing Proposal Cumulative CF
Cumulative Cash Flow ($1,000s)
0.0
(200.0)
(400.0)
(600.0)
(800.0)
(1000.0)
(1200.0)
(1400.0)
(1600.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Hybrid Proposal CF
Annual Cash Flow (1,000s)
200.0
100.0
0.0
(100.0)
(200.0)
(300.0)
(400.0)
(500.0)
(600.0)
(700.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Hybrid Proposal Cumulative CF
Cumulative Cash Flow ($1,000s)
0.0
(200.0)
(400.0)
(600.0)
(800.0)
(1000.0)
(1200.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Current State Cash Flow
Annual Cash Flow (1,000s)
(58.0)
(60.0)
(62.0)
(64.0)
(66.0)
(68.0)
(70.0)
(72.0)
(74.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Current State Cumulative CF
Cumulative Cash Flow ($1,000s)
0.0
(50.0)
(100.0)
(150.0)
(200.0)
(250.0)
(300.0)
(350.0)
(400.0)
(450.0)
(500.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year

Cost Model Analysis (Total Cost of Ownership)

PROPOSAL SCENARIO COSTS - Build
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	($768.2)	($434.0)	($1,202.2)	98.1%
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0%
	Software	$0.0	$0.0	$0.0	0.0%
	Hardware	$0.0	$0.0	$0.0	0.0%
	IT Professional Services	($22.8)	$0.0	($22.8)	1.9%
	Total	($791.0)	($434.0)	($1,225.0)	
	%	64.6%	35.4%		100.0%

ALTERNATE PROPOSAL SCENARIO COSTS - Outsource
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	($379.1)	($434.0)	($813.1)	43.9%
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0%
	Software	$0.0	$0.0	$0.0	0.0%
	Hardware	$0.0	$0.0	$0.0	0.0%
	IT Professional Services	($1,040.0)	$0.0	($1,040.0)	56.1%
	Total	($1,419.1)	($434.0)	($1,853.1)	
	%	76.6%	23.4%		100.0%

ALTERNATE PROPOSAL SCENARIO COSTS - Hybrid
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	($594.1)	($434.0)	($1,028.1)	65.7%
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0%
	Software	$0.0	$0.0	$0.0	0.0%
	Hardware	$0.0	$0.0	$0.0	0.0%
	IT Professional Services	($536.0)	$0.0	($536.0)	34.3%
	Total	($1,130.1)	($434.0)	($1,564.1)	
	%	72.3%	27.7%		100.0%

CURRENT STATE (Do Nothing) SCENARIO COSTS
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	$0.0	($472.8)	($472.8)	1.0
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0
	Software	$0.0	$0.0	$0.0	0.0
	Hardware	$0.0	$0.0	$0.0	0.0
	IT Professional Services	$0.0	$0.0	$0.0	0.0
	Total	$0.0	($472.8)	($472.8)	
	%	0.0	1.0		100.0%

INCREMENTAL PROPOSAL COSTS (Build - current state)
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total
Personal Services	Salaries & Benefits	($639.7)	($89.7)	($729.4)
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0
	Software	$0.0	$0.0	$0.0
	Hardware	$0.0	$0.0	$0.0
	IT Professional Services	($22.8)	$0.0	($22.8)
	Total	($662.5)	($89.7)	($752.2)

INCREMENTAL ALTERNATE PROPOSAL COSTS (Hybrid - current state)
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total
Personal Services	Salaries & Benefits	($465.6)	($89.7)	($555.3)
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0
	Software	$0.0	$0.0	$0.0
	Hardware	$0.0	$0.0	$0.0
	IT Professional Services	($536.0)	$0.0	($536.0)
	Total	($1,001.6)	($89.7)	($1,091.3)

Non Financial Business Results

BENEFITS TABLE: Benefits Identification:

Benefit Categories	***Possible Examples***
Process Improvements	
✓ Staff Utilization	o Obtaining the minimum statewide information on DEQ's compliance and enforcement activities is very labor intensive, and with results that often cannot be replicated. Given the increased work demand that most agency staff encounter, the absence of this data gathering will allow them to perform other program and administrative functions. o Managers will be able to run reports from ACES to use for compliance program planning, and to improve staff utilization.
✓ Streamlined process	o Lean Kaizen events have been conducted for both the agency's compliance and enforcement programs. Prior to the Kaizen, the compliance process differed by program and geographic location. It is now standardized ACES is scoped to support the leaner standardized processes o ACES will allow field inspection staff to know how a facility is complying in all the agency's environmental programs, a capability they've never had.
✓ Reduced processing time	o Rather than taking two weeks to gather rudimentary data from many different systems, an integrated ACES is scoped to have querying and reporting capabilities that will take minutes to execute. o ACES will facilitate DEQ transparency in compliance and enforcement activities. The agency will be able to respond efficiently and effective to requests by the legislature, US EPA, the news media, environmental groups and the general public
✓ Achieved Policy Objectives	o Citizens receive better quality & timely services. Quicker response to requests for compliance and enforcement information.
✓ More stable IT environment	o ACES will be developed in current MS Visual Studio browser-based technology. This will result in fewer help desk calls to problems with client computers. o
New or Enhanced Service	
✓ New or improved service	o A browser-based application will facilitate future use of mobile computing devices to access and enter data in the field. o This architecture will position DEQ to put queries and reports from ACES on the Agency website, giving external stakeholder better access to agency data.
✓ Access to Information	o ACES intends to post some of our reports/queries online so the public can have better access to DEQ compliance and enforcement data.
Public/Stakeholder Satisfaction	
✓ Legislative or regulatory compliance	o More adaptable to law changes
✓ More timely information	o More effective decision making ability backed by accurate information Managers will have access to comprehensive and quality data to allow them to better plan program activities and staff utilization. See *Staff Utilization* and *Reduced Processing Time.*
Strategic Alignment	
✓ Directly supports State, Agency Missions or business plans	o Aligns with Governor Kitzhaber's position that Oregon's budget shortfall represents an opportunity to change and improve the way the state does business. o Directly support DEQ strategy of "DEQ improves Oregon's air and water by enforcing environmental laws and regulations".

Cost and Benefit Analysis Checklist

Does the Cost and Benefit Analysis Section ....

- ☐ Present a cash flow summary table (spreadsheet) for each alternative action (Proposed Alternative, Alternative 2, 3... and Current State)?
- ☐ Present a total cost of ownership summary analysis for each considered alternative and an incremental TCO comparing each alternative with the current state/"status quo"?
- ☐ Present an incremental cash flow summary comparing each considered alternative to the current state/"status quo"?
- ☐ Use the incremental cash flow statement to identify and measure expected cost savings, avoided costs, or cost increases under the proposal (compared to the current state/"status quo")?
- ☐ Present cash flow estimates for costs and benefits that are based on reasonable and known assumptions (either from the Assumptions and Methods Section, or An Appendix to this document)?
- ☐ Use the same cash flow structure for all considered alternatives?
- ☐ Compare all alternatives with respect to contributions to state and/or agency goals and objectives? Look for and measure non financial benefits in all considered alternatives?
- ☐ Identify non financial benefits in tangible terms (including key performance indicators?)
- ☐ Provide evidence that each non financial benefit is important to the agency and to stakeholders?
- ☐ Explain how each alternative aligns with and supports state and/or agency strategic/business plans
    - Explain how each alternative aligns with and support the Governor's goals, priorities and initiatives, the 2007-11 Enterprise Information Resources Management Strategy, and other IT-related statewide plans, initiatives, goals and objectives.

Risk and Mitigations

The ACES project has had an ongoing risk management plan since April 2010, during the project chartering phase. Every six week, the Executive sponsor (deputy director), program sponsor (regional manager), the applications development manager and project manager review the list of our top 10 risks. Risks are described using a Likert-type scale, and possible causes and triggers identified. Each risk is assigned an owner and mitigating strategies and actions are defined. The risk plan being discussed at a May 17 meeting is shown on the following pages.

(Note: Font color conventions: **Black** = preexisting text, Red = new content for discussion, Blue = discussion outcomes from risk meeting.)

RISK Management Plan
ACES Project

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
Risk Category: Mission and Goals										
4	Work Flow	little or no change to work flow	will change some aspect or have small affect on work flow	significantly changes the work flow or method of organization	- Only significant change is how we'll manage complaints. - complaints process & org changes well documented & communicated w/ Sr. Mgmt.		I P		- Include process definition in contract, if needed. - Speaking points needed for managers to give consistent positive message to staff 2 months prior to training.	Dave & Joni
Risk Category: Program Management										
8a	Process Owner	Business process ownership is assigned to person knowledgeable of business processes and authority to ensure process adoption.	Business process ownership assigned to specific individual. Knowledge and/or authority constrains effectiveness	Business process ownership is distributed. Lack of consensus and local variations hamper effectiveness	- Dave Belyea's role as process owner is becoming better known through his work w/ Kaizen, complaints and Sr. Mgmt. - His knowledge of topic appears to be accepted		I	P	Include information on Dave in communication referenced above, emphasizing background and leadership in WR program and ACES project. This will occur when Dave does his message before training	Joni
Risk Category: Organization Management										
20	Project Objectives	verifiable project objectives, reasonable requirements	some project objectives, measures may be questionable	no established project objectives or objectives are not measurable	-SMART objectives give firm dates and may limit options. Duration is sufficiently quantifiable - Many objectives will miss date due to dependency on CEM.	-	P I		- Insist on traceability Objectives -> Scope -> Requirements - Make all time frames relative to start of design phase. Ernie to seek approval of Steering Committee and revise charter.	Dave
Risk Category: Project Parameters										
26	Project Size	small, non-complex, or easily decomposed	medium, moderate complexity, decomposable	large, highly complex, or not decomposable	- Large scope exceeds 18 month schedule. - Risk on complexity reduced by moving CEM to separate project.		I	P	- Need to reiterate intended CEM functionality implied in scope document. Ernie to make talking points for Joni. ✓	Ernie

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
31	Budget Constraints	funds allocated without constraints	some questions about availability of funds	allocation in doubt or subject to change without notice	- ACES is an unbudgeted item, which may impede option to outsource- ACES Steering Committee will make recommendations to EMT based on business case results.	P	I		- Work w/ Budget section for ability to procure or contract vs. opportunity costs (staff times)- Joni spoke w/ EMT @ lowering investment in maintenance & enhancement work (43%) ✓- Wait for firmer budget numbers. May need to hold some vacancies to allow for procurement option. - Ernie to write Business Case- Ernie to generate CEM est. in June.- Sohng to discuss project priorities w/ DAITM on 5/24.	Dave
33	Delivery Commitment	stable commitment dates	some uncertain commitments	unstable, fluctuating commitments	- Planning and Analysis Phase forecast to complete beyond limits of phase contingency (Feb) with key items yet * Build - buy decision ✓ * CEM decision ✓ * Business Case * Approval of ACES core team requirements & Architecture *(being reviewed)* *- Design Phase plan, budget* - ACES depends on CEM implementation. - CEM business case will be done until @ July	P I			- Decompose project into modules - Target duration is 18 months. - Can get Complaints and Inspection Scheduling SharePoint implemented before ACES is designed ✓ - Get EMT approval for Complaints program changes ✓ - Need to strike balance between having adequate time to make right decision and objective to get a product for staff to use. - Joni to speak w/ EMT @ priorities - Dave to communicate about project status and rollout of complaints and compliance processes @ Aug. - Communicate <u>what is known</u> about CEM & ACES (see 8a)	Joni
Risk Category: Product Content										

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
35	Requirements Stability	little or no change expected to approved set (baseline)	some change expected against approved set	rapidly changing or no agreed-upon baseline	- Requirements review could lead to "scope creep".- WQ plans to submit Change Request	I	P		- - Use Change Management process- Work closely w/ team to keep requirements under control & prioritize those that are made.	Ernie
40	System Dependencies	clearly defined dependencies of the software effort and other parts of system (hardware, process changes, documentation, ...)	some elements of the system are well understood and planned; others are not yet comprehended	no clear plan or schedule for how the whole system will come together	- Widespread hope & expectation that ACES will/should interface with all existing systems storing compliance information. - ACES depends on CEM to achieve key benefits. Full implications of CEM process and duration are not established. -	P I			- Develop communication plan ✓ - Develop speaking points - Focus on movement on CEM project. - Engage Kerri on scope & risk mgmt. after July. Until then, Judy J to assume lead and free to escalate/consult w/ Joni. - Coordinate delivery of CEM & ACES within resource and budget constraints.	Joni
Risk Category: Development Process										
47	Alternatives Analysis	analysis of alternatives complete, all considered, assumptions verifiable	analysis of alternatives complete, some assumptions questionable or alternatives not fully considered	analysis not completed, not all alternatives considered, or assumptions faulty	- Viability of business case options unknown	I	P		- Ernie to have draft business case for Joni by 5/23 to start viability conversation	Joni and Dave
Risk Category: Project Team										
73	Team Spirit and Attitude	strongly committed to success of project; cooperative	willing to do what it takes to get the job done	little or no commitment to the project; not a cohesive team	- Much cynicism of clients based on failure of past attempts - Teams, so far, have positive attitudes.		I	P	- Pick good people ✓ - Frequent visible Sr. Mgmt. support - Aggressive communication & outreach. - Include needs in communication plan ✓ - Good communication between projects	Ernie

Business/Organizational Risks

For the purpose of external reviewers, additional information is included below, which did not appear in the project risk management plan

Consider the effects and magnitude of the alternative to existing business architecture. Impacts may include the need to:

1. *modify/optimize/eliminate existing processes and procedures*
   See "Process Requirements" page 14.
2. *introduce new processes and procedures*
   See page 14, and Risk plan, items 4 and 8a
3. *integrate processes and procedures within or across business units*
   Covered in 1 and 2
4. *Perform analysis; develop a plan or strategy*
   Analysis and implications for ACES requirements have been ongoing for approximately six months.
5. *Interrupt service or modify organizational structure*
   All processes covered by the scope of ACES have been analyzed, improved, standardized prior to ACES application analysis. A management level process owner is the program sponsor for the ACES project. Processes that were different across programs and geographically have been standardized. Statewide process training in complaints and compliance is planned for the summer or fall of 2011. Risk is judged to be low.

Also, the agency should consider risks associated with the:

6. *Level of executive and staff support for the change being proposed*
   The ACES project is championed by Joni Hammond, deputy director. The Steering Committee is chaired by Joni, and has 4 senior agency managers on it. The teams for Compliance Kaizen, Complaints process focus group and the application client team were carefully selected by the steering committee to represent programs and regional offices as well as individual track records of accomplishment. Risk is judged to be low.
7. *Agency's demonstrated ability to manage projects of this size and complexity.*
   The project manager assigned to this project has been managing internal and outsourced application development projects at DEQ for nearly 20 years, obtained his PMP certification in 2000. He managed the TRAACS project, which was named Project of the Year in 2008 by the Portland Chapter of the Project Management Institute. Risk is judged to be low.
8. *Skills and experience available to implement this approach.*
   Both the agency PM and technical staff have the skills and experience to implement the internal build and outsourcing approach. A hybrid, where staff and contractors worked jointly on the sample application would be more challenging to coordinate, but is very achievable with prudent planning and contractual measures. Risk is judged to be low.
9. *Agency's ability to manage internal and external (contractor) staff.*
   Answered in #7 above. Risk is judged to be low.
10. *Number of users impacted.*
    There will be an estimated 150 application users trained in the complaints and compliance

process. ACES training will impact these same users. In addition, there will likely be about 100 agency managers that will benefit from the information the application will produce. External stakeholder analysis showed requests for information that will be housed in ACES are received from the US Environmental Protection Agency, DEQ's Environmental Quality Commission, the Oregon legislature, OR Dept. of Justice, land management agencies, news media, environmental interest groups, permit holders, and the public.

11. *Level of training that might be required*
    Training on the use of the application is estimated to be two hours for those staff who actively manage data associated with ACES. In addition to some in person training at some offices, the training will be put on i-Learn. There will be a data steward/application administration group, who'll get additional training on providing access and permissions, maintaining code tables, and monitoring and managing issues with the system. Risk is judged to be low.

12. *Length of time the agency has to complete the project or implement this alternative.*
    Project objectives show 18 months after the start of design to implementation. Project has a dependency on the Central Entity Management (CEM) project, a data integration effort to centrally manage basic key data about facilities and individuals permitted, licensed or certified by DEQ. Risk is judged to be moderate.

Technical Risks

Consider the information technology implications for this alternative. Impacts may include the need to:

1. *Develop new or modify/enhance/replace existing systems (hardware/software/applications).*
   Although a new application will be developed, it'll use agency standard Visual Studio tools, which have been in use for a number of years. No additional hardware is anticipated.

2. *Integrate systems within or across business units, agencies, or jurisdictions.*
   As noted in Business Risks #12, there is a dependency on the CEM project. This project is now working on the organizational aspects such as a data governance council and has yet to define business processes. This Compliance and Enforcement system will be used agency wide, a move away from program and data silos. Risk is judged to be moderate.

3. *Perform technical analysis, develop implementation plans or strategies*
   The DEQ PM and technical staff are experienced in these activities. Risk is judged to be low.

4. *Modify transaction volumes or hours of system operation, maintenance and support.*
   Not applicable

5. *Develop new or modify established service level agreements*
   Not applicable

Also, the agency should consider risks associated with the:

6. *Track record and stability of the system or technology being considered*
   Visual Studio has met agency expectations and has been in use for 9 years. The same conclusions are valid for SQL Server, the agency's DBMS. Risk is judged to be low.

7. *Scope, size and complexity associated with implementing the alternative being considered*
   The scope and size of ACES is not large. With the exception of the "Do nothing" option, scope and size are constant.

8. *Technical staff skills and experience implementing the specific technology platform and tools being considered*

The staff being considered for this effort have a solid knowledge of the Visual Studio development tools, which have been in use at DEQ for 9 years. Risk is judged to be low.

9. *Level of system configuration or customization being considered*
   DEQ is planning to have a "Custom Developed Solution. COTS applications reviewed during the RFI process were judged to be unsatisfactory.

10. *Roles and responsibilities of internal and contractor staff on the project*
    With an internal build or an outsourced solution, the agency is experienced in communicating and monitoring roles and responsibilities. For these two options, risk is judged to be low. If a hybrid solution is picked where both contractor and agency staff are jointly developing an application, careful selection of tasks and associated responsibilities will be necessary to avoid confusion and conflict. Under this scenario, risk is judged to be moderate.

Risks and Contingencies Checklist

Does the Risks and Contingencies Section ....

- ☐ Identify all the known business, organizational, and technical risks?
- ☐ Describe the likelihood (probability) of the risk and the consequences (impacts) of its occurrence, in financial terms and in terms of impact on project delivery?
- ☐ Describe which risk factors that can be managed or controlled to some degree, and describe the target level risk mitigation that must be achieved?
- ☐ Describe which risk factors cannot be managed or controlled, but which must be watched or monitored during implementation and operation, because they could have costly consequences or other negative impacts?
- ☐ Present a strategy and specific guidance for mitigating risks with each scenario?
- ☐ High level risk assessment for all alternatives.... A more detailed assessment should be performed for the recommended alternative

Appendix B – DEQ Technical Architecture

Network Overview:

DEQ internally maintains its core server environment at DEQ's Headquarters in Portland. This includes file, email, print, database and application servers. The regional offices all have their own file and print servers locally on site. DEQ interfaces with State of Oregon's Technology Support Center when we have network problems or when there is a problem accessing one of the business systems

Network Environment	
Feature	**Current**
Server Hardware	Rack mount HP ProLiant Servers, HP Blade System
Workstation Hardware	HP/Compaq – various models
Server OS	Windows 2003 on SQL and IIS Servers, Network and File Servers 2008 R2
Authentication/Authorization	Active Directory 2008 R2
Workstation OS	MS Windows XP Pro SP3. *We will be deploying Windows 7 on new systems starting December 2010.
Backups	Symantec Backup Exec 11
Web Server	IIS 6.0 (internal sites)
	Interwoven TeamSite – state hosted
Remote Access	Cisco AnyConnect VPN Client v2.4.0202
Protocols	TCP/IP (32 bit)
PC Tools	MS Access 2007
	MS Excel 2007
	MS Word 2007
	MS Outlook 2007
	MS PowerPoint 2007
	MS Internet Explorer v 7.0
	MS Expression Web
Database	MS SQL Server Professional 2005 SP2 *We will be migrating to MS SQL Server 2008 R2 by December 2010
Enterprise Desktop Management	MS SCCM 2007
Email	MS Exchange Server 2003/MS Exchange Server 2010 in spring 2011
Central Scheduling	Argent Job Scheduler v 7
Collaboration	MS Sharepoint Services 2007 MS Moss 2007 *We will be migrating to MS Sharepoint Server 2010 in Spring 2011
GIS Server	ESRI ArcGIS Server 9.3.1 ESRI ArcIMS 9.2 ESRI ArcSDE 9.2
SmartPhone	Blackberry Enterprise Server 5 SP2 Blackberry 8350i

Network Bandwidth	
Office Location	**Speed**
Portland - Headquarters	50 MB
Hillsboro - Laboratory	10 MB
Northwest Region Offices	
Portland	10 MB
Gresham	10 MB

Network Bandwidth	
Office Location	**Speed**
Warrenton	1.5 MB
Tillamook	1 MB
Western Region Offices	
Eugene	10 MB
Salem	1.5 MB
Grants Pass	2 MB
Coos Bay	2 MB
Medford	2 MB
Eastern Region Offices	
Hermiston	2 MB
The Dalles	1.5 MB
Pendleton	3 MB
Bend	1.5 MB

DEQ has internally built applications for business and program functionality. We interface with centrally hosted state systems for entering data and downloading information for internal systems. Accounting, Payroll, HR and Web all interface with State systems.
DEQ is in the process of migrating from our legacy Oracle/Sequent environment. Details of this environment are not included as the migration is near completion.

Application Environment	
Feature	**Current**
Development	Visual Studio .net 2008, 2010
Tools	Component one Studio for .net (minimal web components)
	Crystal Reports v9.2, v11.2 (*legacy applications only*)
	SQL Reporting Services 2008
Development Language	VB.Net
Source Control	Visual Source Safe 6.0
Issue Management	Issue Tracker (internally developed ASP.Net application)
Project Management	MS Project and others

State of Oregon

Information Resource Request

PROJECT NAME	Agency-wide Compliance and Enforcement System		
AGENCY	Dept. of Environmental Quality	DATE	July 19, 2011
DIVISION	Agency-wide	DAS Control #	07-158
AGENCY CONTACT	Ernie Weber, PMP	PHONE NUMBER	503-229-6765

SERVICES SUMMARY	PROJECT COST SUMMARY *(Including development and operating costs)*
☑ System Design Programming ☑ Planning and Project Management ☐ Project Review ☐ LAN Consulting ☐ Education and Training ☐ Maintenance ☐ Other _____	Hardware $ _____ Software $ _____ Services $ _____ Other $ $791,000 *(DEQ analysts, internal team & audit)* TOTAL $ $791,000
Agency Business Owner date 7-25-11	Agency Technology Manager 7-25-11 date

ATTACHMENTS ☐ Statement of Work ☑ Business Case Analysis ☐ Feasibility Study ☐ Strategic Plan ☐ Other _____

DAS COMMENTS:

See attached Comments,

Analyst date	State CIO (or designee) date

NOTE: Guidelines for completing this form are contained in the DAS/Information Technology Investment Review/Approval Policy

DAS COMMENTS:

DEQ plans to implement an Agency-wide Compliance and Enforcement System (ACES). The main business goal is to improve information retrieval and, thus, the management of activities related to compliance and enforcement. This project is a top priority for application development efforts at DEQ. Stakeholders include DEQ personnel, oversight groups in state and federal government, and the public; including public information requests.

This IRR requests $791K for DEQ analysts and other internal resources. This IRR is supported by the following document:

- Business Case for ACES, dated 7/25/2011.

DAS EISPD Findings

DEQ analyzed four solution options. Internal development (Option 3) is preferred by DEQ management, because this option has "the lowest negative lifecycle cash flow of -$198K." The Project's executive steering committee believes that non-financial benefits justify this IT investment.

DEQ conducted a formal RFI to understand available COTS solutions in the marketplace. The decision against COTS in favor of a custom developed solution appears to be justified. (Reference: page 17 of Business Case for ACES.)

DEQ appears to have performed adequate due diligence through analysis and executive steering committee process. The project appears to be driven by business needs, with an adequate focus on business process analysis.

DAS EISPD Recommendations

I recommend State CIO approval of this IRR with the following conditions:

- DEQ to manage this project using good project management practice, especially in quality and risk management.
- DEQ to submit a closing report to DAS EISPD upon project completion and system has been placed in production use.

Analysis prepared by,
Ying Ki Kwong

8/4/11	8/8/11
Analyst **date**	**State CIO (or designee)** **date**

PROJECT NAME	Agency-wide Compliance and Enforcement System		
AGENCY	Dept. of Environmental Quality	DATE	July 19, 2011
DIVISION	Agency-wide	DAS Control #	
AGENCY CONTACT	Ernie Weber, PMP	PHONE NUMBER	503-229-6765

PROBLEM STATEMENT ***(Identify problem, opportunity, or mandate [legislative, Federal, etc.]. Include summary statement of business process(es) and stakeholders affected.)***

The Oregon Department of Environmental Quality selected the Agencywide Compliance and Enforcement System (ACES) project as the top agency application development priority due to DEQ's inability to adequately manage and access information on its compliance and enforcement activities. This data is stored in many different automated forms (databases, spreadsheets, etc), is geographically dispersed, and formatted inconsistently; making aggregating and synthesizing it is time consuming, expensive and of dubious quality.

DEQ and its programs have a legal and public obligation to disseminate compliance information in a timely manner to oversight groups such as the U.S. Environmental Protection Agency, legislative committees and the Oregon Environmental Quality Commission. Public interest groups, environmental groups and anyone filing public records requests also seek this information. DEQ program managers require summary and statistical information to manage staff activities and plan and budget for the future.

(See ACES Business case, executive summary, pp. 5 – 6)

AGENCY ANALYSIS ***(Identify alternatives considered and significant reasons for the alternative chosen. Include summary of agency analysis related to cost/benefit, feasibility, risk assessment, impacts on current environment, and other relevant business factors.)***

(See ACES Business case, executive summary, pp. 6 – 8)

PROJECT SUMMARY ***(Provide summary narrative of the current project. Include summary statement of work, community/stakeholder impact, enterprise implications and opportunities, and alignment with the*** State of Oregon Enterprise Information Technology Strategy ***and published enterprise architecture and standards.)***

(See ACES Business case, pp. 9 -12 and 14 – 168)

Does this project conform to program and information technology related statutes, administrative rules, executive orders, and statewide policies? ☑ **Yes** ☐ **No** ☐ **Don't Know**

If not, please provide justification: _____

BUDGET IMPACT ***(Provide summary narrative of the budget and resource implications of this project, as well as its relevance to the core mission of the agency.)***

(For relevance to the core mission of DEQ see ACES Business Case pp.11 – 12)

All work will be performed by existing DEQ staff, except audit which was estimated at $22,800. Audit services were estimated, but would be used only if required.

FUNDING SOURCE ☑ **General Funds** ☑ **Federal Funds** ☐ **Lottery Funds** ☑ **Other Funds**

If Other Funds, please identify source: *PermittingMisc Fees AQ=21.7%, LQ=34.0%, WQ=25.2%*_____

CONTRACT SUMMARY *(attach statement of work from procurement document)*			
☐ Personal Services	☐ Goods	☐ Trade Services	☐ PO/CRO/Task Order
Contract Amount _____	End Date _____	Amendment # _____	

HARDWARE SUMMARY		HOST-BASED SOFTWARE	
☐ Mainframe	☐ Personal Computers	☐ System	_____
☐ Midrange Server	☐ _____	☐ LAN/WAN	_____
☐ Server	☐ _____	☐ Development	_____
☐ File/Print	☐ _____	☐ DBMS	_____
☐ Application	☐ _____	☐ Application	_____
☐ Web	☐ _____	☐ Other	_____

IRR COMPLETION PROCESS

1. At the commencement of an information technology-related project, agency prepares form, business case and any supporting documentation required.
2. Agency obtains Agency Business Owner and Agency Technology Manager signatures or e-mail approvals.
3. Agency sends IRR, business case and any supporting documentation to:

   Department of Administrative Services
   Enterprise Information Strategy and Policy Division
   955 Center Street NE (Rm. 470)
   Salem, OR 97301

   or by e-mail to: IT_Investment.Review@das.state.or.us
4. DAS will review and provide analysis related to completeness of the IRR and business case based on the context of the Information Technology Review/Approval Policy and potential enterprise applications and impact on enterprise programs.
5. If form is complete, IRR and accompanying analysis is forwarded to the State CIO for approval
   OR
   If form is not complete, documentation is returned to Agency with explanation.
6. After documentation is approved, the IRR is returned to the Agency with DAS Control Number.
7. Agency forwards approved IRR with procurement documents to Dept. of Justice and DAS State Procurement Office

Total Project Cost or Purchase Price:	Agency-Provided Supporting Documentation	Approval required
≥ $150,000	• Conform with Information Technology Investment Review/Approval Policy • Information Resource Request • Business Case • Any additional supporting documentation	State CIO
NOTE:	• Some projects may require Independent Quality Assurance Reviews as per the Technology Investment Strategy Development And Quality Assurance Reviews Policy Circumstances may include the following: Those projects that are required by legislative action or executive mandate to have independent reviews, and information technology projects that meet three of the following criteria, shall provide for an independent quality assurance review. ▪ The system, application or infrastructure affected by the project is considered mission critical by the affected agency or DAS.	State CIO

	▪ The project schedule exceeds one year in duration. ▪ The project scope includes changes or enhancements to systems, applications or infrastructure managed or maintained by more than one state agency or government entity. ▪ The complexity of the project is deemed medium or higher using the Department of Human Services, Business and Technical Assessment (Exhibit A) or similar tool that has been approved by DAS. ▪ The total project costs are estimated to be greater that $1,000,000.	

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

(THAT EQUAL OR EXCEED $150,000)

Agency Name:	DEPARTMENT OF ENVIRONMENTAL QUALITY			
Project Name:	CEM (CENTRAL ENTITY MANAGEMENT)			
Mandated Project?	☐ Yes ☒ No		By: Legislature, Federal Gov, Other (identify it)	
Budget?	☒ Base ☐ POP		Which agency or state plans or goals does it align with and/or support?	DEQ strategic direction – internal efficiency
Project Purpose	☒ Routine Lifecycle Replacement ☒ Upgrade/Enhance Existing System ☐ New System			
Project Status	☒ Concept Stage ☐ Planning Stage ☐ Ready to Implement ☐ Continuation of Existing Project			
SDC Involvement	☒ None ☐ Minor ☐ Active ☐ Participating Partner			
Estimate SDC Costs	**$ 0.00** ☒ Preliminary Estimate ☐ Project Design Estimate			

Project Description:

DEQ is developing a central entity management system to have a single system that clearly identifies facilities, sites, companies, organizations and people that are common to some or all DEQ programs. It will be a one-stop place to find information on those that the agency regulates and the nature of their relationship(s) with DEQ. Agency staff will be easily able to access needed information such as business owners, legal contacts, site contacts, accounts payable contacts and facility reporting contacts. As a long-term information management strategy, CEM will allow DEQ to manage and interact in a more comprehensive manner with regulated facilities and individuals.

DEQ submitted a business case for this project to DAS in February 2012. DAS has approved the business case.

An important component of the CEM project is the updating the Facility Profiler and the Location Improvement Tool, which are geographic information system-based tools. Facility Profiler is a query tool for searching for DEQ regulated or permitted facilities and sites information. The Location Improvement Tool allows users to look at a map with aerial photos and other information and to edit a location of a facility or facilities. Replacement of these systems is essential to many inspection databases at DEQ. DEQ developed the facility profiler and location tools tools more than 10 years ago with support from federal grants. Since that time, GIS and other technology have advanced and DEQ's tools are now outdated and inaccurate. The aging systems also have compatibility and integration problems with other systems. Most of the DEQ inspection systems record the GIS information of facilities and inspection sites for legal and scientific references.

Cost Summary							
Total estimated cost by fund (11-15):	General Fund	Lottery Funds	Other Funds	Non-Limited	Federal Funds	Non-Limited	Total Funds
	$ ~650,000	$	$	$	$ ~350,000	$	$ ~1,112,8000
Total estimated cost by fund (all biennia):	$ ~650,000	$	$	$	$ ~350,000	$	$ ~ 1,112,800

Estimated Cost by category (11-15):	Personal Services	Services & Supplies	Capital Outlay	Special Payments	Debt Service
	$1,112,800	$	$	$	$

INFORMATION TECHNOLOGY PROJECTS IN 2013-15

Estimated Cost by category (all biennia):	$	$	$	$	$

			Positions: Internal	
Expected Start Date:	Nov. 2011		Contractor	X
Expected Completion Date:	Jan 2014		FTE:	

Business Case for *CEM (Central Entity Management) System*

Department of Environmental Quality

Date: 2/9/12
Version: 1.2, Final
Authors: Ernie Weber, PMP

(503) 229-6765
E-mail (weber.ernie@deq.state.or.us)

Business Case – Authorizing Signatures

PROPOSAL NAME AND DOCUMENT VERSION #	**ACES Development and Implementation**		
AGENCY	DEQ	DATE	2/9/12
DIVISION	Multiple	DAS CONTROL #	
AGENCY CONTACT	Ernie Weber, PMP	PHONE NUMBER	503-229-6765

The person signing this section is attesting to reviewing and approving the business case as proposed.

This table to be completed by the submitting agency	
Signature:	Date: 3-8-12
Agency Head or Designee	
Joni Hammond: Deputy Director	
Signature:	Date: 2/13/12
Executive Sponsor	
Kerri Nelson, Administrator, Management Services Division	
Signature	Date: 2/14/12
Program Sponsor	
Judy Johndohl, Community and Program Assistance Manager, Water Quality Div.	
Signature	Date: 3-8-12
Signature	Date: 2/14/12
Chief Information Officer (CIO) and Agency Technology Manager	
Sohng Shin, Business Systems Development Manager	
Rebecca Kirk, Information Technology Manager	
Signature	Date:
State Data Center Representative if required by the State CIO	
(Name)	

This Section to be completed by DAS Enterprise Information Strategy and Policy Division (EISPD) IT Investment and Planning Section	
DAS Analyst	
(Name)	(Date)
Signature	
State CIO	
(Name)	(Date)
Signature	

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Executive Summary

The Oregon Department of Environmental Quality selected the Central Entity Management (CEM) project as a strategic project, which seeks to integrate key enterprise data. A driver behind this project is DEQ's inability to adequately manage and access comprehensive information on facilities and individuals that DEQ permits, certifies or otherwise has a regulatory interest. This data is stored in many different automated forms (for example, databases and spreadsheets), is geographically dispersed, and formatted inconsistently. This type of data storage is ineffective for aggregating and synthesizing information and is time consuming, resource intensive and lacks quality assurance and control.

DEQ has a legal and public obligation to disseminate information in a timely manner to oversight interests such as the U.S. Environmental Protection Agency, legislative committees and the Oregon Environmental Quality Commission. Other individuals filing public records requests including public interest and environmental organizations also seek this information. DEQ program managers require summary and statistical information to assess the effectiveness of their programs, to manage staff activities and plan and budget for the future.

Goal: Establish and improve the governance and management of DEQ's data on regulated facility-sites and entities and individuals that have a significant relationship to them.

> **Objective 1:** Data Governance – examine alternatives and choose an appropriate Data Governance model for the agency.
>
> **Objective 2**: Process Definition and Improvement – develop standardized processes for integration and management of CEM data, and staff positions needed to refine and execute these processes.
>
> **Objective 3**: Data Management Application – develop and approve a business case and project plans for the development of a CEM Application.
>
> **Objective 4**: Improve Operations Quality and Efficiency – The data management and quality assurance standards and processes developed during this project will become an ongoing operational function. The Agencywide Compliance and Enforcement System will be integrated with CEM to improve efficiency of managing CEM data.

Strategic Alignment

1) The CEM project is viewed as a long-term information management strategy, which will enable DEQ to manage and interact in a more comprehensive manner with regulated facilities and individuals. Initially CEM will work in a seamless integrated way with ACES allowing the management, analysis and sharing of compliance and enforcement information in a comprehensive facility-centric manner as opposed to a program by program piecemeal approach.
2) This project aligns with Governor Kitzhaber's position that Oregon's budget shortfall represents an opportunity to change and improve the way the state does business.
3) The project will remove current workload burdens and data aggregation challenges in responding to information requests and make available new kinds of information DEQ is not currently able to provide.
4) The CEM Steering Committee acknowledged that CEM supported five of DEQ's key strategies.

5) Other agency business values supported include: a) ensuring operational effectiveness and efficiency, b) supporting state policy on access to public information and stakeholder benefits, and c) ensuring enterprise value management.

Key Assumptions and Critical Success Factors

1) Aligning with the DEQ Agencywide IT Managers (DAITM) group's selection of CEM as a strategic integrated data repository, which will facilitate the development and implementation of other important agencywide functions, such as compliance, permitting and invoicing.
2) Creating DEQ's primary repository for the agency's regulated (permitted, licensed, and certified) facilities and individuals and key related data to support the needs of ACES, which will manage compliance and enforcement data.
3) Providing DEQ stakeholders with new capabilities, such as:
   a) **Transparency** - a single source for cross program compliance and enforcement information for all regulated facilities and individuals
   b) **Credibility** - Consistent data entry by staff performing the work resulting in more accurate and timely data
4) Enabling DEQ managers to make strategic and real-time decisions based on accessible data across the agency
5) Significantly reducing DEQ's response time and effort for many information requests.
6) Having a product life-cycle of five years.
7) Being compatible with DEQ technical architecture.
8) Satisfactorily supporting DEQ with defined and standardized compliance and enforcement business processes.
9) Providing DEQ with a standardized approach for managing data on regulated facilities and individuals of interest to DEQ.
10) Providing DEQ a consistent application for responding to information requests about compliance and enforcement.
11) Providing primary benefits that are qualitative, including accessibility and transparency of data vs. quantitative such as personnel savings.
12) Honoring schedule (as opposed to scope or budget) as a primary project driver.
13) Reducing, over time, the reliance on inefficient data silos for regulated facilities and individuals that currently exists for most of DEQ's environmental programs.

CEM Project's Functional Requirements

1) <u>Data Migration and Integration</u> – involves the mapping, migration and data management utilities and reports needed to integrate and monitor data quality on facilities, individuals, geographic locations and environmental interests.
2) <u>Direct Data Entry</u> – includes a homepage for navigation
   a) Data discovery and search functions
   b) Code table maintenance
   c) Primary data maintenance for facilities, entities (individuals and companies), geographic locations and environmental interests.

d) Secondary data maintenance for contacts, mailing addresses, geographic features, affiliations, environmental interests and notes.

3) Data Management and Business Intelligence Functionality – includes discovery and management of duplicate data, discovery and processes for management of missing data, user error reporting and business intelligence and statistical reporting.

The primary driver is a schedule of 18 months (duration of ACES development project).

Proposed Solution:

The CEM Steering committee, after reviewing and discussing the options, propose Option #3, the use of DEQ internal staff for development of a CEM system, is the recommended approach. Although outsourcing may reduce the schedule and provide a more robust solution, ultimately, the factors that resulted in this proposal were:

1. DEQ budget constraints – there are insufficient funds available for contracting this effort. Contracting with these constraints would result in cuts in other areas.
2. DEQ internal programming staff has the technical skills to develop this application.
3. DEQ Advisory IT Managers (DAITM) group agreed to reductions in other development and maintenance work in order to staff this project throughout the schedule.
4. This proposal met all of the selection criteria outlined in this business case.
5. It had the highest net cash flow of $547,000 when the cost of status quo was factored in to the analysis. The CEM Steering Committee strongly believes that non-financial benefits of this project greatly outweigh the financial position of this proposal.

Options considered

1) Option 1 – Status Quo - No build of CEM and continued reliance on several existing distributed applications that collect non-standardized data.

Cost (through 6/30/18): $1,152,300 **Duration**: N/A

Costs: Attributed to expenses of inefficient data reporting efforts.

Benefits: Only benefits are it would allow DEQ to work on other business system needs (which have already been determined as lower-priority work) and it would allow DEQ to delay making a decision about this expenditure perhaps until better economic times.

Risks: DEQ would not be able to: easily answer questions requiring integrated information on those regulated by DEQ, about the agency's compliance and enforcement operations, evaluate the effectiveness of its programs, and provide compelling information about how it is meeting its mission. DEQ would continue to be non-transparent in many operational aspects, particularly compliance and enforcement. There would be continued operational inefficiencies in times of serious resource constraints. Harm to DEQ's public credibility in a period where public access to information is expected.

2) Option 2 – Procure IT Professional Services contractor – Develop the application through a contractual agreement with an IT software development firm.

Costs $2,057,600 (FY12 -13) $497,500 (FY 14 – 18) **Duration**: 9 – 12 months

Costs: Approximately $1,500,000 is development cost for contracted services with balance being DEQ technical and client team costs. Four percent of contract cost is for audit expenses. The second cost is for 5 years of maintenance.

Benefits: Financial benefits are $824,400, primarily from more efficient data retrieval and reporting, Non-Financial benefits include: a) Implements an integrated application of CEM data, predicated on leaner and standardized process which is a high priority business strategy for the agency, b) better alignment with current DEQ software/hardware technology, c) implementation of newer, leaner business processes with integrated application support, d) improved services and transparency to internal and external stakeholders, and e) other IT projects could continue using DEQ Business Systems Development staff.

Risks: DEQ is experiencing significant budget reductions and may not have contracting dollars to pay the full costs in the near term. The ACES project depends on integration with CEM to derive much of its benefit. DEQ will be using new and immature data governance and data management processes. Lower schedule risk due to fewer resource availability constraints by contractors and use of more efficient methods and tools.

3) Option 3 – Use DEQ Business Systems Development staff - Develop the ACES application with existing DEQ BSD staff.

Costs $913,800 (FY12 -13) $497,500 (FY 14 – 18) **Duration**: 16 - 21 months

Costs: Development costs are for DEQ technical and client team costs. Four percent of development costs for are for possible audit costs. The second cost is for 5 years of maintenance.

Benefits: Financial benefits are $806,600. Savings from more efficient data output. Other qualitative savings are: greater efficiency by DEQ staff using an integrated source of data to get a comprehensive view of permitting and compliance activities at a site when planning and conducting inspections. Development cost is an opportunity cost vs. using funding for outsourcing.

Non-Financial benefits include: a) Implements an integrated application of CEM data, predicated on leaner and standardized process is a high priority business strategy for the agency, b) better alignment with current DEQ software/hardware technology, c) implementation of newer, leaner business processes with integrated application support, d) improved services and transparency to internal and external stakeholders.

Risks: Include a) DEQ potential loss of federal grants, if internal resources were unavailable to perform the work, b) delayed or no development of new applications to meet other DEQ program regulatory mandates, c) schedule risk as internal resources cannot be fully allocated to project work due to administrative and emergency maintenance obligations, and higher team costs due to longer project duration.

4) Option 4 – Hybrid of Options 2 and 3 – Collaborative build using a contractor and DEQ staff, if DEQ doesn't have adequate internal resources to do all the work.

Costs $1,162,000 (FY12 -13) $497,600 (FY 14 – 18) **Duration**: 12 – 15 months

Costs: Approximately $250,000 is for contracted development services, four percent of development cost for audit with balance being DEQ technical and client team costs, Project manager allocation to effort would increase due to the extra oversight and coordination required. The second cost is for 5 years of maintenance.

Benefits: Financial benefits are $824,400. Savings from more efficient data output. Other qualitative savings are: greater efficiency by DEQ staff using an integrated source of data to get a comprehensive view of permitting and compliance activities at a site when planning and conducting inspections.

Non-Financial benefits include: a) Implements an integrated application of CEM data, predicated on leaner and standardized process is a high priority business strategy for the agency, b) better alignment with current DEQ software/hardware technology, c) implementation of newer, leaner business processes with integrated application support, d) improved services and transparency to internal and external stakeholders and e) increased opportunity for technology transfer.

Risks: Using contractor and DEQ technical staff on the same development project produces increased risks of contract disputes, and ultimately a risk to the contract itself if DEQ work ends up on the critical path and delays contractor performance of their scope of work.

Executive Summary Checklist

This section should answer the following questions by taking the information from the body of the business case.

Does the Executive Summary...

- ☐ Describe the proposed IT investment and the problem(s) it solves?
- ☐ Identify the IT investment time period covered?
- ☐ Identify solution requirements
- ☐ Identify alternatives that are compared with the recommended action?
- ☐ Explain how the IT investment aligns with and supports agency strategic business objectives and business plans?
- ☐ Explain how the IT investment aligns with and supports
  - The Governor's goals, priorities and initiatives?
  - The Enterprise Information Resources Management Strategy?
  - Other IT-related statewide plans, initiatives, goals and objectives?
- ☐ Estimate total the cost and total cost of ownership (TCO) for IT investment?
- ☐ Recommend funding sources?
- ☐ Project whether or not the IT investment will break even or have a quantifiable return on investment (ROI)?
- ☐ Identify key assumptions, critical success factors and contingencies that must be managed in order to achieve desired results?
- ☐ Identify risks that must be watched: IT risks, project risks, business risks, and service delivery risks?
- ☐ Present the important practical recommendations for project implementation?
- ☐ Describe the consequences of failure to act on the recommendation

Background

Background

The Department of Environmental Quality's (DEQ) Agency Mission is to be an active leader in restoring, maintaining, and enhancing the quality of Oregon's air, water and land. The Agency works to accomplish its Mission by working toward a Vision of working cooperatively with all Oregonians for a healthy, sustainable environment. The Agency measures its success against its values of environmental results, customer service, partnership, excellence and integrity, employee growth, teamwork, and diversity.

Over the years, as environmental programs were delegated to DEQ or enabling legislation established them, DEQ developed database applications to support the business needs of these environmental

programs. The end result of this activity is the existence of several dozen database applications for permitting, compliance and invoicing processes. Almost all of them keep separate records of the facilities permitted and individuals licensed and certified.

There is little integration between these applications; data about the same facilities and individuals are not stored in a common format. Major core processes, such as permitting, compliance and invoicing are executed inconsistently among the environmental programs. A key success factor in standardizing and aligning processes is to have data about DEQ's regulated facilities and individuals managed and stored consistently.

The conditions described above makes it very difficult and costly to do agency-wide reporting of common activities, such as compliance, debt collection, enforcement and permitting. The inconsistency and lack of standards applied to this data makes consolidating data about DEQ's cross-functional interactions with any one entity or individual nearly impossible and extremely expensive.

Over the past year, DEQ initiated the Agency-wide Compliance and Enforcement (ACES) project to standardize and improve the Agency's compliance and enforcement processes and to develop a shared application to manage data about these processes.

In order for ACES, like other core processes cited above, to succeed, an integrated set of facility and person data (commonly referred to as Central Entity Management or CEM) is necessary. Data integration provides many strategic opportunities for other agency-wide functions, such as invoicing, document management, etc.

The Central Entity Management (CEM) project is proposed to define and develop governance and data management processes to integrate data about those regulated by DEQ and to ensure the data quality and integrity remain high. An application is needed to integrate this data and manage it.

Data integration is an engineering process whereby two or more IT systems share information without producing errors in the integrated system. A principal goal of data integration is system consolidation, the elimination of redundant data, while simultaneously improving data quality and semantic reliability, which refers to common usage of terminology and definitions.

Project Goal and Objectives

Project goal

Establish and improve the governance and management of DEQ's data on regulated facility-sites along with entities and individuals that have a significant relationship to them.

Project objectives

Objective 1: Data governance

a. By August 2011, the CEM Steering Committee will decide among proposed data governance models, the one to be employed within DEQ

b. By September 2011, the CEM Steering Committee will adopt a data governance council charter, defining the purpose, responsibilities and organization.

Objective 2: Process definition and improvement

a. By September 2011, DEQ will develop uniform high level processes for the integration, and management of central entity data.

b. By September 2011, DEQ will identify staff positions and will work on adding needed process detail and developing written guidance and standards for executing these processes

c. When the Central Entity Management System (CEMS) is implemented, DEQ will implement 90 percent of the developed processes.

Objective 3: Data management application

a. Within one month of the completion of CEM Requirements, DEQ will develop a draft business case for the CEMS application

b. DEQ will approve the business case within one month and will authorize one of the options in the business case for acquiring a CEM application

c. By March 2012, DEQ will develop a roadmap and schedule for the integration of entity data, which will include the order in which existing systems' data will be integrated and the scope of the data managed.

Objective 4: Improve operations quality and efficiency

a. Within two months of CEMS implementation, data management and quality assurance will transition from a project activity (limited time with specific deliverables) to an operational activity (ongoing).

b. Assuming that ACES development is completed, it will be integrated with CEMS within 90 days of implementation of CEMS.

Alignment with Agency Strategies

The CEM project is viewed as a long-term information management strategy, which will enable DEQ to manage and interact with those facilities and individual's that the Agency regulates in a more comprehensive manner. Initially CEM will work in a seamless integrated way with the Agencywide Compliance and Enforcement System (ACES) allowing the management, analysis and sharing of compliance and enforcement information in a comprehensive facility-centric manner as opposed to program by program piecemeal approach. This business case is restricted to the scope of the current project.

CEM could serve as a catalyst for future process consolidation and standardization for permitting and invoicing, and associated applications. Such consolidation has the potential to significantly reduce the inventory of redundant systems that manage data on similar processes in many of DEQ's programs. This could significantly reduce the maintenance workload and associated expense because there would be fewer applications. The current project will have some rudimentary GIS functionality. As future funding forecasts become known, a future effort will upgrade the agency's legacy GIS Location Improvement Tool to current technology and use some of the needed functionality to better support the GIS needs of the CEM application.

CEM supports the following Agency Strategies.

1. **DEQ commits to excellence by...**
   Delivering outstanding public service and continuously seeking customer feedback to improve its service.

2. **DEQ measures success protecting air and water by.**
   Making timely compliance and enforcement actions

3. **DEQ involves Oregonians in solving environmental problems by...**
   Supporting communities in solving environmental and economic problems

4. **DEQ measures success involving Oregonians by...**
   • Community problems solved as part of the Governor's Economic Revitalization Team
   • Increased education and involvement of diverse populations in protecting health and the environment

Background Checklist

Does the Purpose and Background Section;

- ☐ Clearly describe how work is being performed today?
- ☐ Identify the business objectives, mandatory requirements, solution requirements, or specific problems that are the reason for the proposed IT investment?
- ☐ Describe important background information that reviewers need to know in order to understand the problems or opportunities developed more fully in the next section?

Problem or Opportunity Definition

Governor Kitzhaber has stated that Oregon's budget shortfall represents an opportunity to change and improve the way the state does business. We cannot rely on the ways we have done things in the past - even though they are familiar to us.

The present condition prevents meaningful Integration, compilation and synthesis of this data about the facilities and individuals thet.DEQ regulates. Aggregating basic information is extremely time consuming, expensive and of dubious quality. DEQ cannot respond timely and often meaningfully to requests for information about specific facilities or a group of facilities in a geographic area. Questions such as, what facilities are permitted in a city or political district and what permits do they hold are extremely difficult to answer. While it may appear to be a simple request, the information on the permits and licenses are held in many databases and the facility name may be different in a number of the databases.

A principal goal of data integration is system consolidation, the elimination of redundant data, while simultaneously improving data quality and semantic reliability. The CEM project represents an opportunity to move from distributed, program-centric repositories of data on those facilities and individuals that DEQ regulates to a integrated data managements system built to support agencywide standardized and streamlined data governance processes.

DEQ's CEM Data Governance council believes such data to be "authoritive" data, which is of critical importance to the mission of DEQ. It would allow DEQ to be more transparent in sharing information with external stakeholders, including oversight groups such as US EPA, the Oregon legislature, environmental interest groups, media and the public. It would also allow DEQ to build some consistent business processes around the CEM, making the agency's work more efficient and less costly.

The CEM project directly supports DEQ's strategies cited in the Background section of this business case.

Other business value includes:

1) Ensuring Operational Effectiveness and Efficiency
   a) Improved accuracy of summarized data. This improves DEQ credibility in the eyes of our stakeholders.
   b) Improved opportunity for collaboration across programs and geographically.
   c) Improved internal processes with greater integration and consistency with inputs and outputs.
   d) Cost and cost avoidance – The cost and time for compiling data about those DEQ regulates is much too high. In the short term, it'll support the goal of the Agencywide Compliance and Enforcement project to manage and utilize that data on an agencywide basis. It has long term potential to allow DEQ to consolidate and streamline other core business processes.
2) Supporting state policy on access to public information and stakeholder benefits.
   a) Decision and policy making – will enable managers and state policy makers to obtain better, real time data to produce better informed, improved operational and policy decisions.
   b) Government transparency – increases access to DEQ information and processes.
3) Ensuring enterprise value management
   a) CEM project is consistent with DEQ's technical architecture
   b) CEM positions DEQ to conduct business more strategically – CEM integrates data currently distributed by multiple environmental programs and office locations. Properly designed to be scalable, additional applications will be able to use the core functionality of CEM.
   c) CEM is supported by sound project management practices, which lower overall risk and improve the probability that envisioned value will be obtained. The executive sponsor is the Administrator of the Management Services Division. Project activities are monitored by an executive steering committee. An experienced project manager has been assigned to the project, and is following PMI's project management methodologies.
   d) CEM is much more than a database application. It includes the formation and chartering of a CEM Data Governance Council with agency IT managers serving on it. The policy and standards of the Data Management Council are executed by technical staff and program data stewards on a Data Management Group. Together they will develop policies, guidance and detailed procedures to manage both the initial integration of data and operational procedures to ensure that the data quality stays high, so that business value can be derived from its use.

Problem or Opportunity Definition Checklist

Does the Problem or Opportunity Section;

- ☐ Present the problem or opportunity in terms of agency program or business terms?
- ☐ Link the problem or opportunity to agency mission, goals, or program requirements?

- ☐ Describe how the "current state" meets or does not meet agency program needs. Why does the "current state" need to be addressed/changed?
- ☐ Identify relevant metrics or data that help define the scope of the problem or opportunity?

Alternatives Analysis

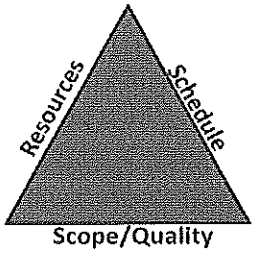
Assumptions

The CEM project team assumes that a selected option will:

1) Align with the DEQ Agencywide IT Managers (DAITM) group's selection of ACES and CEM as the agency's highest priority application projects.
2) Be DEQ's primary repository for integrated information about those facility sites permitted and persons licensed, certified or otherwise registered as a regulated service provider.
3) Have a life-cycle of 5 years
4) Be compatible with the DEQ technical architecture
5) Be tightly integrated with the Agencywide Compliance and Enforcement System (ACES), which supports standardized compliance and enforcement business processes
6) Provide DEQ a standardized approach for the management of data on facilities and individuals actively regulated by DEQ.
7) Provide a consistent application for responding to information requests about DEQ"s interactions with regulated facilities and individuals when integrated with other databases.
8) Significantly reduce the herculean effort and improve consistency in responding to information requests.
9) Will significantly reduce the costs of developing future applications, which need to access and create and update data about those facilities and individuals regulated by DEQ.
10) Will provide primary benefits that are qualitative (accessibility and transparency of data) vs. quantitative (e.g. FTE savings)
11) Will honor schedule as its primary driver among the triple project constraints illustrated below due to ACES dependency on CEM to function effectively.

ACES Project Triple Constraints

1. **Scope** - expressly lays out the functions, features, data, content, etc. that will be included in the project at hand.
2. **Resources** - what needs to be applied or assigned to the project in terms of *money and effort* in order to make things happen.
3. **Schedule** - The amount of time required to complete each and every component of a project, which leads to an estimate of the duration of the project as well as what and how many/much resources need to be dedicated to that particular project.



The ACES Steering Committee decided that schedule should be the primary driver for ACES implementation. 18 months after the start of design or the execution of a contract was a key objective.

Selection Criteria and Alternatives Ranking

Important selection criteria for choosing among proposed alternatives are:

1. The degree to which proposed option supports the project objectives (see Goals and Objectives)
2. The degree to which the proposed option is able to meet Functional Requirements
3. The degree to which the proposed option is able to meet Technical Requirements
4. The degree to which the proposed option supports documented business processes.
5. The degree to which the proposed option can alleviate the problems and achieve opportunities (described above).
6. The degree to which the proposed option demonstrates sufficient quantitative and qualitative benefits.
7. The degree to which the proposed option has a level of risk which is acceptable to the agency
8. The degree to which the proposed option is within budgetary (staffing resources) of the agency.
9. The degree to which the proposed option, once initiated, can best meet the desired timeline of 18 months (design through implementation).

Solution Requirements

All alternatives must at a minimum be evaluated against a set of solution requirements that address the problem statement and meet the functional requirements of the proposed IT investment. This section should identify such items as:

- *High level functional requirements such as inputs, outputs, or specific functionality that describes what a technology solution should/must accomplish*
- *High level non-functional requirements such as quality, performance, fit within the technology environment (hardware, software, staff skills/expertise, etc.) of the agency, security or cost.*

Process Requirements

A key requirement is that DEQ will develop CEM predicated upon the existence of standardized and efficient business processes for the initial integration and operational management of CEM data.

Process – Data is a key organizational asset. In order to achieve its potential as an organizational asset, it must be effectively managed. The ability to join data meaningfully is the essence of data integration, which is of high quality and shares semantics and definitions by the different users of the data.

The CEM project team met in July 2011 for a 3 day process innovation workshop, and designed new processes at a high level, which depict the data integration work necessary to initially migrate and integrate data into CEM, and the ongoing operational processes needed to manage CEM data to maintain it at a high level of quality. The process map is contained in Appendix A. Process details and procedures will be developed by the Data Management Group under the direction of the Data Management Council (described below)

Data Governance and Management - Good data integration requires close collaboration between business units and IT. This calls for strong and ongoing executive commitment, a data governance group, a data governance work group and the technology to have a reasonable probability to succeed.

DEQ's CEM Steering Committee examined different approaches to data governance, and ultimately approved the formation of a CEM Data Governance Council (DGC). The DGC determine what data needs governance, define and assign responsibilities, and define scope to control integration efforts. This group creates and sustains a culture of data stewardship and data sharing throughout the agency. They create the vision, policy and business justification for data integration. The DGC approved their charter in September 2011.

The DGC approved a proposal to form a CEM Data Management Group (DMG). The DMG is multidisciplinary group with IT specialists as well as environmental program data stewards. They will be tasked to design and implement integration efforts and develop processes and practices to maintain and repair integrated data, as the designated support team to the Data Governance Council.

Functional Requirements

As a result of the process improvement efforts described above, and the need for enterprise-level data governance and management, CEM application has the following requirements.

The high level primary functional requirements of the ACES application are:

1. Data Migration and Integration – involves the mapping, migration and data management utilities and reports needed to integrate and monitor quality for data on facilities, individuals, geographic locations and environmental interests.
2. Direct data entry – includes a homepage for navigation
    - Data discovery and search functions
    - Code table maintenance
    - Primary data maintenance for facilities, entities (individuals and companies), geographic locations and environmental interests.
    - Secondary data maintenance for contacts, mailing addresses, geographic features, affiliations, environmental interests and notes.
3. Data Management and Business Intelligence functionality
    - Duplicate data management
    - Missing data management
    - User error reporting
    - Business intelligence and statistical reporting
    - Change velocity reporting (rate of changes to monitored record types)
    - Specialized data management functions to manage record attributes for facilities, entities, environmental interests and geographic locations. It would include:
        - Flagging a record as a duplicate
        - Setting security and publish permissions for the record
        - Setting a record to no longer accept ETL updates to manage data synchronization issues.
        - Managing record archival and retention schedules
        - Flag for EPA reporting

Technical Requirements

1. Architectural Compatibility – DEQ's primary database management system is Microsoft SQL Server. Primary development tools are Microsoft Visual Studio. (*See Appendix B for details.)* Architectural compatibility allows DEQ to better manage costs, reduce staff training in divergent skill sets, and manage, integrate and report information in a uniform technical environment.
2. Browser-based and web services based development – Browser based applications eliminates many of the technical configuration issues and maintenance costs encountered when installing "client" software on individual computers. A browser-based application, properly designed will position agency staff to operate more effectively using portable devices, such as notebooks, tablet PCs, etc.
3. Integration with the Agencywide Compliance and Enforcement System (ACES) – The CEM project seeks to integrate, govern and manage the data about the facilities and the individuals that are subject to environmental laws and regulations, permits, licenses and certifications administered by DEQ. ACES depends on the ability to access, create and update integrated facility information, so that it can link compliance and enforcement activities to them.

Alternatives Identification

Option 1 – Status Quo - No build of CEM and continued reliance on the several existing distributed applications that collect non-standardized data.

Option 2 – Procure IT Professional Services contractor – Develop the application through a contractual agreement with an IT software development firm. The scope of work would be defined by the analysis and process work done to date and be specified in detail in the procurement documents

Option 3 – Use DEQ development staff - Develop the CEM application with existing DEQ development staff.

Option 4 – Hybrid of Options 2 and 3 – Procure services to design and build the database, stored procedures, application business logic and user interface for retrieving and managing the CEM data, to develop query tools, and/or develop predefined reports according to DEQ specifications and design, where the opportunities and augmentations needed and required. The selection of deliverables chosen for internal staff would be off the critical path of development work assigned to a contractor

Alternatives Analysis

Option not evaluated

DEQ issued two Requests for Information (RFI) to learn more about the commercial offerings available to satisfy the ACES project requirements. The responses to the RFIs consisted of written responses as well as demonstration of products or solutions. The responses were evaluated by a team of DEQ managers. The COTS products were either not compatible with DEQ's technical architecture, would require extensive configuration, and may not align well with the leaner and standardized business processes that DEQ has developed. It was the judgment of the committee, which based on the information at hand, that Custom Developed Solution (CDS) would be the preferred option, if the Agency decided to procure a solution. Due to this decision, COTS products are not included in the options of this business case.

Option 1 – Status Quo

Cost

While items 1 is shown as a line item benefits (savings) in the alternative proposal, It is shown as a "Permanent State staff cost" that would continue under the status quo.

1. Cost of labor intensive effort required obtaining even the most basic data on complaints and compliance activities across programs or statewide, which do not use integrated CEM data.

   Assumptions and source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on needed information, which is assumed to be 5 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Cost increases by 2% per year for inflation.

2. Missed strategic opportunities – Without an integrated repository of CEM data, DEQ would be hard pressed to develop and implement an agencywide permitting module, or an integrated invoicing module.

3. DEQ will continue to maintain and upgrade (to keep pace with technology changes) a host of legacy program permitting applications. The pace of technology change and reduced program budgets will provide significant challenges to DEQ in future years. There are also multiple program invoicing applications, many standalone, others integrated into permitting applications, which pose the same maintenance and technical challenges. There is no easy way to get facility based Accounting information across programs due to program invoicing silos. – No cost estimate available.

Benefit

The benefits associated with this option are savings in staff time, because no new application would be developed. On the downside, the agency would not realize the benefits that are some of the primary drivers behind this project. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:
There are none.

Non-Financial:

1. The only real benefits are that it would allow DEQ to work on other business system needs (which have already been judged as lower-priority work) and it would allow DEQ to delay making a decision about this expenditure perhaps until better economic times. Program staff avoids the stress of having to change the way they execute their jobs.

2. Client staff workload would not be diverted from their primary job functions to participate in process change and system design, development and testing activities.

Risk

1. DEQ would be unable to easily answer questions where integrated data about those regulated are needed to properly respond to inquiries.

2. Not having a CEM application would severely impact the robustness of ACES, which is dependent on CEM data.

3. DEQ's public credibility, in a period where public access to information is expected, because the agency cannot produce timely and accurate information.
4. There would be continued operational inefficiencies in times of serious resource constraints. The data for these activities are kept in many distributed systems. There is much repetitive and inconsistent entry of the same data in many program silo applications.
5. DEQ would continue to be at a strategic disadvantage, as high quality integrated CEM data is a prerequisite for consolidating and streamlining other processes, such as permitting and invoicing.

Option 2 – Procure IT Professional Services

Cost

Estimated duration of this approach is 9 – 12 months.

1. Contractual costs – These cost are based on a range of estimates obtained in an RFI process.
2. Cost of system maintenance over life cycle – Used 60% of ISS6 over five years. Compared estimate with 2010 actual cost data on GHG Reporting, which is a much smaller application but architected similarly. However, given that this application is agencywide, greater than average maintenance will likely be required during the first few years as processes mature, and business rules are clarified.
3. Cost of internal staff and client team

   Assumptions and data source: Assumes that the activity would be spread over two fiscal years. Costs in year one are for procurement cost of solicitation and selection. Year two includes cost project management and client team participating in the project. Project manager was 40% dedicated, while technical development staff to oversee work was dedicated about 60%. Client team was estimated at 75% of the internal development cost estimated in project plan budget... Estimates were based classifications of those likely to be assigned work and estimated using budget formulation methods.

   .Audit

   Assumptions and data source: Assumes that 3rd party auditor would be used calculated at 4% of the contract cost.

Benefit

The benefits associated with this option are both real dollar savings in staff time and in increase services to the Agency. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:

1. Savings from the labor intensive effort to gather statewide data from nonintegrated distributed applications. This could be in response to either internal or external request/need for cross-program information.

   Assumptions and data source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on cost avoidance to produce needed information, which is conservatively assumed to be required monthly or 12 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Based on effort

estimates used classification costs in same manner used by agency in budget projections. Benefits are increased at 2% annually for inflation.

Non-Financial:

1. Improved services to internal and external stakeholders,
2. Ability to measure program effectiveness and performance improvements,
3. Implementing a new automated solution in place of multiple, aging, fragmented, and largely unmanaged applications
4. Aligns with current Agency software/server technology
5. Implements an integrated application of CEM data, predicated on leaner and standardized process is a high priority business strategy for the agency
6. Allows ACES to use integrated data to associate compliance and enforcement data.
7. Providing DEQ stakeholders with new capabilities, such as:
    a. Transparency - a single source of information for all regulated facilities and individuals
    b. Credibility - Consistent data entry by staff performing the work resulting in more accurate and timely data
8. Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
9. Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
10. Improved services to stakeholders, internal and external, by more streamlined, standardized process and data quality.
11. Provides a strategic information platform for future agencywide process consolidation efforts, such as permitting and invoicing.

Risk

1. Budgetary – The State and Agency are experiencing significant budget reductions. This project was not budgeted at the level needed for this procurement, so funds would need to come from programs already experiencing staff and service reductions.
2. Dependency on data governance framework and data management processes – As noted in the technical requirement, ACES depends on using integrated data about those regulated by DEQ. Sound governance and data management are critical success factors for the CEM project. As noted elsewhere, a CEM Data Governance Council has been chartered and a Data Management Group formed.
3. The CEM project should finish before ACES as ACES will use CEM user interfaces to manage and view data on regulated facilities.
4. Schedule – Use of outsourced professionals lowers the risk of on exceeding schedule delivery of projects. Professional IT service firms usually fully dedicate key staff to their clients' projects. Since application development is the primary focus of their business, they become more efficient in their development processes and tools. Agency development staff traditionally cannot be fully utilized due to administrative tasks, meetings, emails, etc, emergency maintenance where they are the subject matter experts and leave.

    However, the procurement process for professional IT services has a long history of taking 4 – 6

months to solicit and select a contractor. As ACES will use CEM screens and functions, this delay could jeopardize the ACES delivery commitment

Option 3 – Use DEQ Development Staff

Cost

Initial duration estimate of this approach is 16 – 21 months.

At the time of this writing the project manager, business systems development manager and key staff are examining options for critical path compression to finish 4 + months earlier. One approach may be to use resource augmentation, which is discussed as a subsequent option.

1. Costs of development staff and project manager assigned to project.
2. Cost of client team during the duration of the project

Assumptions and data source for 1 and 2: Assumes that the activity would be spread over two fiscal years with 1/3 during the first fiscal year and 2/3 during the second. Costs in year one include DEQ developers, project manager and client team participating in the project. Project manager was 40% dedicated, while technical development staff dedicated 60%. Tasks assigned to each member of the core client team were estimated at 15% utilization. Estimates were based classifications of those likely to be assigned work and estimated using budget formulation methods.

Estimates for internal development were derived through planning sessions with technical staff in developing a wok breakdown structure and two estimates for each task. After resources were assigned to tasks, DEQ's budget staff provided labor hour data, along with calculations needed to factor in leave allocation costs to the project.

3. Cost of system maintenance over life cycle

   Assumptions and data source: Used 60% of ISS6 over five years. Compared estimate with 2010 actual cost data on the GHG Reporting application, which is a much smaller application but architected similarly. However, given that this application is agencywide, greater than average maintenance will likely be required during the first few years as processes mature, and business rules are clarified.

4. Audit

   Assumptions and data source: Assumes that 3rd party auditor would be used calculated at 4% of the forecasted development cost.

Benefit

The benefits associated with this option are both real dollar savings in staff time and in increase services to the Agency. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:

1. Savings from the labor intensive effort to gather statewide data from nonintegrated distributed applications. This could be in response to either internal or external request/need for cross-program information.

   Assumptions and data source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on cost avoidance to produce needed information, which is

conservatively assumed to be required monthly or 12 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Based on effort estimates used classification costs in same manner used by agency in budget projections. Benefits are increased at 2% annually for inflation.

2. Development cost is primarily an opportunity cost, because staff resources are already budgeted. DEQ developers working on ACES could not be doing other development work. As funding was not specifically requested for this project, there'd be little to no cash outlays.

Non-Financial:

1. Improved services to internal and external stakeholders,
2. Ability to measure program effectiveness and performance improvements,
3. Implementing a new automated solution in place of multiple, aging, fragmented, and largely unmanaged applications
4. Aligns with current Agency software/server technology
5. Implements an integrate application of CEM data, predicated on leaner and standardized process is a high priority business strategy for the agency .
6. Allows ACES to use integrated data to associate compliance and enforcement data.
7. Providing DEQ stakeholders with new capabilities, such as:
    a. Transparency - a single source of information for all regulated facilities and individuals
    b. Credibility - Consistent data entry by staff performing the work resulting in more accurate and timely data
8. Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
9. Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
10. Improved services to stakeholders, internal and external, by more streamlined, standardized process and data quality.
11. Provides a strategic information platform for future agencywide process consolidation efforts, such as permitting and invoicing.

Risk

1. There may be some programs that would be unable/late in meeting an oversight reporting requirement needing automated support due to lack of agency resources to work on their projects.
2. Schedule risk – use of internal resources takes longer to deliver products due to administrative duties and emergency maintenance, which erodes resource availability. Also traditional leave use and furloughs would add to the expected project duration.
3. Higher client team costs – team would be engaged for a longer duration due to factors cited in previous bullet.

Option 4 – Hybrid of Options 2 & 3

This option would be used if:

1. DEQ could not provide the required staff assumed in the internal build option. Use of some resources from DAS Managed Service provider list would need to be considered. The most likely functional candidate for outsourcing would be GIS development.
2. CEM and ACES projects will execute in parallel, it is likely that 5 developers would be needed for the combined effort, which is half of the development staff in DEQ's BSD section. Given the 43% maintenance and enhancement time historically worked by development staff, it is likely that maintenance and enhancement efforts and new application development work would need to be significantly reduced. If DEQ was unable to significantly reduce both of these activities, use of contracted resources would be required.
3. Schedule compression in order to have CEM available for ACES could result in the need to augment agency resources.
4. Other options could be explored, such as increasing the schedule to spread the resource requirements over a longer period. This would require approval by the executive sponsor, who stated early on that schedule was the primary driver of the project.

Cost

1. Contracting cost would be lower than if complete project was outsourced

   Assumptions and data source: Costs to build a GIS component were estimated at $250,000.

2. Internal staff costs

   Assumptions and data source: because the use of augmented resources would decrease, the client team would be engaged for a shorter duration, so $20,000 was removed to account for that. The client team would still need to participate in design and testing, so no adjustments were made in those activities. Time saved by development staff for geographic functionality to a large extent would be used for procurement costs and contractor oversight, so no decrease were made for those costs.

3. Project Duration would be shortened by use of a contractor along with other critical path compression techniques, so that the completion of CEM would more closely coincide with the completion of ACES.

   Assumptions and data source: Outsourced was estimated at 12 months while internal development was estimated at 21 moths. Estimate for this option is 15 months. Some additional PM effort to coordinate efforts – due to level of coordination of internal and external staff, which was accounted for in item 2 above

4. Audit

   Assumptions and data source: Assumes that 3rd party auditor would be used calculated at 4% of the contract and internal development staff costs and excluded client cost charged to project.

Benefit

The benefits associated with this purchase are both real dollar savings in staff time and in increase services to the Agency. These are discussed within the appropriate sections and are listed here. The benefits include:

Financial:

1. Savings from the labor intensive effort to gather statewide complaints, warning letter and inspection data from distributed applications. This could be in response to either internal or external request/need for compliance and enforcement information.

Assumptions and data source: On average, DEQ executes 3 statewide queries per year, due to expense and unreliability of data. Benefit is based on cost avoidance to produce needed information, which is conservatively assumed to be required monthly or 12 times/year. Estimates are based on project sponsor experiences and first-hand knowledge of level of effort required for statewide reporting. Based on effort estimates used classification costs in same manner used by agency in budget projections. Benefits are increased at 2% annually for inflation.

2. Savings from efficient operations. Don't have multiple data entry into Complaints and NON applications.
3. Internal development cost is primarily an opportunity cost, because staff resources are already budgeted. DEQ developers working on ACES could not be doing other development work. As funding was not specifically requested for this project, there'd be little to no cash outlays.

Non-Financial:

1. Implementing a new automated solution in place of multiple, aging, fragmented, and largely unmanaged applications
2. Gaining a comprehensive compliance and enforcement solution, predicated on leaner and standardized process is a high priority business plan for the agency
3. High compliance and enforcement process alignment and support from development of ACES
4. Increases services to clients, internal and external, by including quality control data
5. Providing DEQ stakeholders with new capabilities, such as:
    a. Transparency - a single source for cross program compliance and enforcement information for all regulated facilities and individuals
    b. Credibility - Consistent data entry by staff performing the work resulting in more accurate and timely data
6. Enabling DEQ managers to make strategic and real-time decisions based on accessible data from across the agency
7. Significantly reducing the time and effort to respond to information requests and to improve data consistency while doing so.
8. May provide greater opportunities for technology transfer
9. Aligns with current Agency software/server technology

Risk

1. Contractual risk – if DEQ staff work ends up being on the critical path, the contractor would have grounds to forgo contractual agreement due to DEQ's failure to meet some contractual obligations, which would then become DEQ's risk.
2. Contractor/ DEQ disputes – Increased likelihood of differences of opinion in approach and work boundaries when splitting a project with a contractor. Would require extra vigilance in drafting contract, and selection of vendor who is receptive to collaborative development and has a successful track record of the same.

Alternatives Analysis Checklist

Does the Alternatives Analysis Section…

- ☐ Document the current state – how is work being performed today? How are manual and/or automated processes meeting and addressing agency or program requirements?
- ☐ Present assumptions and constraints that are credible, based on best available information, and solid rationale? Present assumptions that is not overly optimistic, pessimistic or biased?
- ☐ Clearly identify the alternatives to be compared? (e.g., Alternative 1, Alternative 2, and "Status Quo")
- ☐ Are solution criteria clearly defined – Such as the total cost of ownership, benefits and risks as well as the high level solution requirements?
- ☐ Do the identified alternatives meet the solution requirements?
- ☐ Explain which cost and which benefit items from each alternative will be estimated and analyzed?
- ☐ Provide enough information to determine whose costs and whose benefits will be analyzed, over which time period?
- ☐ Identify the major sources of data and other information for the business case?
- ☐ Identify relevant costs for the business case with a clear and comprehensive cost model (such as the cost model in the appendix)?
- ☐ Identify benefits to be analyzed in terms of tangible contributions to agency mission or goals? Or, identify benefits in terms of solutions to problems.
- ☐ Identify the important financial criteria, or financial metrics that will be analyzed for each alternative?

Conclusions and Recommendations

Conclusions

The Oregon Department of Environmental Quality views the Central Entity Management (CEM) project as a strategic imperative to integrate data about those facilities and individuals whom we regulate. The capability permits the agency to start to break away from doing business in "data silos" and provides opportunities for other agencywide processes and applications, such as permitting and invoicing to be developed and integrated with CEM.

DEQ has a legal and public obligation to disseminate compliance information in a timely manner to oversight groups such as the U.S. Environmental Protection Agency, legislative committees and the Oregon Environmental Quality Commission. Public interest groups, environmental groups and anyone filing public records requests also seek this information. DEQ program managers require summary and statistical information to manage staff activities and to develop future strategies and plans.

This data is housed in many program database "silo" and is extremely hard to retrieve and synthesize. The condition works against DEQ standards of high transparency and credibility. The CEM project would integrate key data, which aligns well with DEQ mission and key strategies.

DEQ has spent a year giving careful consideration to the need for integrated CEM data. It separated this functionality from the ACES project, due primarily to its strategic potential to support future process consolidation and streamlining efforts. Data Governance and management groups have been formed and chartered to support this effort. CEM has sponsorship and support at the executive levels of the agency.

DEQ executed two Requests for Information to understand and consider what may be commercially available. None of the Commercial Off-the-shelf software presented to the agency was considered desirable by an ACES RFI committee of agency managers.

Four options were analyzed: 1) do nothing, 2) outsource the application development, 3) build the application using internal resources, and 4) do a combination (hybrid) of options 2 and 3.

All options, except the first were judged to have pretty equal benefits. Option 3 was selected by the CEM Steering committee as the most desirable. It had the most favorable Net Cash flow $547,000 of options 2 – 4. All costs for personnel were budgeted, whereas DEQ would have to decrease budgets for other business activities to outsource. Project duration will need to be compressed a bit to coincide with the scheduled completion of ACES. Considering all the criteria for option selection, option 3 came out most favorably.

Recommendations

The CEM Steering committee, after reviewing and discussing the options, propose Option #3, the use of DEQ internal staff for development of a CEM system, is the recommended approach. Although outsourcing may reduce the schedule and provide a more robust solution, ultimately, the factors that resulted in this proposal were:

1. The DEQ budget constraints – there are no funds dedicated for contracting this effort. Contracting with these constraints would result in cuts in other areas.
2. The DEQ internal development staff has the technical skills to develop this application.
3. The DEQ Advisory IT Managers (DAITM) group agreed to reductions in other development and maintenance work in order to staff this project.
4. This proposal met all of the selection criteria outlined in the body of this business case.
5. It had the most favorable Net Cash flow $547,000. The CEM Steering Committee strongly believes that non-financial benefits of this project greatly outweigh the financial position of this proposal.

Consequences of Failure to Act

The consequences of no action are the continued inability to manage and report integrated data about the facilities and individuals regulated for internal and external stakeholders. DEQ's activities in the Compliance and Enforcement programs would continue to be "non-transparent", which would be harmful to the Agency's credibility in the eyes of many external stakeholders. The viability of the ACES application would be severely compromised. There are associated costs when asking staff statewide for different programs to gather and submit data, and cost of someone working to synthesize dissimilar data from multiple sources. The benefits from time and effort expended to define leaner and standard central entity data management processes would not be fully realized without automated support.

Conclusions and Recommendations Checklist

Does the Conclusions and Recommendations Section ....

- ☐ Compare alternative actions on the basis of contributions to business objectives, problems solved, financial outcomes, and risks?
- ☐ Identify the best choice alternative based on these factors?
- ☐ Provide practical recommendations and estimated costs and timeframes for implementing the proposed alternative?
- ☐ Provide practical recommendations that recognize risks that should be managed or watched, as well as opportunities that might be pursued.
- ☐ Clearly express the consequences of failure to act on the recommended alternative?

Complete Case Checklist

Checklist for the Completed Case

- ☐ Has the case clearly defined what the case is about, the purpose for the proposed solution, what business problems the proposed solution attempts to solve, and the scope of the proposal?
- ☐ Has the cash flow, the flow expenditures, and the intake of financial benefits been presented over a common time period for the case, for each alternative action considered (including the "status quo"/current state alternative).
- ☐ Are the assumptions and methods for assessing the proposal's impacts clearly defined, understandable, and acceptable? Do not forget risk impacts!
- ☐ Does the business case include the non-financial costs and benefits?
- ☐ Are the factors critical to the success of the proposal clearly defined?
- ☐ Are there critical success factors that can be managed? Is there a risk analysis that identifies and measures the relevant risks to the proposal?
- ☐ Are recommendations and conclusions based on a clear comparison of alternatives in terms of contributions to business objectives, problems solved, financial outcomes, and risks?
- ☐ Does the case clearly identify the estimated timeframes, costs, and implementation strategy required to successfully deliver the recommended solution?
- ☐ Does the case clearly express to consequences of failure to act on the recommended alternative?

Appendixes and References

Appendix A – Financial Model and Cash Flow Projections

Financial Model and Cash Flow Projections

Cash Flow Projections

Proposed Alternative Cash Flow Projections
Estimated cash inflows and outflows for the analysis period are as follows:

Proposed Alternative Cash Flow Table

OPTION 3: DEQ Build PROPOSAL CASH FLOW

$ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	155.0	158.1	161.3	164.5	167.8	806.6
Benefit item 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	155.0	158.1	161.3	164.5	167.8	806.6
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(292.8)	(585.7)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(1376.0)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (audit)	(17.6)	(17.7)	0.0	0.0	0.0	0.0	0.0	(35.3)
Total Costs	(310.4)	(603.4)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(1411.3)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	155.0	158.1	161.3	164.5	167.8	806.6
Costs	(310.4)	(603.4)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(1411.3)
NET CASH FLOW	**(310.4)**	**(603.4)**	**59.4**	**60.6**	**61.8**	**63.0**	**64.3**	**(604.7)**
Cumulative Net CF	(310.4)	(913.8)	(854.4)	(793.8)	(732.0)	(668.9)	(604.7)	(604.7)
Discounted Cash Flow								**NPV**
At 0.0%	(310.4)	(603.4)	59.4	60.6	61.8	63.0	64.3	(604.7)

OPTION 2: OUTSOURCE PROPOSAL CASH FLOW

$ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(10.0)	(487.6)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(995.1)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	0.0	(1500.0)	0.0	0.0	0.0	0.0	0.0	(1500.0)
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (audit)	0.0	(60.0)	0.0	0.0	0.0	0.0	0.0	(60.0)
Total Costs	(10.0)	(2047.6)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(2555.1)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Costs	(10.0)	(2047.6)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(2555.1)
NET CASH FLOW	**(10.0)**	**(2047.6)**	**62.8**	**64.1**	**65.3**	**66.7**	**68.0**	**(1730.8)**
Cumulative Net CF	(10.0)	(2057.6)	(1994.8)	(1930.7)	(1865.4)	(1798.7)	(1730.8)	(1730.8)
Discounted Cash Flow								**NPV**
At 0.0%	(10.0)	(2047.6)	62.8	64.1	65.3	66.7	68.0	(1730.8)

OPTION 4: Hybrid of Options 2 & 3 PROPOSAL CASH FLOW

$ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(292.8)	(574.6)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(1364.9)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	0.0	(250.0)	0.0	0.0	0.0	0.0	0.0	(250.0)
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (audit)	(22.3)	(22.3)	0.0	0.0	0.0	0.0	0.0	(44.6)
Total Costs	(315.1)	(846.9)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(1659.6)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Costs	(315.1)	(846.9)	(95.6)	(97.5)	(99.5)	(101.5)	(103.5)	(1659.6)
NET CASH FLOW	**(315.1)**	**(846.9)**	**62.8**	**64.1**	**65.3**	**66.7**	**68.0**	**(835.2)**
Cumulative Net CF	(315.1)	(1162.0)	(1099.2)	(1035.2)	(969.8)	(903.2)	(835.2)	(835.2)
Discounted Cash Flow								**NPV**
At 0.0%	(315.1)	(846.9)	62.8	64.1	65.3	66.7	68.0	(835.2)

Baseline Data for Current State Table

CURRENT STATE (BASELINE) CASH FLOW

$ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff	(155.0)	(158.1)	(161.3)	(164.5)	(167.8)	(171.1)	(174.6)	(1152.3)
State Temp Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Staff	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Costs	(155.0)	(158.1)	(161.3)	(164.5)	(167.8)	(171.1)	(174.6)	(1152.3)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Costs	(155.0)	(158.1)	(161.3)	(164.5)	(167.8)	(171.1)	(174.6)	(1152.3)
NET CASH FLOW	**(155.0)**	**(158.1)**	**(161.3)**	**(164.5)**	**(167.8)**	**(171.1)**	**(174.6)**	**(1152.3)**
Cumulative Net CF	(155.0)	(313.1)	(474.4)	(638.8)	(806.6)	(977.8)	(1152.3)	(1152.3)
Discounted Cash Flow								**NPV**
At 0.0%	(155.0)	(158.1)	(161.3)	(164.5)	(167.8)	(171.1)	(174.6)	(1152.3)

Proposed Alternative Incremental Cash Flow Table

INCREMENTAL CASH FLOW 2

All figures represent (Option #3: DEQ Build) - (Current State Value) $ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1.....	0.0	0.0	155.0	158.1	161.3	164.5	167.8	806.6
Benefit item 2.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	155.0	158.1	161.3	164.5	167.8	806.6
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff.....	(137.8)	(427.6)	65.7	67.0	68.3	69.7	71.1	(223.7)
State Temp Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other.....	(17.6)	(17.7)	0.0	0.0	0.0	0.0	0.0	(35.3)
Total Costs	(155.4)	(445.3)	65.7	67.0	68.3	69.7	71.1	(259.0)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains.....	0.0	0.0	155.0	158.1	161.3	164.5	167.8	806.6
Costs.....	(155.4)	(445.3)	65.7	67.0	68.3	69.7	71.1	(259.0)
NET CASH FLOW	**(155.4)**	**(445.3)**	**220.7**	**225.1**	**229.6**	**234.2**	**238.9**	**547.7**
Cumulative Net CF.....	(155.4)	(600.7)	(380.0)	(154.9)	74.6	308.8	547.7	547.7
Discounted Cash Flow								**NPV**
At 0.0%.....	(155.4)	(445.3)	220.7	225.1	229.6	234.2	238.9	547.7

Incremental Cash Flow Alternative 2 Table

PROPOSED ALTERNATIVE INCREMENTAL CASH FLOW
All figures represent (Option #2: Outsource) - (Current State Value) $ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff.....	145.0	(329.5)	65.7	67.0	68.3	69.7	71.1	157.2
State Temp Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation....	0.0	(1500.0)	0.0	0.0	0.0	0.0	0.0	(1500.0)
Operational Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other.....	0.0	(60.0)	0.0	0.0	0.0	0.0	0.0	(60.0)
Total Costs	145.0	(1889.5)	65.7	67.0	68.3	69.7	71.1	(1402.8)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Costs.....	145.0	(1889.5)	65.7	67.0	68.3	69.7	71.1	(1402.8)
NET CASH FLOW	**145.0**	**(1889.5)**	**224.1**	**228.5**	**233.1**	**237.8**	**242.5**	**(578.4)**
Cumulative Net CF.....	145.0	(1744.5)	(1520.4)	(1291.9)	(1058.8)	(821.0)	(578.4)	(578.4)
Discounted Cash Flow								**NPV**
At 0.0%.....	145.0	(1889.5)	224.1	228.5	233.1	237.8	242.5	(578.4)

Incremental Cash Flow Alternative 3 Table

PROPOSED ALTERNATIVE INCREMENTAL CASH FLOW
All figures represent (Option #4: Hybrid - (Current State Value) $ in 1000s

Discount rate — Discount rate 0.0%

$ in 1000s	Year ending... Jun 30 2012	Jun 30 2013	Jun 30 2014	Jun 30 2015	Jun 30 2016	Jun 30 2017	Jun 30 2018	TOTAL
BENEFITS / GAINS								
Benefit item 1.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Benefit item 2.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 3.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Benefit item 4.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Benefits/Gains	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
COST ITEMS inflows (outflows)								
Personal Services Costs (Salaries & Benefits)								
State Perm Staff.....	(137.8)	(416.5)	65.7	67.0	68.3	69.7	71.1	(212.6)
State Temp Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State LD Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Services & Supplies/Capital Outlay Costs								
State Data Center Costs								
Consulting Services.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hosting.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Storage.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Network.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Software Costs								
SW Purchase/Upgrade.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SW License Maintenance.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Costs								
Hardware Purchase/Upgrade...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hardware Ongoing Maint.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT Professional Services								
Project Dev/Implementation....	0.0	(250.0)	0.0	0.0	0.0	0.0	0.0	(250.0)
Operational Staff.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Operational Augmentation.....	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other.....	(22.3)	(22.3)	0.0	0.0	0.0	0.0	0.0	(44.6)
Total Costs	(160.1)	(688.8)	65.7	67.0	68.3	69.7	71.1	(507.2)
CASH FLOW SUMMARY inflows (outflows)								
Cash inflows (outflows)								
Benefits and Gains.....	0.0	0.0	158.4	161.6	164.8	168.1	171.5	824.4
Costs.....	(160.1)	(688.8)	65.7	67.0	68.3	69.7	71.1	(507.2)
NET CASH FLOW	**(160.1)**	**(688.8)**	**224.1**	**228.5**	**233.1**	**237.8**	**242.5**	**317.1**
Cumulative Net CF.....	(160.1)	(848.9)	(624.9)	(396.3)	(163.2)	74.6	317.1	317.1
Discounted Cash Flow								**NPV**
At 0.0%.....	(160.1)	(688.8)	224.1	228.5	233.1	237.8	242.5	317.1

Financial Metrics Summary Tables

	#3: DEQ Build Proposal	#2: Outsource Alt Proposal	Current State	Incr Proposal	Incr Alt Prop
Net Cash Flow	($604.7)	($1,730.8)	($1,152.3)	$547.7	($578.4)
NPV at 0.0%	($604.7)	($1,730.8)	($1,152.3)	$547.7	($578.4)
Total Benefits	$806.6	$824.4	$0.0	$806.6	$824.4
Total Costs	($1,411.3)	($2,555.1)	($1,152.3)	($259.0)	($1,402.8)

	#3: DEQ Build Proposal	#4: Hybrid Alt Proposal	Current State	Incr Proposal	Incr Alt Prop
Net Cash Flow	($604.7)	($835.2)	($1,152.3)	$547.7	$317.1
NPV at 0.0%	($604.7)	($835.2)	($1,152.3)	$547.7	$317.1
Total Benefits	$806.6	$824.4	$0.0	$806.6	$824.4
Total Costs	($1,411.3)	($1,659.6)	($1,152.3)	($259.0)	($507.2)

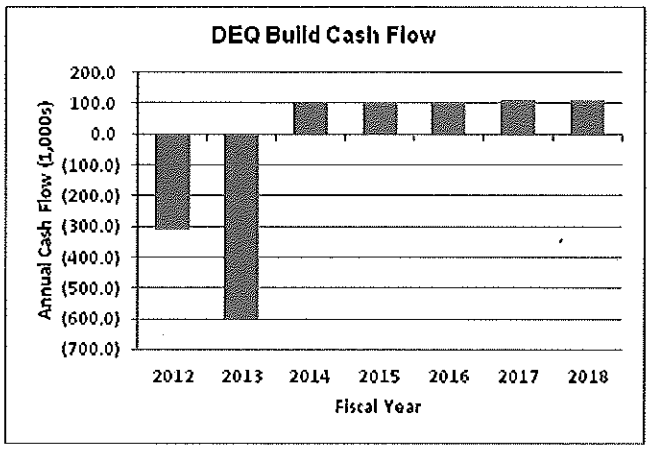
$ in $1,000s
Numbers in parenthesis are negative numbers

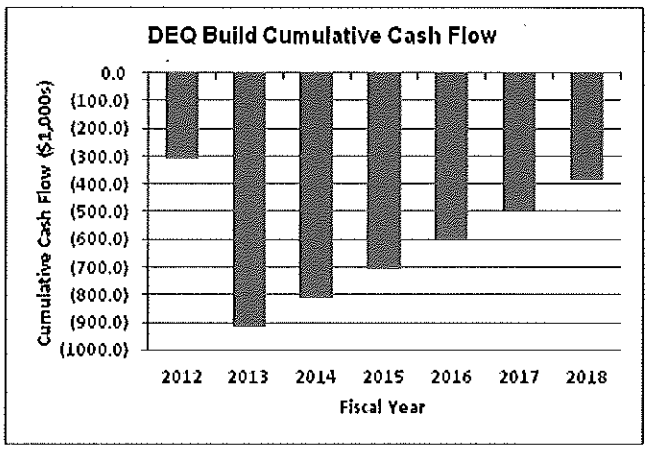
Cash Flow Graphs – Net Cash Flow

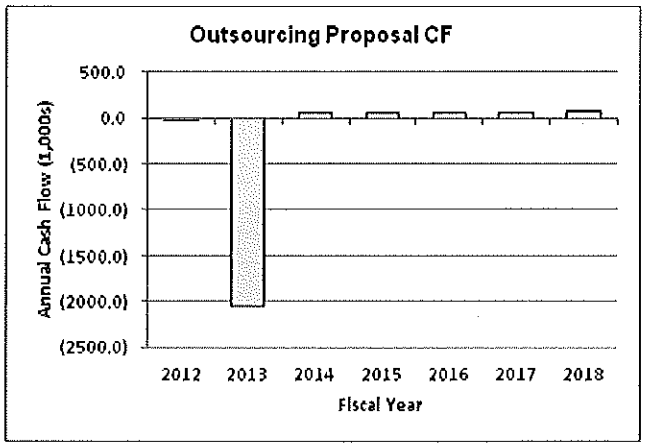
The "Bottom line" or net cash flow results for each alternative scenario in the business case are summarized in graphical form, on both an annual basis (upper left) and a cumulative basis over the years (upper right).

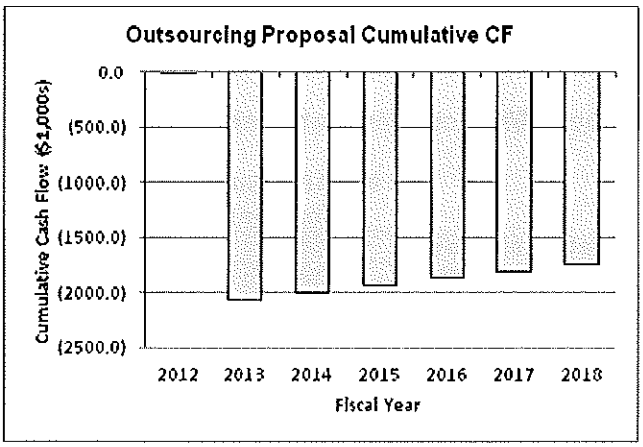
Also, the incremental cash flow projections (the difference between proposal and business as usual) are Illustrated on an annual basis (lower left) and cumulative basis over the years (lower right).

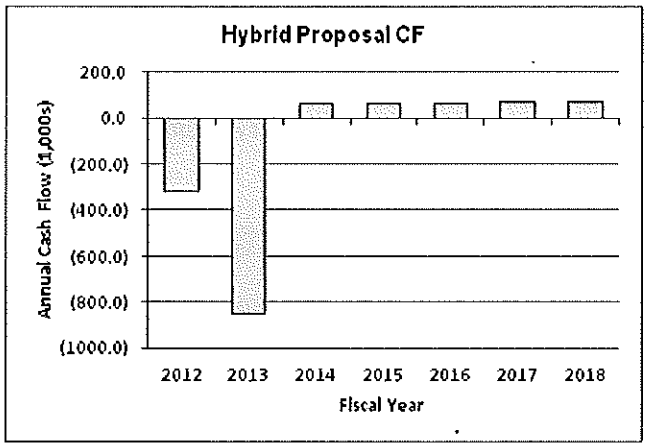
Note that these graphs are automatically created based on the data that is entered into the excel cash flow tables. The resulting graphs can be pasted into the business case here to replace the example graphs.

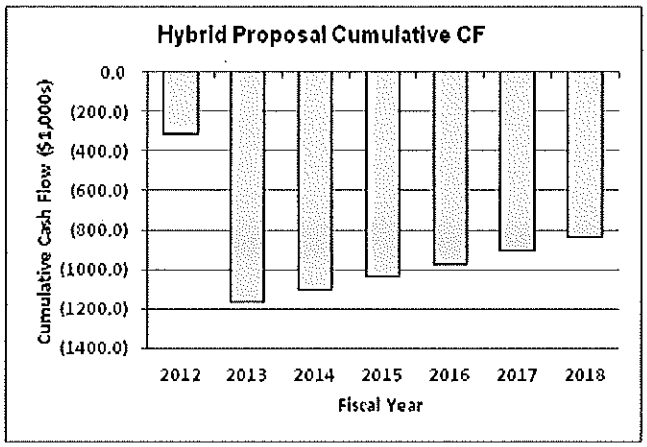


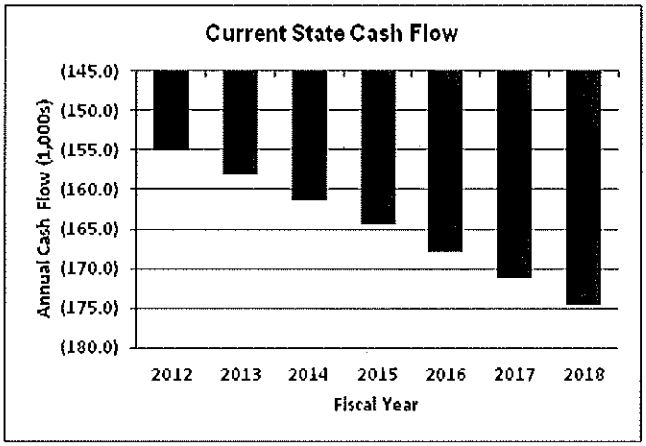


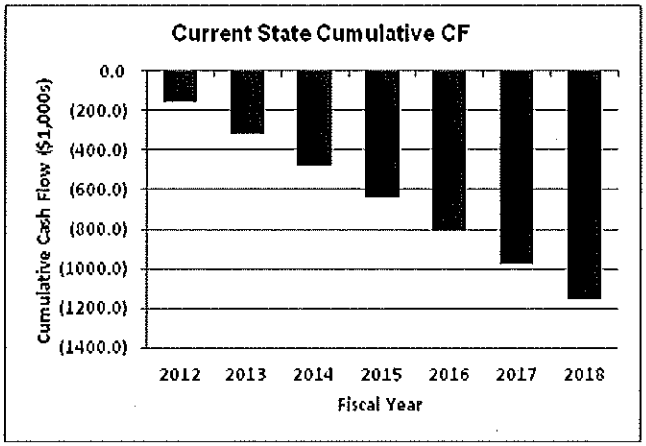

Outsourcing Proposal CF
Annual Cash Flow (1,000s)
500.0
0.0
(500.0)
(1000.0)
(1500.0)
(2000.0)
(2500.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Outsourcing Proposal Cumulative CF
Cumulative Cash Flow ($1,000s)
0.0
(500.0)
(1000.0)
(1500.0)
(2000.0)
(2500.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Hybrid Proposal CF
Annual Cash Flow (1,000s)
200.0
0.0
(200.0)
(400.0)
(600.0)
(800.0)
(1000.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Hybrid Proposal Cumulative CF
Cumulative Cash Flow ($1,000s)
0.0
(200.0)
(400.0)
(600.0)
(800.0)
(1000.0)
(1200.0)
(1400.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Current State Cash Flow
Annual Cash Flow (1,000s)
(145.0)
(150.0)
(155.0)
(160.0)
(165.0)
(170.0)
(175.0)
(180.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year


Current State Cumulative CF
Cumulative Cash Flow ($1,000s)
0.0
(200.0)
(400.0)
(600.0)
(800.0)
(1000.0)
(1200.0)
(1400.0)
2012
2013
2014
2015
2016
2017
2018
Fiscal Year

Cost Model Analysis (Total Cost of Ownership)

PROPOSAL SCENARIO COSTS - Build
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	($878.5)	($497.5)	($1,376.0)	97.5%
Services & Supplies & Capital Outlay	State Data Center	:	$0.0	$0.0	0.0%
	Software	$0.0	$0.0	$0.0	0.0%
	Hardware	$0.0	$0.0	$0.0	0.0%
	IT Professional Services	($35.3)	$0.0	($35.3)	2.5%
	Total	($913.8)	($497.5)	($1,411.3)	
	%	64.7%	35.3%		100.0%

ALTERNATE PROPOSAL SCENARIO COSTS - Outsource
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	($497.6)	($497.5)	($995.1)	38.9%
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0%
	Software	$0.0	$0.0	$0.0	0.0%
	Hardware	$0.0	$0.0	$0.0	0.0%
	IT Professional Services	($1,560.0)	$0.0	($1,560.0)	61.1%
	Total	($2,057.6)	($497.5)	($2,555.1)	
	%	80.5%	19.5%		100.0%

ALTERNATE PROPOSAL SCENARIO COSTS - Hybrid
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits	($867.4)	($497.5)	($1,364.9)	82.2%
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0%
	Software	$0.0	$0.0	$0.0	0.0%
	Hardware	$0.0	$0.0	$0.0	0.0%
	IT Professional Services	($294.6)	$0.0	($294.6)	17.8%
	Total	($1,162.0)	($497.5)	($1,659.6)	
	%	70.0%	30.0%		100.0%

CURRENT STATE (BASELINE) SCENARIO COSTS
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total	%
Personal Services	Salaries & Benefits		($1,152.3)	($1,152.3)	1.0
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0	0.0
	Software	$0.0	$0.0	$0.0	0.0
	Hardware	$0.0	$0.0	$0.0	0.0
	IT Professional Services	$0.0	$0.0	$0.0	0.0
	Total	$0.0	($1,152.3)	($1,152.3)	
	%	0.0	1.0		100.0%

Incremental Proposal Costs (Build - current state)

INCREMENTAL PROPOSAL COSTS (Build - current state)
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total
Personal Services	Salaries & Benefits	($565.4)	$341.7	($223.7)
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0
	Software	$0.0	$0.0	$0.0
	Hardware	$0.0	$0.0	$0.0
	IT Professional Services	($35.3)	$0.0	($35.3)
	Total	($600.7)	$341.7	($259.0)

INCREMENTAL ALTERNATE PROPOSAL COSTS (Outsource - current state)
Totals include FY 2012 through FY 2018
$ in 1,000s

Positive numbers are **savings**
Negative numbers in () are **net costs**

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total
Personal Services	Salaries & Benefits	($184.5)	$341.7	$157.2
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0
	Software	$0.0	$0.0	$0.0
	Hardware	$0.0	$0.0	$0.0
	IT Professional Services	($1,560.0)	$0.0	($1,560.0)
	Total	($1,744.5)	$341.7	($1,402.8)

INCREMENTAL ALTERNATE PROPOSAL COSTS (Hybrid- current state) Positive numbers are **savings**
Totals include FY 2012 through FY 2018 Negative numbers in () are **net costs**
$ in 1,000s

		Project and Implementation	Operations, Maintenance, Ongoing Support	Total
Personal Services	Salaries & Benefits	($554.3)	$341.7	($212.6)
Services & Supplies & Capital Outlay	State Data Center		$0.0	$0.0
	Software	$0.0	$0.0	$0.0
	Hardware	$0.0	$0.0	$0.0
	IT Professional Services	($294.6)	$0.0	($294.6)
	Total	($848.9)	$341.7	($507.2)

Non Financial Business Results

BENEFITS TABLE: Benefits Identification:

Benefit Categories	*Possible Examples*
Process Improvements	
✓ Staff Utilization	o Synthesizing data across programs for permitting or compliance is very labor intensive, and with results that often cannot be replicated. Given the increased work demand that most agency staff encounter, the absence of this data gathering will allow them to perform other program and administrative functions. o Managers will be able to run reports from CEM to use for in understanding agencywide engagement with one or more facilities or individuals. This may aid agency managers in making more efficient use of staff when on matters such as inspections and permitting.
✓ Streamlined process	o DEQ will develop CEM predicated upon the existence of standardized and efficient business processes for the initial integration and operational management of CEM data. o DEQ has charter a Data Governance Council and a Data Management Group, which will allow enterprise level development and execution of policy concerning integrated data assets. o CEM in conjunction with ACES will allow staff to know how a facility is complying in all the agency's environmental programs, a capability they've never had.
✓ Reduced processing time	o Rather than taking two weeks to gather rudimentary data from many different systems, an integrated CEM is scoped to have querying and reporting capabilities that will take minutes to execute. o CEM will facilitate DEQ transparency in compliance and enforcement activities. The agency will be able to respond efficiently and effective to requests by the legislature, US EPA, the news media, environmental groups and the general public
✓ Achieved Policy	o Citizens receive better quality & timely services. Quicker response to

Objectives	requests for compliance and enforcement information.
✓ More stable IT environment	o CEM will be developed in current MS Visual Studio browser-based technology. This will result in fewer help desk calls to problems with client computers. o CEM and ACES are being developed with an object-oriented architecture, which will facilitate reuse and extension of base layer objects and lower the costs of future applications using the same architecture
New or Enhanced Service	
✓ New or improved service	o A browser-based application will facilitate future use of mobile computing devices to access and enter data in the field. o This architecture will position DEQ to put queries and reports from ACES on the Agency website, giving external stakeholder better access to agency data.
✓ Access to information	o CEM intends to post reports/queries online so the public can have better access to DEQ integrated facility data.
Public/Stakeholder Satisfaction	
✓ Legislative or regulatory compliance	o More adaptable to law changes
✓ More timely information	o More effective decision making ability backed by accurate information Managers will have access to comprehensive and quality data to allow them to better plan program activities and staff utilization. See *Staff Utilization* and *Reduced Processing Time.*
Strategic Alignment	
✓ Directly supports State, Agency Missions or business plans	o Aligns with Governor Kitzhaber's position that Oregon's budget shortfall represents an opportunity to change and improve the way the state does business. o CEM data will allow DEQ to continually make progress on strategy of delivering outstanding public service by making such integrated data available.

Cost and Benefit Analysis Checklist

Does the Cost and Benefit Analysis Section ....

- ☐ Present a cash flow summary table (spreadsheet) for each alternative action (Proposed Alternative, Alternative 2, 3... and Current State)?
- ☐ Present a total cost of ownership summary analysis for each considered alternative and an incremental TCO comparing each alternative with the current state/"status quo"?
- ☐ Present an incremental cash flow summary comparing each considered alternative to the current state/"status quo"?
- ☐ Use the incremental cash flow statement to identify and measure expected cost savings, avoided costs, or cost increases under the proposal (compared to the current state/"status quo")?
- ☐ Present cash flow estimates for costs and benefits that are based on reasonable and known assumptions (either from the Assumptions and Methods Section, or An Appendix to this document)?
- ☐ Use the same cash flow structure for all considered alternatives?
- ☐ Compare all alternatives with respect to contributions to state and/or agency goals and objectives? Look for and measure non financial benefits in all considered alternatives?
- ☐ Identify non financial benefits in tangible terms (including key performance indicators?)
- ☐ Provide evidence that each non financial benefit is important to the agency and to stakeholders?
- ☐ Explain how each alternative aligns with and supports state and/or agency strategic/business plans

- Explain how each alternative aligns with and support the Governor's goals, priorities and initiatives, the 2007-11 Enterprise Information Resources Management Strategy, and other IT-related statewide plans, initiatives, goals and objectives.

Risk and Mitigations

The CEM project has a risk plan since June 2011, during the project requirements phase. Every month, the Executive sponsor, program sponsor, the applications development manager and project manager will review and revise the list of our top 10 risks. Risks are described using a Likert-type scale, and possible causes and triggers identified. Each risk is assigned an owner and mitigating strategies and actions are defined. The risk plan being discussed at a May 17 meeting is shown on the following pages.

(Note: Font color conventions: **Black** = preexisting text, Red = new content for discussion, Blue = discussion outcomes from risk meeting.)

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
Risk Category: Mission and Goals										
4	Work Flow	little or no change to work flow	will change some aspect or have small affect on work flow	significantly changes the work flow or method of organization	- Data Governance is new to DEQ - Data steward process for "corporate" data is a new paradigm - Need to develop process to manage CEM data, since it is an ongoing data integration effort.	I P			- Ernie drafted Governance proposal for CEM Steering committee, ✓ - CEM steering committee adopting governance model.✓ - High level process at CEM Process Innovation Workshop on CEM data mgmt. process scheduled for 7/12 - 14..✓ - Approve CEM DGC charter. Speed up throughput by using email and voting buttons (EW) - Recruit WQ DGC Rep. (JJ) - Recruit CEM Data Mgmt Group after DGM proposal written and reviewed by DGC. (KN)	Judy
Risk Category: Program Management										
8a	Process Owner	Business process ownership is assigned to person knowledgeable of business processes and authority to ensure process adoption.	Business process ownership assigned to specific individual. Knowledge and/or authority constrains effectiveness	Business process ownership is distributed. Lack of consensus and local variations hamper effectiveness	- As CEM vision is refined, process ownership and governance don't have strong commitment. - CEM is key success factor for ACES -MSD commitment to CEM not very visible. - MSD is process owner, but ownership has not been assigned to a position/person?	P I			- Kerri agreed to be CEM executive sponsor and Judy is program sponsor ✓ - Raise awareness and support of EMT and agency of importance of integrated CEM data. Joni to discuss w/ Kerri and EMT.✓ CEM steering Committee to discuss data governance to form a CEM data Governance Council ✓ - Recruit CEM DGC chair, who will own business process and application. (KN)	Kerri
Risk Category: Organization Management										

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
20	Project Objectives	verifiable project objectives, reasonable requirements	some project objectives, measures may be questionable	no established project objectives or objectives are not measurable	-SMART objectives give firm dates and may limit options. Duration is sufficiently quantifiable- Achievability of objectives is uncertain- discussion of project objectives w/ CEM steering committee was perfunctory; stakeholders may need further discussion	-				
Risk Category: Customer/User										
22	User Experience	users highly experienced in similar projects; have specific ideas of how needs can be met	users have experience with similar projects and have needs in mind	users have no previous experience with similar projects; unsure of how needs can be met	- only prior major data integration project is facility profiler, which is overly reliant on technology and weak on process. - CEM development team, though engaged may rely on CEM Data Mgmt Group to define rules for data mgmt.	P I				
Risk Category: Project Parameters										
26	Project Size	small, non-complex, or easily decomposed	medium, moderate complexity, decomposable	large, highly complex, or not decomposable	- CEM has very high strategic potential. Risk of scope creep beyond what is needed for ACES support.				-Need to reiterate intended CEM functionality implied in charter document. Ernie to make talking points for Joni. ✓ - Monitor requirements closely so they align w/ ACES needs.	Ernie

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
31	Budget Constraints	funds allocated without constraints	some questions about availability of funds	allocation in doubt or subject to change without notice	- DEQ budget continues to shrink, constraining project options.- No budget feedback on what agency can afford. Preliminary estimates exist.		PI		- Work w/ Budget section for ability to procure or contract vs. opportunity costs (staff times)- RFI may provide cost ranges for outsourcing.✓- Ernie to write Business Case, including getting estimates for internal development	
33	Delivery Commitment	stable commitment dates	some uncertain commitments	unstable, fluctuating commitments	- ACES steering committee wants CEM and ACES completed in 24 months. - Until requirements are well understood (@ Sept) delivery commitment will be imprecise.	P I			- Work closely with ACES team to identify what work can be done in conjunction with CEM work, but minimize risk of rework. - Develop project design & build plan after requirements and software architecture written and approved.	Ernie
Risk Category: Product Content										
35	Requirements Stability	little or no change expected to approved set (baseline)	some change expected against approved set	rapidly changing or no agreed-upon baseline	- CEM governance and data mgmt. process definition could generate unanticipated governance, process requirements. - Requirements review could lead to "scope creep".				- - Use Change Management process - Work closely w/ sponsor &team to keep requirements aligned with ACES needs. - Refine requirements for Essential data (done at 8/2 wksp) ✓	Ernie

ID	Risk Factors	Low Risk Cues	Medium Risk Cues	High Risk Cues	Probable Causes	High	Medium	Low	Mitigation/Prevention Actions	Risk Owner
40	System Dependencies	clearly defined dependencies of the software effort and other parts of system (hardware, process changes, documentation, ...)	some elements of the system are well understood and planned; others are not yet comprehended	no clear plan or schedule for how the whole system will come together	- CEM relies on ETL (extract, transform & load) from several systems to populate CEM. DB changes to source system will break ETL process.- CEM will have some key interfaces with ACES.	PI			- Need to identify first several systems to be ETL'd to CEM, and criteria for deciding.	Ernie
Risk Category: Development Process										
47	Alternatives Analysis	analysis of alternatives complete, all considered, assumptions verifiable	analysis of alternatives complete, some assumptions questionable or alternatives not fully considered	analysis not completed, not all alternatives considered, or assumptions faulty	- Viablility of business case options unknown				- Develop business case w/ options	Ernie

Business/Organizational Risks

For the purpose of external reviewers, additional information is included below, which did not appear in the project risk management plan

Consider the effects and magnitude of the alternative to existing business architecture. Impacts may include the need to:

1. *modify/optimize/eliminate existing processes and procedures*
   See "Process Requirements" page 15.
2. *introduce new processes and procedures*
   See page 15, and Risk plan, items 4 and 8a
3. *integrate processes and procedures within or across business units*
   Covered in 1 and 2
4. *Perform analysis; develop a plan or strategy*
   Analysis and implications for CEM requirements have been ongoing for over six months.
5. *Interrupt service or modify organizational structure*
   Key processes covered by the scope of CEM have been analyzed, improved, documented prior to CEM application analysis. A CEM Data Governance Council and CEM Data Management Group has been established and are functioning to support the enterprise needs of the agency by managing and ensuring high quality of these important data assets.. Risk is judged to be low.

Also, the agency should consider risks associated with the:

6. *Level of executive and staff support for the change being proposed*
   The CEM project is championed by Kerri Nelson, Management Services Division administrator. The Steering Committee is composed of line and senior managers. The Executive Management Team gets regular status updates on the staff for the application client team and data management group were carefully selected by the steering committee to represent programs and regional offices as well as individual track records of accomplishment. Risk is judged to be low.
7. *Agency's demonstrated ability to manage projects of this size and complexity.*
   The project manager assigned to this project has been managing internal and outsourced application development projects at DEQ for nearly 20 years, obtained his PMP certification in 2000. He managed the TRAACS project, which was named Project of the Year in 2008 by the Portland Chapter of the Project Management Institute. Risk is judged to be low.
8. *Skills and experience available to implement this approach.*
   Both the agency PM and technical staff have the skills and experience to implement the internal build and outsourcing approach. A hybrid, where staff and contractors worked jointly on the sample application would be more challenging to coordinate, but is very achievable with prudent planning and contractual measures. Risk is judged to be low.
9. *Agency's ability to manage internal and external (contractor) staff.*
   Answered in #7 above. Risk is judged to be low.
10. *Number of users impacted.*
    ACES training will impact these same users will include proper use of CEM, since ACES will be

integrated with CEM. Many agency staff and managers will benefit from the integrated information the application will produce. External stakeholder will benefit from CEM as well. The US Environmental Protection Agency, DEQ's Environmental Quality Commission, the Oregon legislature, OR Dept. of Justice, land management agencies, news media, environmental interest groups, permit holders, and the public are some of the potential beneficiaries.

11. *Level of training that might be required*
    Training on the use of the application is estimated to be two hours for those staff who actively manage data associated with ACES, which will be integrated with CEM.. In addition to some in person training at some offices, the training will be put on i-Learn. There is a data management group, who'll get additional training on providing access and permissions, maintaining code tables, and monitoring and managing issues with the system. Risk is judged to be low.

12. *Length of time the agency has to complete the project or implement this alternative.*
    Project objectives show 18 months after the start of design to implementation. The ACES project will depend on the completion of CEM to function properly. As mentioned previously, some schedule compression to shave about 4 months duration is desirable to complete simultaneously with ACES. Risk is judged to be moderate.

Technical Risks

Consider the information technology implications for this alternative. Impacts may include the need to:

1. *Develop new or modify/enhance/replace existing systems (hardware/software/applications).*
   Although a new application will be developed, it'll use agency standard Visual Studio tools, which have been in use for a number of years. No additional hardware is anticipated.

2. *Integrate systems within or across business units, agencies, or jurisdictions.*
   As noted in Business Risks #12, there is a dependency by ACES on the CEM project. This project has established a Data Governance Council and Data Management Group to set and execute enterprise policies and practices. Both groups are newly established This Central Entity Management system will be used agency wide, a move away from program and data silos. Risk is judged to be moderate.

3. *Perform technical analysis, develop implementation plans or strategies*
   The DEQ PM and technical staff are experienced in these activities. DEQ's Organizational Improvement expert, who has facilitated several successful Lean Kaizen events, is working closely with the CEM Data Management Group to develop detailed operational and quality processes needed for the sound management of CEM data. Risk is judged to be low.

4. *Modify transaction volumes or hours of system operation, maintenance and support.*
   Not applicable

5. *Develop new or modify established service level agreements*
   Not applicable

Also, the agency should consider risks associated with the:

6. *Track record and stability of the system or technology being considered*
   Visual Studio has met agency expectations and has been in use for 9 years. The same conclusions are valid for SQL Server, the agency's DBMS. Risk is judged to be low.

7. *Scope, size and complexity associated with implementing the alternative being considered*
   The scope and size of CEM is not large. The data management processes will be new, which is

why the agency has been supportive of the formation and use of the Data Governance Council and Data Management Group. With the exception of the "Do nothing" option, scope and size are constant.

8. *Technical staff skills and experience implementing the specific technology platform and tools being considered*
   The staff being considered for this effort have a solid knowledge of the Visual Studio development tools, which have been in use at DEQ for 9 years. Risk is judged to be low.
9. *Level of system configuration or customization being considered*
   DEQ is planning to have a "Custom Developed Solution. COTS applications reviewed during the RFI process were judged to be unsatisfactory.
10. *Roles and responsibilities of internal and contractor staff on the project*
    With an internal build or an outsourced solution, the agency is experienced in communicating and monitoring roles and responsibilities. For these two options, risk is judged to be low. If a hybrid solution is picked where both contractor and agency staff are jointly developing an application, careful selection of tasks and associated responsibilities will be necessary to avoid confusion and conflict. Under this scenario, risk is judged to be moderate.

Risks and Contingencies Checklist

Does the Risks and Contingencies Section ....

- ☐ Identify all the known business, organizational, and technical risks?
- ☐ Describe the likelihood (probability) of the risk and the consequences (impacts) of its occurrence, in financial terms and in terms of impact on project delivery?
- ☐ Describe which risk factors that can be managed or controlled to some degree, and describe the target level risk mitigation that must be achieved?
- ☐ Describe which risk factors cannot be managed or controlled, but which must be watched or monitored during implementation and operation, because they could have costly consequences or other negative impacts?
- ☐ Present a strategy and specific guidance for mitigating risks with each scenario?
- ☐ High level risk assessment for all alternatives.... A more detailed assessment should be performed for the recommended alternative

Appendix B – DEQ Technical Architecture

Network Overview:

DEQ internally maintains its core server environment at DEQ's Headquarters in Portland. This includes file, email, print, database and application servers. The regional offices all have their own file and print servers locally on site. DEQ interfaces with State of Oregon's Technology Support Center when we have network problems or when there is a problem accessing one of the business systems

Network Environment	
Feature	**Current**
Server Hardware	Rack mount HP ProLiant Servers, HP Blade System
Workstation Hardware	HP/Compaq – various models
Server OS	Windows 2003 on SQL and IIS Servers, Network and File Servers 2008 R2
Authentication/Authorization	Active Directory 2008 R2
Workstation OS	MS Windows XP Pro SP3. *We will be deploying Windows 7 on new systems starting December 2010.
Backups	Symantec Backup Exec 11
Web Server	IIS 6.0 (internal sites)
	Interwoven TeamSite – state hosted
Remote Access	Cisco AnyConnect VPN Client v2.4.0202
Protocols	TCP/IP (32 bit)
PC Tools	MS Access 2007
	MS Excel 2007
	MS Word 2007
	MS Outlook 2007
	MS PowerPoint 2007
	MS Internet Explorer v 7.0
	MS Expression Web
Database	MS SQL Server Professional 2005 SP2 *We will be migrating to MS SQL Server 2008 R2 by December 2010
Enterprise Desktop Management	MS SCCM 2007
Email	MS Exchange Server 2003/MS Exchange Server 2010 in spring 2011
Central Scheduling	Argent Job Scheduler v 7
Collaboration	MS Sharepoint Services 2007 MS Moss 2007 *We will be migrating to MS Sharepoint Server 2010 in Spring 2011
GIS Server	ESRI ArcGIS Server 9.3.1 ESRI ArcIMS 9.2 ESRI ArcSDE 9.2
SmartPhone	Blackberry Enterprise Server 5 SP2 Blackberry 8350i

Network Bandwidth	
Office Location	**Speed**
Portland - Headquarters	50 MB
Hillsboro - Laboratory	10 MB
Northwest Region Offices	
Portland	10 MB
Gresham	10 MB

Network Bandwidth	
Office Location	**Speed**
Warrenton	1.5 MB
Tillamook	1 MB
Western Region Offices	
Eugene	10 MB
Salem	1.5 MB
Grants Pass	2 MB
Coos Bay	2 MB
Medford	2 MB
Eastern Region Offices	
Hermiston	2 MB
The Dalles	1.5 MB
Pendleton	3 MB
Bend	1.5 MB

DEQ has internally built applications for business and program functionality. We interface with centrally hosted state systems for entering data and downloading information for internal systems. Accounting, Payroll, HR and Web all interface with State systems.
DEQ is in the process of migrating from our legacy Oracle/Sequent environment. Details of this environment are not included as the migration is near completion.

Application Environment	
Feature	**Current**
Development	Visual Studio .net 2008, 2010
Tools	Component one Studio for .net (minimal web components)
	Crystal Reports v9.2, v11.2 (*legacy applications only*)
	SQL Reporting Services 2008
Development Language	VB.Net
Source Control	Visual Source Safe 6.0
Issue Management	Issue Tracker (internally developed ASP.Net application)
Project Management	MS Project and others

State of Oregon **Information Resource Request**

PROJECT NAME	Central Entity Management System (CEM)		
AGENCY	Oregon Department of Environmental Quality	DATE	3/19/12
DIVISION	Management Services Division (MSD)	DAS Control #	07-186
AGENCY CONTACT	Ernie Weber, PMP	PHONE NUMBER	503-229-6765

SERVICES SUMMARY	PROJECT COST SUMMARY *(Including development and operating costs)*
☐ System Design Programming ☐ Planning and Project Management ☐ Project Review ☐ LAN Consulting ☐ Education and Training ☐ Maintenance ☐ Other _____	Hardware $ _____ Software $ _____ Services $ $497,500 (5 yr operations) Other $ $913,800 (DEQ internal analysts, client team, audit) TOTAL $ $1,411,300
Agency Business Owner date 3-22-12	Agency Technology Manager 3-21-12 date

ATTACHMENTS ☐ Statement of Work ☒ Business Case Analysis ☐ Feasibility Study
☐ Strategic Plan ☐ Other _____

DAS COMMENTS:

See attached (Page 5).

Analyst 4/26/12 date	State CIO (or designee) 4/30/12 date

NOTE: Guidelines for completing this form are contained in the DAS/Information Technology Investment Review/Approval Policy

PROJECT NAME	Central Entity Management System (CEM)		
AGENCY	Oregon Department of Environmental Quality	DATE	3/19/12
DIVISION	Management Services Division (MSD)	DAS Control #	07-180
AGENCY CONTACT	Ernie Weber, PMP	PHONE NUMBER	503-229-6765

PROBLEM STATEMENT ***(Identify problem, opportunity, or mandate [legislative, Federal, etc.]. Include summary statement of business process(es) and stakeholders affected.)***

The Oregon Department of Environmental Quality selected the Central Entity Management (CEM) project as a strategic project, which seeks to integrate key enterprise data. A driver behind this project is DEQ's inability to adequately manage and access comprehensive information on facilities and individuals that DEQ permits, certifies or otherwise has a regulatory interest. This data is stored in many different automated forms (for example, databases and spreadsheets), is geographically dispersed, and formatted inconsistently. This type of data storage is ineffective for aggregating and synthesizing information and is time consuming, resource intensive and lacks quality assurance and control.

DEQ has a legal and public obligation to disseminate information in a timely manner to oversight interests such as the U.S. Environmental Protection Agency, legislative committees and the Oregon Environmental Quality Commission. Other individuals filing public records requests including public interest and environmental organizations also seek this information. DEQ program managers require summary and statistical information to assess the effectiveness of their programs, to manage staff activities and plan and budget for the future.

Goal: Establish and improve the governance and management of DEQ's data on regulated facility-sites and entities and individuals that have a significant relationship to them.

Objective 1: Data Governance – examine alternatives and choose an appropriate Data Governance model for the agency.

Objective 2: Process Definition and Improvement – develop standardized processes for integration and management of CEM data, and staff positions needed to refine and execute these processes.

Objective 3: Data Management Application – develop and approve a business case and project plans for the development of a CEM Application.

Objective 4: Improve Operations Quality and Efficiency – The data management and quality assurance standards and processes developed during this project will become an ongoing operational function. The Agencywide Compliance and Enforcement System will be integrated with CEM to improve efficiency of managing CEM data.

(Refer to CEM Business Case, Executive Summary, pp. 5-6)

AGENCY ANALYSIS ***(Identify alternatives considered and significant reasons for the alternative chosen. Include summary of agency analysis related to cost/benefit, feasibility, risk assessment, impacts on current environment, and other relevant business factors.)***

(Refer to CEM Business Case, Executive Summary, pp.7-9)

PROJECT SUMMARY ***(Provide summary narrative of the current project. Include summary statement of work, community/stakeholder impact, enterprise implications and opportunities, and alignment with the*** State of Oregon Enterprise Information Technology Strategy ***and published enterprise architecture and standards.)***

(Refer to CEM Business Case, Executive Summary, pp.9-11 and 15-17)

Does this project conform to program and information technology related statutes, administrative rules, executive orders, and statewide policies? ☒ Yes ☐ No ☐ Don't Know

If not, please provide justification: _____

BUDGET IMPACT (Provide summary narrative of the budget and resource implications of this project, as well as its relevance to the core mission of the agency.)

All work will be performed by existing DEQ staff, except audit costs, if required, estimated at $35,300.

FUNDING SOURCE ☒ General Funds ☒ Federal Funds ☐ Lottery Funds ☒ Other Funds

If Other Funds, please identify source _____

CONTRACT SUMMARY *(attach statement of work from procurement document)*

☐ Personal Services ☐ Goods ☐ Trade Services ☐ PO/CRO/Task Order

Contract Amount _____ End Date _____ Amendment # _____

HARDWARE SUMMARY		HOST-BASED SOFTWARE	
☐ Mainframe	☐ Personal Computers	☐ System	_____
☐ Midrange Server	☐ _____	☐ LAN/WAN	_____
☐ Server	☐ _____	☐ Development	_____
☐ File/Print	☐ _____	☐ DBMS	_____
☐ Application	☐ _____	☐ Application	_____
☐ Web	☐ _____	☐ Other	_____

IRR COMPLETION PROCESS

1. At the commencement of an information technology-related project, agency prepares form, business case and any supporting documentation required.

2. Agency obtains Agency Business Owner and Agency Technology Manager signatures or e-mail approvals.

3. Agency sends IRR, business case and any supporting documentation to:

   Department of Administrative Services
   Enterprise Information Strategy and Policy Division
   955 Center Street NE (Rm. 470)
   Salem, OR 97301

   or by e-mail to: IT_Investment.Review@das.state.or.us

4. DAS will review and provide analysis related to completeness of the IRR and business case based on the context of the Information Technology Review/Approval Policy and potential enterprise applications and impact on enterprise programs.

5. If form is complete, IRR and accompanying analysis is forwarded to the State CIO for approval
   OR
   If form is not complete, documentation is returned to Agency with explanation.

6. After documentation is approved, the IRR is returned to the Agency with DAS Control Number.

7. Agency forwards approved IRR with procurement documents to Dept. of Justice and DAS State Procurement Office

Total Project Cost or Purchase Price:	Agency-Provided Supporting Documentation	Approval required
≥ $150,000	• Conform with Information Technology Investment Review/Approval Policy • Information Resource Request • Business Case • Any additional supporting documentation	State CIO
NOTE:	• Some projects may require Independent Quality Assurance Reviews as per the Technology Investment Strategy Development And Quality Assurance Reviews Policy Circumstances may include the following: Those projects that are required by legislative action or executive mandate to have independent reviews, and information technology projects that meet three of the following criteria, shall provide for an independent quality assurance review. ▪ The system, application or infrastructure affected by the project is considered mission critical by the affected agency or DAS. ▪ The project schedule exceeds one year in duration. ▪ The project scope includes changes or enhancements to systems, applications or infrastructure managed or maintained by more than one state agency or government entity. ▪ The complexity of the project is deemed medium or higher using the Department of Human Services, Business and Technical Assessment (Exhibit A) or similar tool that has been approved by DAS. ▪ The total project costs are estimated to be greater that $1,000,000.	State CIO

DAS Comments

DEQ plans to expend $1.41 Million to establish and improve governance and management of agency data in the DEQ enterprise. The budget is primarily for contracted professional services ($498K) and for DEQ internal resources ($914K). DEQ management considers this a "Strategic" project.

This IRR is supported by a Business Case (v1.2) dated 2/9/2012 and is authored by Ernie Weber of DEQ. The Business Case has been approved by DEQ Deputy Director, Program Sponsor, and the agency's CIO.

I found that the Project has performed an appropriate level of due diligence and planning for a project of this size, complexity and magnitude. I recommend State CIO approval of this IRR with the following conditions:

- DEQ to manage this project using good project management practice.
- The project to use the services of an independent QA contractor, with a QA SOW that is pre-approved by DAS EISPD. QA reports are to be submitted to DAS EISPD on at least a quarterly basis.
- DEQ to submit a closing report to DAS EISPD upon project completion and system has been placed in production use.

Analysis prepared by,

Ying Ki Kwong

April 26, 2012