Performance Audit

Contractor Oversight
in Oracle Implementation

March 2007

City Auditor's Office

City of Atlanta

File #06.10

Why We Did This Audit

The Audit Committee directed us to expand work we were already conducting on the Oracle system implementation to review the city's oversight of contractors working on the implementation. The committee was concerned about schedule delays and increasing costs. Because the new system is integral to the city's plans to strengthen management controls and capacity for financial and performance reporting, delays in implementation pose a significant risk.

What We Recommend

Our recommendations are intended to strengthen the current implementation and are applicable for future projects. The ERP Steering Committee should:

- Develop a process for evaluating when changes to the software are necessary.
- Clearly identify roles and responsibilities for project participants.
- Develop a clear statement of work for the program director with performance measures.
- Require the quality assurance team and the program director to report directly to the Steering Committee.

In order to ensure that competitive procurement requirements are met, we also recommend that the chief procurement officer:

- Restrict the city's use of federal or state contracts for procuring professional services. These contracts should be used only for purchasing commodities and equipment.

For more information regarding this report, please contact Gerald Schaefer at 404.330.6876 or gschaefer@atlantaga.gov.

Performance Audit:

Contractor Oversight in Oracle Implementation

What We Found

The city was slow to make decisions and communicate requirements for the new system, which hampered its ability to oversee the work of contractors. The city's goal was to revise processes without changes to the software code. But because some processes are shaped by law or long-standing tradition, this goal set an unrealistic expectation. The city's broad outcome goals, while reasonable, did not provide enough guidance to support specific decisions.

Lack of clear roles and requirements made it difficult for the contractors to fulfill their obligations and for city staff to assess the contractors' work:

- The steering committee didn't establish a framework for making and communicating decisions;
- Steering committee members had different understandings of the committee's responsibilities;
- Project team leaders had different understandings of their responsibilities and authority for making decisions;
- The program director had no clear scope of work or performance expectations.

The city initially selected IBM to work with city staff and the program director to implement the system. The program director reported that the first phase of the implementation – assessing requirements and identifying ways to streamline practices – was completed in October 2005. This work should have provided sufficient detail to design the system. IBM and city staff began work to configure the system, but the city ended its contract with IBM in January 2006 for convenience and entered into negotiation with Oracle Consulting in February 2006.

Although city staff had approved all of IBM's work through phase I and subsequent termination of the contract, Oracle determined that city requirements weren't detailed enough to configure the software – requiring at least an additional 6 months and $9 million to complete the implementation. While the program director attributed Oracle's findings primarily to differences in the vendors' methodologies, the city's proposed scope of work to complete the project did not accurately reflect progress on the project. We believe Oracle likely would have requested more funding up front if it had.

Management Responses to Audit Recommendations

Summary of Management Responses

Recommendation:	1. Develop a process for evaluating when changes to the software functionality are necessary. Having a formal process that takes into account the costs and benefits of any changes will help the steering committee to decide whether the changes are actually necessary. The process will also explain to future users and city officials why the city made those adjustments.

Department:	Steering Committee	**Agree**
Response & Proposed Action:	The existing process will be modified to include an evaluation section for IV&V to conduct an independent evaluation of the Change Request of Financial Benefits and Cost (currently a section on the PCR). In additional the GAP Analysis Document will be attached to each Change Request to outline the Resolution Strategy "why the change is necessary" (currently a section on the GAP Analysis Document). We will refine the existing process for generating change request to add an independent evaluation of the requests by IV & V.	
Timeframe:	March 2007	

Recommendation:	2. Roles and responsibilities for the project should be clearly identified. The use of a project charter and progress measures tied to the expected outcomes of the project are objective means of establishing accountability that can be relied on by all of the participants.

Department:	Steering Committee	**Agree:**
Response & Proposed Action:	The project does not have a document titled "project charter", however, the Steering Committee reviewed and approved the project Kick Off, which included all of the information and commitments contained in a Project Charter document including various roles and responsibilities, business case, critical success factors, and commitment statement. We will update the project chart information.	
Timeframe:	March 30, 2007	

Recommendation:	3. Develop a clear statement of work for the program director with performance measures. The program director has an important role. The cost, complexity, and impact that the project will have on the city's future require a high level of accountability. The city should have a contract with a statement of work that defines how the program director's performance will be evaluated.

Department:	Steering Committee	**Agree:**
Response & Proposed Action: Timeframe:	The newly approved contract with the PMO establishes a Statement of Work and deliverables. Already implemented	

Recommendation:	4. Require direct reporting and accountability from the quality assurance team and the program director. The program director and quality assurance team should be vital sources of information to the steering committee for overseeing the project. Reporting directly to the committee allows all of the members' equal access and provides a single source of direction to the program director and quality assurance team.

Department:	Steering Committee	**Agree:**
Response & Proposed Action: Timeframe:	Action was initiated on November 2006 and has continued regularly. IV & V is attending the Steering Committee meetings and their reports are part of the Committee's agenda. Already implemented	

Recommendation:	5. Prohibit the use of federal or state contracts for procuring professional services. These contracts should be used only for purchasing commodities and equipment.

Department:	Procurement	**Agree:**
Response & Proposed Action: Timeframe:	Agree. Immediately	

CITY OF ATLANTA

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March 26, 2007

Honorable Mayor and Members of the City Council:

We conducted this audit at the direction of the Audit Committee. The committee asked us to expand the scope of work we were already conducting on the ERP system implementation to review the city's oversight of contractors working on the project. The committee was concerned about delays and increasing cost. The original project budget was $22 million with a planned go-live date of January 1, 2007. The budget now totals $31 million and the current schedule for launch is July 2007.

Our recommendations are intended to strengthen oversight of the project going forward and are applicable for governance of future projects. The Steering Committee agrees with our recommendations. We also recommended that the chief procurement officer restrict the city's use of state and federal contracts for procuring professional services because such agreements are more appropriate for purchasing commodities and equipment. The chief procurement officer agreed with the recommendation.

The Audit Committee has reviewed this report and is releasing it in accordance with Article 2, Chapter 6 of the City Charter. We appreciate the courtesy and cooperation of city staff and contractors throughout the audit. The team for this project was Eric Palmer and Gerald Schaefer.

Leslie Ward
City Auditor

Fred Williams
Audit Committee Chair

Contractor Oversight in Oracle Implementation

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List of Exhibits

Introduction

We conducted this audit pursuant to Chapter 6 of the Atlanta City Charter, which establishes the City of Atlanta Audit Committee and the City Auditor's Office, and outlines the City Auditor's Office primary duties. The Audit Committee directed us to expand work we were already conducting on the ERP system implementation to review the city's oversight of contractors working on the implementation. The committee was concerned about schedule delays and increasing costs. Because the new system is integral to the city's plans to strengthen management controls and capacity for financial and performance reporting, delays in implementation pose a significant risk.

A performance audit is an objective, systematic examination of evidence to independently assess the performance of an organization, program, activity, or function. The purpose of a performance audit is to provide information to improve public accountability and facilitate decision-making. Performance audits encompass a wide variety of objectives, including those related to assessing program effectiveness and results; economy and efficiency; internal control; compliance with legal or other requirements; and objectives related to providing prospective analyses, guidance, or summary information.[1]

This audit is a part of a series of reports and memos we've released on the ERP system implementation. In November 2005, we reported on proposed processes and controls prior to implementation of the system. We have also issued memos at key points in the implementation with recommendations on process changes and system controls.
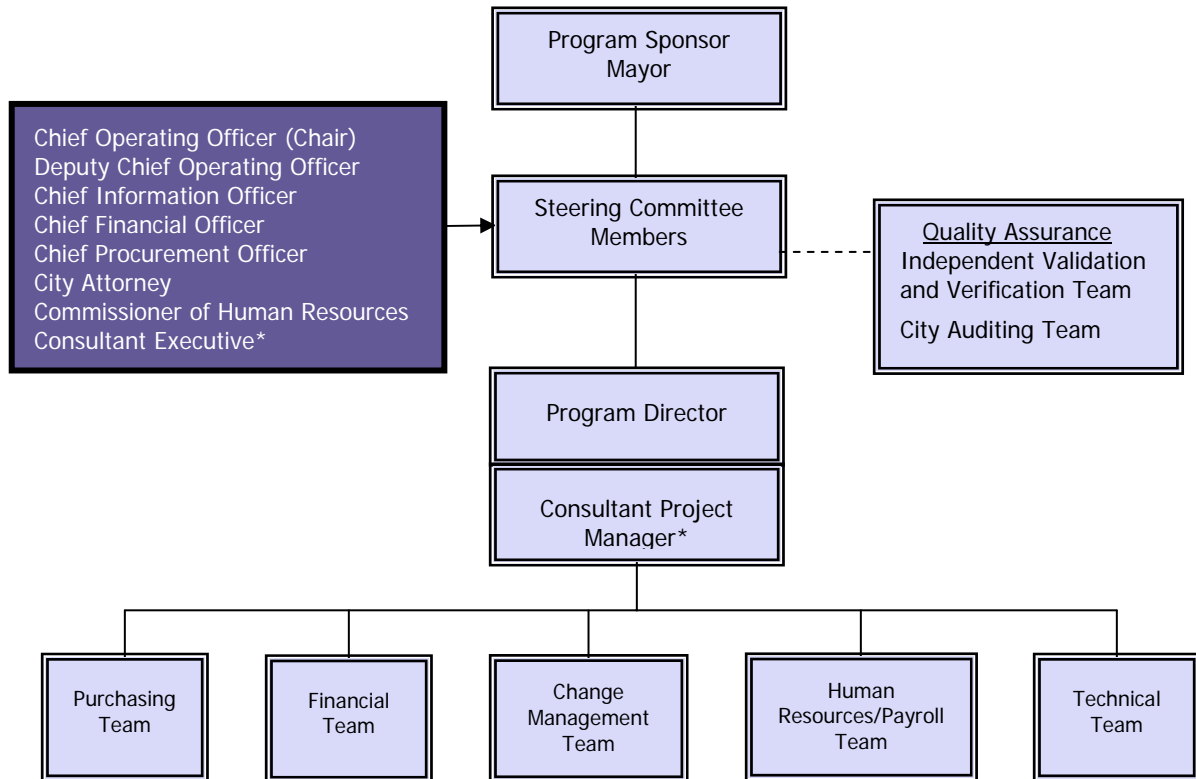
Background

An Enterprise Resource Planning (ERP) system integrates financial, personnel, and other information into a single computer system that is intended to streamline processes and make information easier to

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[1] Comptroller General of the United States, *Government Auditing Standards,* Washington, DC: U.S. Government Accountability Office, 2003, p. 21.

access and share among departments. Currently, the city uses several computer systems that are organized around departments and rely heavily on manual processes and controls. An ERP system, in contrast, is organized around business processes using a single system to record a transaction from beginning to end. The city is implementing Oracle eBusiness Suite (Public Sector) version 11i and will include financial, procurement, and human resource functions.

Exhibit 1 shows the organizational structure for the implementation project. The ERP Steering Committee, comprising senior management, is responsible for overseeing the implementation on behalf of the mayor. The implementation team includes city staff knowledgeable about the processes being automated and technical consultants. The city also hired a firm to provide ongoing review and quality assurance for the project (referred to as the independent validation and verification team).

EXHIBIT 1

ERP PROGRAM ORGANIZATIONAL STRUCTURE

Program Sponsor
Mayor

Chief Operating Officer (Chair)
Deputy Chief Operating Officer
Chief Information Officer
Chief Financial Officer
Chief Procurement Officer
City Attorney
Commissioner of Human Resources
Consultant Executive*

Steering Committee Members

Quality Assurance
Independent Validation and Verification Team

City Auditing Team

Program Director

Consultant Project Manager*

Purchasing Team

Financial Team

Change Management Team

Human Resources/Payroll Team

Technical Team

* IBM was the consultant from April 2005 to January 2006, followed by Oracle Consulting.

Source: *City Auditor's Office, Pre-Implementation Review of the ERP System, November 2005*
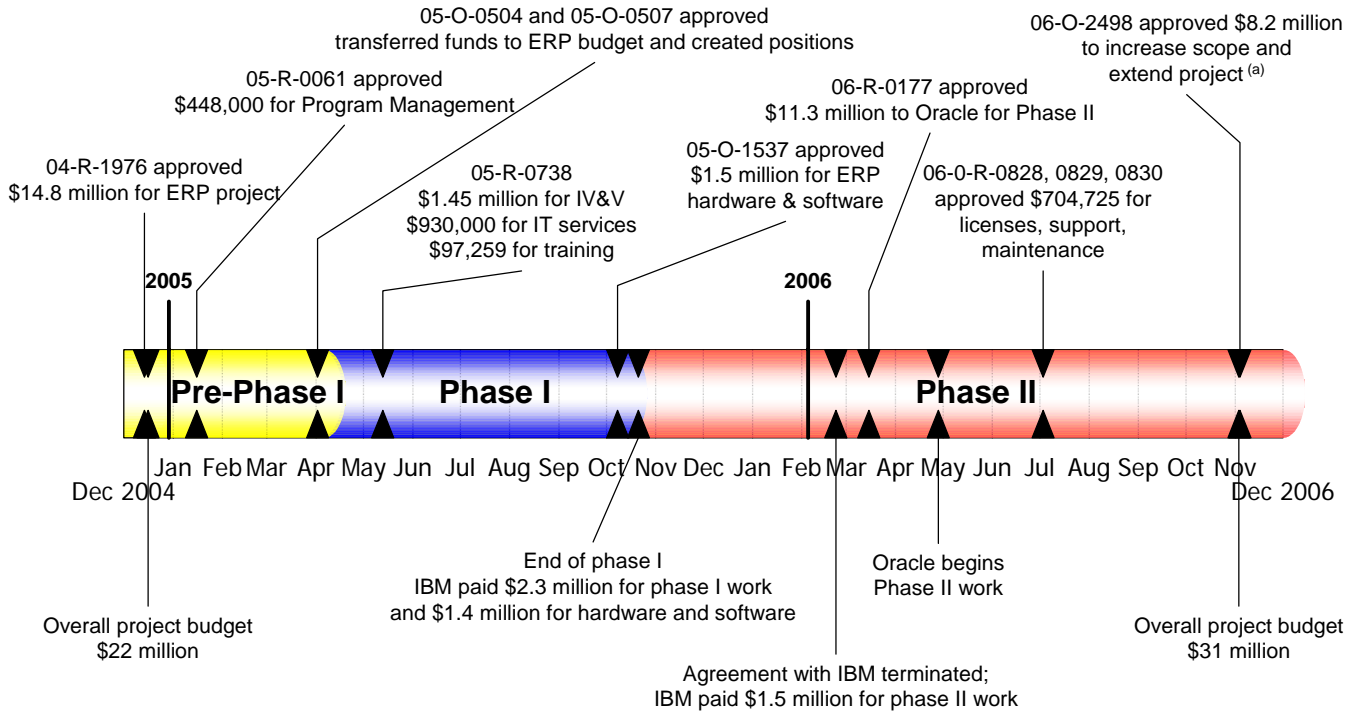
The ERP system was scheduled to be implemented in two phases, beginning in April 2005. The first phase was to review and revise the current business processes to be used with the system. The second phase was to build and test the system and train city staff on how to use it. The original budget for the project was $22 million, which included about $2.3 million in salaries for existing city staff who would be working on the project. The city planned a completion or "go-live" date of October 16, 2006, for the financial and procurement modules and January 1, 2007, for the HR/payroll modules.

The city hired a consultant to serve as program director in February 2005 and selected IBM in December 2004 to work with the city staff and program director to implement the system. The program director reported that the first phase of the implementation – assessing requirements and identifying ways to streamline practices – was completed in October 2005. IBM and city staff began work on the second phase to configure the system. However, the city ended its contract with IBM in January 2006 for convenience.

The city entered into negotiation with Oracle Consulting in February 2006. The program director prepared a scope of work to complete the system implementation. As part of the agreement to finalize the contract, Oracle conducted a 30-day assessment of work completed prior to its involvement compared to the stated scope of work. Following its assessment, Oracle reported that many of the documents that should have been completed in the first part of the implementation were incomplete or did not exist and requested additional money in its contract to complete the implementation.

The steering committee approved a change request to the project in September 2006 for $4.6 million. In November 2006, the city council approved increasing the appropriations for the ERP project by $8.2 million and extending the final completion date. The budget now totals $31 million and the current schedule for launch is July 2007. Exhibit 2 shows a timeline of milestones, legislation, and growth in cost for the project from December 2004 through November 2006.

EXHIBIT 2

MILESTONES AND EXPENDITURES

05-O-0504 and 05-O-0507 approved
transferred funds to ERP budget and created positions

06-O-2498 approved $8.2 million
to increase scope and
extend project [a]

05-R-0061 approved
$448,000 for Program Management

06-R-0177 approved
$11.3 million to Oracle for Phase II

04-R-1976 approved
$14.8 million for ERP project

05-R-0738
$1.45 million for IV&V
$930,000 for IT services
$97,259 for training

05-O-1537 approved
$1.5 million for ERP
hardware & software

06-0-R-0828, 0829, 0830
approved $704,725 for
licenses, support,
maintenance

2005

2006

| Pre-Phase I | Phase I | Phase II |

Dec 2004 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2006

End of phase I
IBM paid $2.3 million for phase I work
and $1.4 million for hardware and software

Oracle begins
Phase II work

Overall project budget
$22 million

Overall project budget
$31 million

Agreement with IBM terminated;
IBM paid $1.5 million for phase II work

[a] Several pieces of legislation were passed in November 2006: 06-O-2237 extended ERP positions to July 31, 2007, 06-O-2238 amended the contract with Oracle, 06-O-2239 amended the contract with Comsys, and 06-O-2240 amended the contract with Tescom. The costs of these amendments are included in 06-O-2498.

Audit Objectives

We designed this audit to answer the following questions:

- Is the city providing sufficient oversight of contractors' work on the implementation?

- Are the quality assurance processes for the implementation working effectively?

Scope and Methodology

We conducted this audit in accordance with generally accepted government auditing standards. We conducted audit fieldwork from August 2006 to November 2006.

Our audit methods included:

- reviewing selection processes and statements of work for phase I and II of the implementation, quality assurance services, and project management services,

- reviewing ERP steering committee meeting agendas, minutes, and presentations,

- reviewing IBM work products and Oracle's assessment of these documents,

- flowcharting the approval and signoff processes for ERP work products,

- interviewing city staff, quality assurance staff, and other ERP consultants,

- interviewing steering committee members,

- reviewing quality assurance documents, and

- reviewing contractor invoices and payments.

We made an interim report in November 2006 at the request of the finance executive committee (see Appendix 1). The committee wanted input from our work in progress as members considered requests for additional funding for contractors and city positions to complete the project.

Findings and Analysis

City Was Slow to Make Decisions and Communicate Requirements, Which Hampered Oversight

While phase I was intended to review and revise the city's business processes in order to configure the software, a number of questions were unresolved at the end of phase I, and requirements have continued to evolve. The city's goal was to revise processes without customized changes to the software. But because some processes are shaped by law or long-standing tradition, the goal of no customization set an unrealistic expectation. And because the software can be configured many different ways, the city's broad outcome goals, while reasonable, did not provide enough guidance to support specific decisions.

The steering committee didn't establish a framework for making and communicating decisions. Steering committee members had different understandings of the committee's responsibilities, different project team leaders had different understandings of their responsibilities and authority for making decisions, and the program director – hired under contract – had no clear scope of work or performance expectations. Lack of clear roles and requirements made it difficult for the contractors to fulfill their obligations and for city staff to assess the contractors' work.

Business Requirements Still Not Defined at the End of Phase I

While city staff approved all of IBM's work through phase I and subsequent termination of the contract, the new consultant's assessment found that city requirements weren't detailed enough to configure the software. Some issues raised in phase I had not been resolved and the number of interfaces and conversions needed has changed several times, which affects the estimated cost of the project.

The city paid IBM $2.3 million through phase I. Their work was primarily documented in the target process blueprint, a high-level design of what the new system would provide. It was intended to describe the future business processes, identify all of the interfaces

and conversions required, and identify gaps between what the city wanted and what the software could provide to show where customization or workarounds were needed. IBM completed the target process blueprint in September 2005 and started working on the more detailed configuration documents called for in phase II.

The city terminated IBM's phase II contract. The city sent IBM a letter in December 2005 stating that it was terminating its contract for convenience effective January 13, 2006. The letter listed items to be completed by January 12, 2006. IBM stated in its transition plan dated December 23, 2005, that they had submitted 43 of the 44 expected products for city review and noted that the city had been unwilling to extend the deadlines by a week despite many city staff scheduled to be on vacation. The program director and city staff signed off on all the work products, indicating that they were acceptable, although some of the signoffs noted open issues and most were approved after the five-day review period specified in the contract.

Criteria for accepting IBM's work were unclear. According to the program director, most of the 44 work products were considered "work in progress" and were parts of larger efforts that, under the contract, were not supposed to be completed until later. These included configuration documents for the different modules that would translate the processes established in the target process blueprint to the software set-up to be tested and refined. The city's contract with IBM identified critical success factors based on outcomes the system was supposed to achieve and financial penalties if the goals were not met. The program director said that because the contract was not based on particular milestones, work in progress did not have to be "at a certain point" to be accepted, it merely had to show progress.

The program director also said that IBM would have been required to complete the configuration documents if they had been asked to stay on the job until March, but he did not want IBM to start other work that was scheduled to begin before March. He wanted the new vendor, Oracle Consulting, to complete the design since they would be responsible for testing and refining it.

New consultant requested an additional $4.6 million to complete unanticipated work. Oracle Consulting assessed work completed on the project prior to its hiring in February 2006 and concluded that much of the work was incomplete, lacked detail, or

documentation did not exist. Oracle Consulting and the project team conducted an additional round of conference room pilots to clarify city requirements and identified an additional 17 city requirements that were not in the original design.[2] Oracle requested an additional $4.6 million to complete the project beyond what was included in its statement of work. The additional costs reflect that the project requirements hadn't been finalized before phase II of the implementation began, and that the scope of work the program director prepared for Oracle Consulting depicted the project as further along than it really was.

Issues identified as adding cost were raised in phase I but not resolved. Some of the additional work Oracle Consulting identified related to unresolved issues from phase I, including:

- o **Consolidating the number of pay groups.** We recommended in November 2005 that the Steering Committee facilitate a decision process to consolidate the city's six pay groups into as few pay groups as possible to simplify payroll processing. The Committee agreed, but did not decide until April 2006 to implement one biweekly payroll and had not developed a transition strategy. Oracle Consulting identified this as a gap in the statement of work.

- o **Administering advance sick leave.** We recommended in November 2005 that the project team ensure the system includes automated controls over use and repayment of advance sick leave. The program director agreed but did not include advance sick leave in the scope of work.

- o **Administering the reserve sick leave bonus.** City code provides for one-fourth of unused sick leave above 240 hours to be paid to employees as a "bonus" once a year. The project team was aware of this provision, which is not supported by the Oracle software's regular processing.

- o **Establishing an interface between payroll and grants accounting.** IBM identified the need to integrate the city's timekeeping system with the Oracle applications for distributing payroll costs to projects and grants, but the city

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[2] Conference room pilots are meetings at which city staff knowledgeable about a particular process work through progressively more detailed software demonstrations to determine how to configure the software to meet specific needs. IBM and the project team held two rounds of conference room pilots in phase I to develop "as is" and "to be" processes. See our audit memorandum dated August 15, 2005.

had not yet decided how to handle the issue because they were reluctant to recommend customizing the software.

- o **Automating the city's personnel turnaround document (TAD).** The city's current human resources processes require departments to complete hard copy forms to initiate all personnel changes. The manual process results in time lags in entering data into the payroll system, which allows errors in leave accrual, final payments, and pension deductions.

- o **Customizing pay check stub.** IBM was aware that the city wanted additional leave accruals printed on employee check stubs, but had advised against customizing because employees would access this information in other ways. City staff was uncertain about the amount of access individual employees would have to view information in the system.

- o **Automating approval of travel advances.** The city's design for approval of travel advances was based on an approval list identified by cost centers. Each cost center would have a designated person to approve travel advances, which may not be the traveling employee's immediate supervisor. This design was not compatible with Oracle's software, where approval is based on an employee/supervisor relationship and only the employee's immediate supervisor could approve a travel advance. Consequently, the Oracle software had to be configured to meet the city's desired approval hierarchy.

In addition, the city had not finalized several key processes for purchasing, budgeting, and accounts receivable.

Project scope has shifted since requirements were defined in phase I. The project team has changed the number of expected interfaces and conversions needed for the system since the end of phase I, which was intended to identify all of these requirements and define the scope of the phase II implementation. Interfaces and conversions add to the complexity – and cost – of the system.

Interfaces connect the ERP with existing computer systems that the ERP will not replace – such as the Kronos timekeeping system – or between the city and other organizations – such as insurance companies – in order to transfer data between systems. The number

of interfaces the project team has identified has changed several times during the implementation:

- o The original phase II statement of work prepared in December 2004 called for 34 interfaces.

- o At the September 6, 2005, ERP Steering Committee meeting, the last meeting before the end of phase I, the project team expected to need 43 interfaces.

- o The target process blueprint, completed at the end of September 2005 identified 64 interfaces.

- o The scope of work the program director prepared for Oracle Consulting to take over phase II implementation identified 53 interfaces, but said that 11 of these interfaces would be excluded. The scope of work listed 9 separate interfaces that had been consolidated into three interfaces in the target process blueprint.

> *A complete inventory of all external interfaces should be one of the first tasks when completing system requirements.*
>
> Department of Defense's Software Acquisition Best Practices Initiative

These changes reflect shifting decisions and expectations about what the system will do.

Conversion is the process of capturing and reformatting data from existing systems to be read into the Oracle software. IBM identified 42 necessary conversions in the target process blueprint. The scope of work the program director prepared for Oracle Consulting removed 13 of these conversions.

Oracle and the project team made additional changes following the 30-day assessment, subsequent negotiation about the scope of remaining work, and an additional round of conference room pilots to clarify city needs. The team now expects to implement 50 interfaces and 48 conversions. Of the 64 interfaces and 42 conversions identified in the target process blueprint, only 25 interfaces and 30 conversions remain.

Broad goals didn't provide adequate framework for timely decisions. The steering committee set broad goals for the outcome of the system and relied on consultants to identify best practices for configuring the software to meet the goals. For example, the city's contract with IBM identified these critical success factors:

- The ability to have the enterprise running on a single enterprise wide financial management system within the projected timeframe.

- The ability to leverage the most cost effective approaches to integrate with legacy systems that will remain including leveraging real data time transfer and other available approaches to reduce interface cost.

- The ability to realize immediate benefits in existing finance and accounting business processes.

- The ability to replace all existing legacy transaction systems.

- The ability to reduce implementation complexity and business process complexity wherever possible.

- The ability to analyze key financial metrics with a small number of tools to a broad constituency of stakeholders in a timely manner.

The steering committee also set a policy that there would be no customization of Oracle. While we agree that the goals are reasonable and customization should be limited to reduce short- and long-term costs, it is unrealistic to expect no customization because city processes are shaped by laws and long-standing traditions that may be difficult to change. Because the software can be configured many different ways, the broad overall goals did not provide enough guidance to support specific decisions - especially for processes that cross functional areas. Project team members told us that they were waiting for the steering committee or individual commissioners to make decisions, but the chair of the ERP Steering Committee said that the project team should be making decisions. We noted in an April 2006 memorandum that city management needed to make a number of decisions before the software could be configured and suggested that the steering committee clarify how decisions are made, documented, and communicated. The steering committee should also develop a formal process for evaluating when changes to the software functionality are necessary.

In order to make timely decisions, knowledgeable staff needs to attend and participate in the conference room pilots. We noted in a July 2006 memorandum that only about 40% of the invited staff attended the May and June 2006 conference room pilot sessions and some invited departments had no staff representation at all. We recommended that the change management team review who was invited to the conference room pilot sessions and ensure that

appropriate staff attends and all appropriate departments are represented. The steering committee approved a formal process to ensure participation.

The Statement of Work for Transition to Oracle Depicted the Project as Further Along Than It Was

> *The Statement of Work (SOW) must be clearly documented so that all project expectations and deliverables are clear before any work can begin.*
>
> ERP Applications: Business Problems and Benefits

The program director prepared a statement of work for Oracle Consulting to transition into the project and work with the city to complete the implementation. The document stated that the city had completed the design, the target process blueprint, a future organizational model, and an infrastructure plan in the first phase of the project. It also stated that the city would finish several tasks before Oracle started work on the project, including functional specifications of the interfaces and conversions for the financial and procurement sections with a setup to show city staff what these areas would look like and a strategy for converting older data.

Oracle's 30 day assessment showed less progress. Oracle's assessment found that much of the work already done on the project was incomplete or did not have enough detail to be useful in completing and implementing the design. The 30 day assessment was Oracle Consulting's only opportunity to identify uncertainty in the design that would increase their costs. It was in their interest to identify problems. We reviewed Oracle's assessment documents. While we did not independently assess the technical merits of each assessment, we agree that work was incomplete. The city had not finished the functional specifications for the finance and procurement conversions and the program director acknowledged that the configuration documents were still in progress. While the city team removed some data conversions that had been identified in the target process blueprint from the project because they had decided to enter the data manually, Oracle Consulting advised against this approach and the program manager added the conversions back into the scope.

The program director attributed Oracle Consulting's findings primarily to differences in the vendors' methodologies. Oracle's project manager said that he could not rely on the activities in the project scope and assumptions as complete. We believe there is some truth to both of these conclusions, and Oracle would likely have requested more funding up front had the scope of work more accurately reflected the city's progress on the project.

Moving Forward, the City Needs Clear Lines of Accountability

Clear expectations and lines of accountability can help reduce the risks of delay, additional costs, and insufficient work products. Responsibilities should be documented so that individuals understand what is expected of them and can be held accountable. The steering committee should also set quantifiable indicators of the project's progress and the performance of the contractors, who should report directly to the steering committee.

Lack of clear responsibilities for the major players. While the implementation project's organizational structure is consistent with best practices, the roles and responsibilities of the major players are not clearly defined. Interviews with ERP Steering Committee members revealed that they had different understandings of what the committee was responsible for and the responsibilities of the other major participants, in particular the quality assurance group and the extent of the Department of Information Technology's role in managing the project. While the organizational structure shows the program director and quality assurance group reporting to the steering committee, in practice they report regularly to the chief information officer. The chief financial officer, the chief procurement officer, and the human resources commissioner assigned different levels of decision-making authority to their project leads. Lack of clarity can slow decision-making and diffuse accountability.

We recommend that the steering committee establish a project charter to define the scope of the project, the responsibilities of the different members of the project team, and what is expected of them. Documenting responsibilities in a project charter provides a single point of reference for all of the parties involved. Exhibit 3 on pages 16 and 17 shows examples of well-defined responsibilities for the different members of the implementation team.

Oversight is easier when there are quantifiable measures of how the project is progressing. Tracking measures tied to the expected outcomes of the project give steering committee members a firm basis for making decisions about resources and changes to the project.

The city lacks effective mechanisms to hold the program director accountable. The program director is an important link for the oversight of the other ERP contractors. The program director

> *...a large number of IT projects go "off the rails" (i.e., over budget and/or poor-quality deliverables) when key stakeholders are not clear about their role, responsibilities and authority.*
>
> IT Governance: Pass or Fail?

signs off on other contractors' work and wrote the scopes of work for both IBM and Oracle Consulting. However, the city does not have a contractual agreement with the program director that specifies a scope of work or describes how his performance will be assessed, and did not obtain his services through a competitive evaluation process.

The city council authorized the chief procurement officer to use a federal contract to purchase program director services from TIBRA/BCA in January 2005 and directed the chief procurement officer to prepare a contract between the city and BCA. City code allows the city to access goods and services through state or federal contracts to achieve economies of scale. The city can benefit from competitive prices more quickly by taking advantage of contracts already procured by another government. However, the Department of Procurement issued a purchase order for the service. The purchase order lacks terms found in professional services contracts including a defined scope of work, expected work products, and standards.

The city didn't achieve benefits from using a federal contract beyond expediting the procurement. BCA was under contract with the federal General Services Administration. TIBRA is the program director's company and is a subcontractor of BCA for the city's purchase order. However, the program director, who worked as a consultant for the Department of Information Technology previously, stated that his firm had no prior relationship with BCA. Therefore, the General Services Administration did not evaluate his qualifications in 2001 when the BCA contract took effect. Further, the city is paying about double the rate for the project manager position in the federal contract, including a management fee to BCA.

We reported in our November 2006 interim report that the referenced federal contract expired in September 2006 and the city's purchase order for program director services ended January 31, 2007, with no options for renewal. Following the report, the city sent out a request for proposals for a program director. TIBRA was the only respondent. The steering committee should ensure that the city executes a contract with a clear statement of work that defines how the program director's performance will be evaluated. We also recommend that in the future, the chief procurement officer restrict the city's use of state and federal contracts to commodities and equipment for which purchase orders are appropriate.

EXHIBIT 3
EXAMPLES OF WELL-DEFINED RESPONSIBILITIES FOR AN ERP

Steering Committee

Oversees scope, benefits, and risks of the project

Meets weekly, biweekly, or monthly to review issues brought forward by the Project Management Office

Makes decisions on escalated issues, risk mitigation, and change requests

Identifies, authorizes, and provides resource availability (financial, human, technical) to carry out the project

Ensures that issues relating to strategy are resolved

Monitors the return on investment

Incorporates the "new world" within the business strategy

Advocates of change

Project Manager

Responsible for managing the overall scope, issues, change management and status reporting, version control, and signoff

Provides a weekly update of the status of technical components to the initiative owner

Coordinates weekly meetings with appropriate IT leads

Coordinates monthly meetings with steering committee to report status, actuals versus budget, issues list, risk and mitigation actions

Controls on a weekly basis, the actuals of the project versus the original budget

Monitors all project activities to ensure they occur as planned

Sets up and maintains detailed project plan and high-level planning documents

Ensures that all project standards are followed

Works directly with client counterpart and other partners

Coordinates client participation and sign-off of project deliverables

Assesses and provides alternatives to mitigate risks to the project schedule

Monitors and controls scope/changes throughout the project

Develops a full understanding of the project's requirements

Initiative Owners
(Finance, HR, Procurement)

Define the overall organizational structure

Authorize the initiation of the project and monitor progress

Define client communication model

Review appropriate project deliverables to ensure consistency and quality

Ensure financial standards are defined

Ensure project standards are defined

Ensure appropriate initiative standards are defined

Assess and manage risk factors

Monitor and approve high-impact scope changes

Work with the leadership teams to allocate appropriate resources

IT Director

Solicits input from IT to understand needs and priorities

Represents IT as project decisions are made

Is responsible for managing the installation and configuration of new technology

Communicates project vision and outcome to the IT associated project team

Oversees all data conversions, interfaces, and modifications and ensures accuracy and completeness

Understands the "big picture" in order to push the resolution of all technical issues

Assists the team to identify and resolve any gaps to business processes

Comprehends, with guidance from the business and technical consultants as well as internal business personnel, the changes that will be required to the existing business and technical processes with the introduction of the new system applications

Leads the knowledge transfer process to ensure that the technical team is fully capable of independently supporting the system prior to moving to the production environment

Takes ownership of the technical processes, environments, and system

Manages and coordinates technical analysts and developers

Manages additional leads as necessary for modifications, interface, conversions, and reports depending on the complexity of the project

Ensures timely resolution of open issues

Quality Assurance

Document methods and standards

Perform formal and informal quality reviews

Mentor test leads on the use of testing procedures, testing tools, and creation of test deliverables

Review test deliverables for compliance with standards

Perform defect analysis and trending

Review functional and technical documentation for accuracy, completeness, and adherence to documented standards from an independent point of view

Participate in review sessions

Source: *Enterprise Resource Planning (ERP) Applications: Business Problems and Benefits, Ken Milberg*

Quality assurance role limited by lack of independent reporting. The quality assurance team's contract states that it is to provide assurance to the steering committee as an independent advisor, offering an objective impartial view that reduces cost and schedule overruns. However, in practice the team's work is directed

by and reviewed by the program director and chief information officer. Under this reporting relationship, the quality assurance team cannot independently fulfill their reporting responsibilities to the steering committee.

Most of the steering committee members told us that they were generally unfamiliar with the quality assurance group's work and did not have enough information about what they do to know whether they are doing a good job.

We recommended in our interim report that the quality assurance firm should report directly to the steering committee as a whole and concurrently provide reports to the city audit team and that the role should include reviewing process change requests and reviewing the work of the program manager. The chief information officer and deputy chief operating officer (members of the ERP Steering Committee) stated that they would institute quarterly reports by the quality assurance firm to the steering committee. The Finance/ Executive Committee requested through a resolution that we review these reports and report to the council on a quarterly basis as an additional oversight mechanism.

Recommendations

Our recommendations identify improvements to the current implementation and for future software projects. The ERP Steering Committee should:
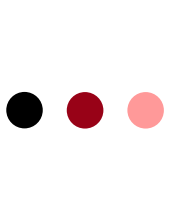
1. **Develop a process for evaluating when changes to the software functionality are necessary.** Having a formal process that takes into account the costs and benefits of any changes will help the steering committee to decide whether the changes are actually necessary. The process will also explain to future users and city officials why the city made those adjustments.

2. **Roles and responsibilities for the project should be clearly identified.** The use of a project charter and progress measures tied to the expected outcomes of the project are objective means of establishing accountability that can be relied on by all of the participants.

3. **Develop a clear statement of work for the program director with performance measures.** The program director has an important role. The cost, complexity, and impact that the project will have on the city's future require a high level of accountability. The city should have a contract with a statement of work that defines how the program director's performance will be evaluated.

4. **Require direct reporting and accountability from the quality assurance team and the program director.** The program director and quality assurance team should be vital sources of information to the steering committee for overseeing the project. Reporting directly to the committee allows all of the members' equal access and provides a single source of direction to the program director and quality assurance team.

To ensure that the competitive procurement requirements are met, the chief procurement officer should.

5. **Prohibit the use of federal or state contracts for procuring professional services.** These contracts should be used only for purchasing commodities and equipment.
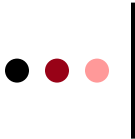
Appendices

Appendix 1: Interim Report to City Council Finance/Executive Committee

Contractor Oversight in Oracle Implementation
Interim Report

City Auditor's Office
Leslie Ward, City Auditor
Amanda Noble, Deputy City Auditor
Audit Team - Eric Palmer and Gerald Schaefer

November 7, 2006

Audit Initiation

- The city ended its contract with IBM in January 2006 to implement the Oracle ERP system, subsequently selecting Oracle consultants to replace IBM.

- Following an assessment of the work completed, Oracle reported that many of the design documents were incomplete. At the May 24, 2006, ERP steering committee meeting Oracle estimated the additional cost to complete the project at $5.4M.

- The City Auditor's Office began an audit of the contractor oversight for the project in August 2006 at the request of the Audit Committee.

2   Contractor Oversight in Oracle Implementation

Interim Report to City Council Finance/Executive Committee

● ● ● | Audit Objectives

- Is the city providing sufficient oversight of contractors' work on the implementation?

- Are the quality assurance processes for the implementation working effectively?

These objectives are different than previous audit work on the implementation. The previous work focused on the design of controls for the new system.

3   Contractor Oversight in Oracle Implementation

● ● ● | Reason for Interim Report

- On October 11, 2006, the finance executive committee considered legislation (06-R-2238, 2239, and 2240) to increase 3 contracts by $6.1M. Legislation to increase another contract (06-R-2241) was pulled at the request of the administration.

- Because our audit in progress may have a bearing on the council's action on the 3 papers, the committee voted to hold the legislation and asked the city auditor to make an interim report.

4   Contractor Oversight in Oracle Implementation

Appendix 1 (Continued)

Interim Report to City Council Finance/Executive Committee
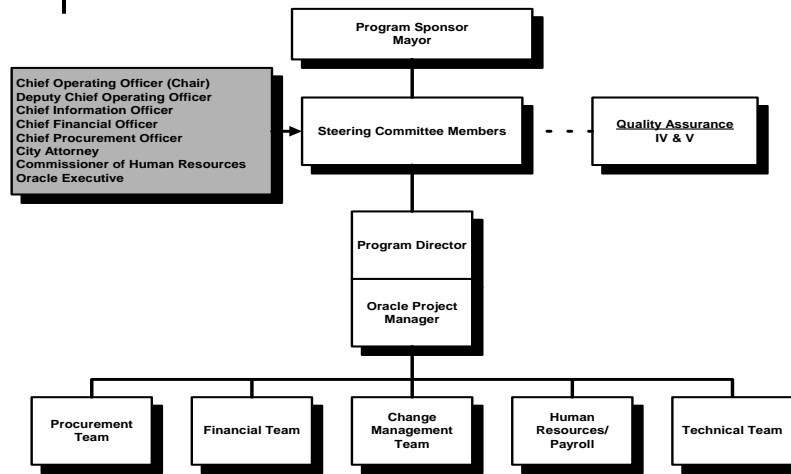
● ● ● | Audit Methods

- Reviewing selection processes and statements of work for the consultants.
- Reviewing ERP steering committee meeting documents.
- Reviewing work produced by the quality assurance consultants (Tescom).
- Reviewing contractor invoices and payments.
- Interviews with steering committee members and lead consultants.

This audit was conducted in accordance with generally accepted government auditing standards except for completion of an external peer review. Our review is scheduled for November 2006.

5   Contractor Oversight in Oracle Implementation

● ● ● | ERP Project Organization

Program Sponsor Mayor

Chief Operating Officer (Chair)
Deputy Chief Operating Officer
Chief Information Officer
Chief Financial Officer
Chief Procurement Officer
City Attorney
Commissioner of Human Resources
Oracle Executive
→ **Steering Committee Members** - - - **Quality Assurance IV & V**

Program Director

Oracle Project Manager

| Procurement Team | Financial Team | Change Management Team | Human Resources/ Payroll | Technical Team |

6   Contractor Oversight in Oracle Implementation

Appendix 1 (Continued)

Interim Report to City Council Finance/Executive Committee

● ● ●

ERP Implementation Background

- April – September 2005: Phase I, business process design

- October 2005 – January 2007: Phase II, implementation of ERP system (original schedule)

- January 2006: The city ended its contract with IBM.

- March 2006: Oracle consultants replaced IBM. Project budget increased from $22M to $25.3M.

- October 2006: Proposed legislation to increase ERP contracts. Total project budget now estimated at $32.8M.

- July 2007: Current estimated ERP completion date

7   Contractor Oversight in Oracle Implementation

● ● ●

ERP Milestones and Expenditures

05-O-0504 and 05-O-0507 approved
transferred funds to ERP budget and created positions

05-R-0061 approved
$448,000 for Program Management

06-R-0177 approved
$11.3 million to Oracle for Phase II

Legislation requesting
additional $6.2 million
held

04-R-1976 approved
$14.8 million for ERP project

05-R-0738
$1.45 million for Tescom
$930,000 for IT services
$97,259 for training

05-O-1537 approved
$1.5 million for ERP
hardware & software

06-0-R-0828, 0829, 0830 approved
$704,725 for
licenses, support, maintenance

2005

2006

Pre-Phase I   **Phase I**   **Phase II**

Jan Feb Mar Apr May Jun Jul Aug Sep/Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep

Dec 2004

Oct 2006

Overall project budget
$22 million

End of phase I
IBM paid $2.3 million for phase I work
and $1.4 million for hardware and software

Oracle begins
Phase II work

Budget will increase
to $32.8 million
if legislation
approved

Agreement with IBM terminated;
IBM paid $1.5 million for phase II work

8   Contractor Oversight in Oracle Implementation

Objective 1: Procurement Problems Weakened Controls in City's Agreement with ERP Program Director

- The city lacks effective accountability mechanisms for the ERP program director.

- The city did not receive the full benefit of using a federal contract to hire the ERP program director.

- A different procurement method will be needed to extend the program director's services beyond January 31, 2007.

9   Contractor Oversight in Oracle Implementation

Accountability Mechanisms Lacking for ERP Program Director

- In January 2005, 05-R-0061 authorized the Chief Procurement Officer (CPO) to use a federal contract with TIBRA/BCA to purchase Program Director services for the ERP in an amount not to exceed $448,000 and directed the CPO to prepare a contract between the city and BCA.

- Procurement issued a purchase order for the services. The purchase order lacks a defined scope of work, performance terms and accountability measures for the program director.

10   Contractor Oversight in Oracle Implementation

Interim Report to City Council Finance/Executive Committee

Accountability Mechanisms Lacking for ERP Program Director (Cont.)

- The purchase order lacks terms found in professional services contracts. It does not define the services, the expected work products, or the standards of effective performance and service quality.

- Without a clear statement of work, the city has limited means for holding BCA or the program director 's firm, TIBRA (a subcontractor of BCA), accountable.

- The program director is an important link in the oversight of other ERP contractors. He prepared the statement of work (SOW) for Oracle consultants, who found gaps between the SOW and the work actually needed to implement the system.

- The program director also signed off on the completion of IBM's work products, which formed a basis for the Oracle consultants identification of gaps in work actually completed.

11   Contractor Oversight in Oracle Implementation

City Did Not Achieve Full Benefit of Using a Federal Contract

The benefits of using a state or federal contract are to gain access to a competitively selected contractor and to obtain a competitive price as a result. However, in this case:

- The program director's company (TIBRA) is not referenced in the federal contract. The program director stated that his firm had *no prior relationship* with BCA. Therefore, the federal agency would not have evaluated his qualifications in 2001 when its contract with BCA took effect.

- The city received no apparent price benefit. The city is paying about double the rate for the project manager position in the federal contract ($105 versus $52.20 per hour), including a management fee to BCA.

12   Contractor Oversight in Oracle Implementation

Appendix 1 (Continued)

Interim Report to City Council Finance/Executive Committee

● ● ● | **City Cannot Extend the Program Director's Services under the Current Agreement**

- The referenced federal contract expired in September 2006, so the city cannot use it to extend the program director's services through the end of the project.

- The city's purchase order for the program director ends January 31, 2007, and has no terms of renewal.

- To procure program director services, the city should:
  - Justify a sole source procurement and execute a contract with the current program director, OR
  - Solicit new proposals for a program director

13   Contractor Oversight in Oracle Implementation

● ● ● | **City Has Executed Contracts with Other ERP Contractors**

- The city procured other ERP services through state contracts:
  - 06-R-0177: implementation services ($11.3M)
  - 05-R-0738: IT staffing ($930,000)
  - 05-R-0738: quality assurance ($1.45M)

- The city has executed agreements for these services which contain Statements of Work and expected work products. These agreements are city contracts and not purchase orders.

- These contracts can be amended as proposed in the legislation currently under consideration.

14   Contractor Oversight in Oracle Implementation

Interim Report to City Council Finance/Executive Committee

Objective 2: Lack of Independent
Reporting Limits Role of Quality Assurance

- Tescom's contract states that it is to provide assurance to the steering committee as an **independent** advisor through an objective impartial view that reduces cost and schedule overruns.

- By reporting primarily through the CIO and program director, Tescom cannot independently fulfill their reporting responsibilities to the steering committee.

- Most of the steering committee members told us they're generally unfamiliar with Tescom's work and did not have enough information about what they do to know whether they're doing a good job.

15   Contractor Oversight in Oracle Implementation

Quality Assurance Firm Should Report
Independently of Project Director and CIO

Tescom should:
- Review process change requests to determine:
  - ❖ If the request can be accommodated within Oracle's standard functionality
  - ❖ If the price quoted by Oracle to implement the request is reasonable

- Review the work of the project manager

- Report directly to the steering committee as a whole and concurrently provide reports to the city audit team

16   Contractor Oversight in Oracle Implementation

Appendix 2: Audit Response – Steering Committee

Report # 06.10	Report Title: **Contractor Oversight in Oracle Implementation**	Date: 2/16/07

Recommendation Responses

Rec. #	Develop a process for evaluating when changes to the software functionality are necessary. Having a formal process that takes into account the costs and benefits of any changes will help the steering committee to decide whether the changes are actually necessary. The process will also explain to future users and city officials why the city made those adjustments.	Agree
	Proposed Action: Refine the existing process for generating change request to add an independen evaluation of the requests by IV & V	
	Implementation Timeframe: Initiate implementation March 2007	
	Comments: The existing process will be modified to include an evaluation section for IV&V to conduct and independent evaluation of the Change Request of Financial Benefits and Cost (currently a section on the PCR). In additional the GAP Analysis Document will be attached to each Change Request to outline the Resolution Strategy "why the change is necessary" (currently a section on the GAP Analysis Document).	
	Responsible Person: PMO	

Rec. #	Roles and responsibilities for the project should be clearly identified. The use of a project charter and progress measures tied to the expected outcomes of the project are objective means of establishing accountability that can be relied on by all of the participants.	Agree
	Proposed Action: Update Project Chart Information	
	Implementation Timeframe: March 30, 2007	
	Comments: The project does not have document titled "project charter", however, the Steering Commmittee reviewed and approved at the project Kick Off which includes all of the information and commitments contained in a Project Charter document including	

		various roles and responsibilities, business case, critical success factors, and committement statement.	
	Responsible Person:	PMO	
Rec. #	Develop a clear statement of work for the program director with performance measures. The program director has an important role. The cost, complexity, and impact that the project will have on the city's future require a high level of accountability. The city should have a contract with a statement of work that defines how the program director's performance will be evaluated.		Agree
	Proposed Action:	PMO Contract	
	Implementation Timeframe:	Already implemented	
	Comments:	The newly approved contract with the PMO establishes a Statement of Work and deliverables	
	Responsible Person:	Done as part of the new procurement of Program Management Services	
Rec. #	Require direct reporting and accountability from the quality assurance team and the program director. The program director and quality assurance team should be vital sources of information to the steering committee for overseeing the project. Reporting directly to the committee allows all of the members' equal access and provides a single source of direction to the program director and quality assurance team.		Agree
	Proposed Action:	Have IV&V provide direct reporsts to the Steering Committee	
	Implementation Timeframe:	Action was initiated on November 2006 and has continued regularly	
	Comments:	IV & V is attending the Steering Committee meetings and their reports are part of the Committee's agenda	
	Responsible Person:	Luz Borrero, DCOO	

Appendix 3: Audit Response – Department of Procurement

Report #06.10	Report Title: **Contractor Oversight in Oracle Implementation**	Date: 2/20/07

Recommendation Responses		
Rec. #	Prohibit the use of federal or state contracts for procuring professional services. These contracts should be used only for purchasing commodities and equipment.	Agree

Proposed Action:	Agree.
Implementation Timeframe:	Immediately.
Comments:	None.
Responsible Person:	Chief Procurement Officer