

**Performance Audit:
Pre-Implementation Review
of the ERP System**

November 2005

City Auditor's Office

City of Atlanta



Performance Audit:

Pre-Implementation Review of the ERP System

Why We Did This Audit

We included this topic in our 2005 audit plan because of the city's past problems in implementing information systems, notably PeopleSoft in 1999. PeopleSoft was heavily modified and lacked controls, which created problems the city is still coping with today. This audit should help ensure that effective controls are part of the new ERP system and the implementation process.

What We Found

Creating 43 interfaces between the ERP system and other applications is a major part of implementation. These systems transfer data to other organizations or provide specialized functions that cannot be done in the ERP system itself.

Although the Department of Aviation reported spending \$12.1 million on an ERP system that was implemented only two and half years ago, the department will have to discontinue using that system and interface its current information systems with the new ERP system. The cost of the interface is not yet known.

The ERP system will not be able to automate all city processes. As a result, some processes will still be done manually and will require additional controls.

Data in current systems should be corrected before transfer to the ERP system. In addition, the ERP system uses a single database, which makes having a disaster recovery plan an essential part of the transition to the new system.

Streamlining HR/payroll processes will help the city to achieve the benefits of an ERP system.

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

What Is the City's ERP System?

An Enterprise Resource Planning (ERP) system integrates all departments and functions across an organization onto a single computer system that aims to serve all users. The city is implementing an ERP system to automate and integrate most of its business processes and to produce and access current information quickly. The planned completion date for the financial and procurement portions of the ERP system is October 2006, followed by the human resources and payroll modules in January 2007.

What We Recommended

Estimate the additional cost of system implementation at the airport and add the cost to the ERP project budget.

Prepare written policies and procedures for all manual processes that will not be automated in the ERP system.

Develop a formal plan for system access that user departments must follow when the ERP system is operational.

Develop a formal, written data conversion plan that defines clean data and specifies the source and destination of all data items being converted.

Prepare and test a disaster recovery plan for the ERP system to ensure it is adequate before the system is operational.

Streamline HR/Payroll practices to best configure the ERP system: a.) consolidate city employees into as few pay groups as possible; b.) strictly enforce the 90-day waiting period for health benefits by eliminating the option of employees' paying the full cost; c.) analyze the fiscal impact of reducing or eliminating the 90-day waiting period; d.) process all taxable employee benefits through payroll; e.) eliminate comp time for department heads and other senior management staff; and f.) eliminate donated leave. Draft changes to legislation or administrative regulations as appropriate to accomplish these changes.



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Council President Lisa Borders

November 21, 2005

Honorable Mayor and Members of the City Council:

We undertook this review of the city's new ERP system because system implementation efforts of this magnitude are risky. The system represents a substantial investment of \$22 million, the city's current business processes will undergo significant change as part of the process, and the city has experienced problems in the past when implementing information systems.

Our focus in this pre-implementation review was to provide guidance to the city in establishing proper controls before the ERP system is implemented. We provided guidance on how to separate incompatible duties and responsibilities within the system and on establishing appropriate access to the system. We also provided guidance on the importance of having a sound data conversion plan and the value of having a disaster recovery plan before the ERP system is implemented. Lastly, we recommended that the city change more HR/Payroll processes to take full advantage of the ERP system implementation. We believe that these changes will further enhance the city's practices and help simplify the new ERP system.

We issued two memoranda to the steering committee and project team at key points during the pre-implementation process. We made a number of recommendations to configure the system to improve controls and to streamline or strengthen control over manual processes that will be performed by the city after the ERP system is implemented. These memoranda, along with the city's responses to our recommendations, are included as appendices to the report. The responses to these interim audit memos are encouraging. The city agrees in principle to most of our recommendations. Management disagreed with two recommendations related to human resources: to discontinue paying compensatory time to executive employees and to eliminate donated leave. We continue to think these recommendations are good ideas and discuss them more fully in our upcoming performance audit of city payroll practices.

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 consultants hired by the city for the ERP system implementation. The audit team for this project included Lesia Johnson and Gerald Schaefer.

Leslie Ward
City Auditor

Wayne Woody
Audit Committee Chair

Pre-Implementation Review of the ERP System

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Introduction

This pre-implementation review of the ERP system was conducted 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 their primary duties.

This review, primarily prospective in nature, meets the definition of a performance audit under government audit standards. 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 objectives 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 was included in our office's 2005 audit plan because of past problems encountered by the city in implementing information systems, most notably PeopleSoft. The city experienced significant difficulty in implementing PeopleSoft in 1999. The system was heavily modified and lacks controls which created problems the city is still coping with today. This audit was done to review proposed processes and controls before the ERP system is implemented. It will be followed by one or more reports on the second phase of implementation during 2006 and 2007.

Background

What is an ERP system? An Enterprise Resource Planning (ERP) system integrates an organization's departments and functions into a single computer system that aims to serve all users. Through an ERP system, the city aims to automate and integrate the majority of its business processes and produce and

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

access current information quickly. 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. Several firms market ERP products. The city will implement Oracle eBusiness Suite (Public Sector), version 11i.

A successfully implemented ERP system can benefit the city. An ERP system can ease the exchange of data and facilitate communication between city departments. The city's current information systems are not truly connected; at best, they merely pass data from one to another. This process results in time delays, data redundancy, and increased costs. The ERP project manager identified the following benefits that the city should realize from the new system:

- Reduce the timeframe and effort required to create financial statements and reports.
- Move from a cash to accrual accounting method, which will improve revenue recognition, and reduce consulting and auditing fees needed to do cash to accrual conversion.
- Integrate financial planning and modeling tools to provide immediate analytical capabilities.
- Improve information for contract compliance and auditing.
- Better analyze, manage, and track contracts.
- Better control discretionary spending, and reduce procurement life cycle.
- Automate data at the department and employee level and implement electronic personnel records.

The project manager estimated that an ERP system can save the city about \$18 million annually in reduced operating costs and lower fees paid to outside consultants and auditors.

Successful implementation must address major risks.

Although the ERP system can provide considerable benefits to the city, the process of implementing such a system can expose the city to sizeable risks.

As with most technologies, ERP system implementations have had notable difficulties in both private and public sectors. Federal agencies and state governments have seen projects double in cost and run years behind schedule. Other agencies have seen

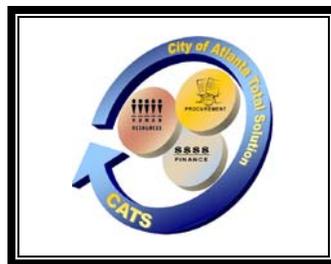
productivity decline, have been unable to close their books at year's end, or have been unable to pay employees and vendors on time. Unsuccessful ERP implementations have forced companies into costly shipping delays or even into bankruptcy.

Implementing an ERP system requires significant investment of capital, time, and other resources from an organization. It has been estimated that half of the issues in ERP system failures are not technical, but are related to human and organizational problems. Many of the failures can be attributed to inadequate training and poor management of organizational changes. As a result, the major implementation risks, listed below, emphasize these factors:

- Not understanding the significance of an ERP system. Many ERP projects are not successful because they are perceived as IT initiatives and therefore do not have management's support necessary to guarantee success. The ERP system should be viewed as a business project and have strong sponsorship and ownership from all city departments.
- Not committing the right resources to the project. Many ERP projects run into difficulty because the wrong people are allocated from the organization. The city should assign staff that have adequate knowledge about city operations, but should also be creative and capable of challenging the status quo when necessary.
- Not managing the change effectively. Successful change management is one of the most important features in determining the success of ERP projects. Effective change management ensures that the city's employees are ready, willing, and able to embrace the new businesses processes and systems. The city should provide training to staff that explains the business objectives of the ERP project and the new business processes, their new roles, and all aspects of the system.
- Not managing benefits. Most ERP projects report in great detail on the cost and time parameters of the project, but very few actively report on benefits attainment. The city should manage the ERP project to ensure that all of the benefits are delivered.

- Not embracing integration. Many organizations resist the level of integration delivered and encouraged by ERP systems and attempt to retain the existing organization structure. The city should consider significant changes to its organization structure and management roles to extract the maximum benefits from an ERP system.
- Not planning for the end of the project. Many organizations fail to consider the long-term implications of introducing an ERP system until the end of the project, and consequently they degrade the outcome of the project. The city needs to consider how the ERP system will be supported in the long term and which aspects, if any, will be outsourced.

The city’s implementation approach should be able to address risks. The city has structured the ERP system implementation in a way that should enable it to manage the major risks. The project has the sponsorship of the mayor and ownership by senior management through the project’s steering committee. The implementation team includes city staff who are knowledgeable about the processes being automated, as well as consultants hired for their expertise in ERP systems. The project



also includes teams assigned to change management and training, as well as a group specializing in the system’s technology. The City also has hired a firm to provide ongoing review and quality assurance for the project. Exhibit 1 shows the organizational structure

of the project, known as the Atlanta Total Solution (CATS) Project team.

With a budget of \$22 million, the ERP system implementation includes two major phases spanning about two years as shown in Exhibit 2.

EXHIBIT 1
ERP PROGRAM ORGANIZATIONAL STRUCTURE

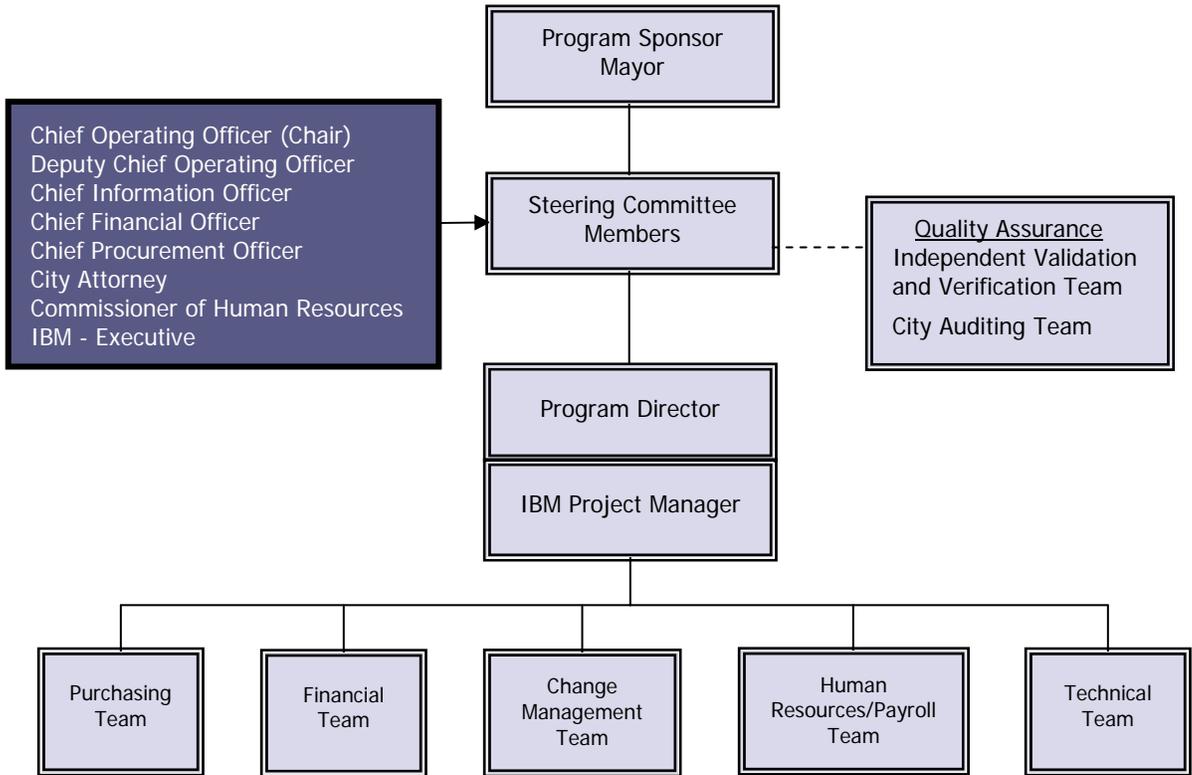


EXHIBIT 2

ERP IMPLEMENTATION PHASES

Phase	Time Period	Description
I	4.4.05 to 9.15.05	Reviewing and revising current business processes for the city to use with the ERP system.
II	9.1.05 to 3.30.07	Building and testing the ERP system and training city staff on how to use it.

Source: CATS Project Plan

The city's ERP system will include financial, procurement, and human resource functions. These functions comprise 27 separate modules listed in Appendix 4, and two additional modules are under consideration. The planned completion date for the financial and procurement portions of the system is

October 16, 2006, followed by the HR/payroll modules on January 1, 2007. After these “go live” dates, the consultants will continue to provide support for three months to assist in the transition.

The ERP system will replace many of the city’s current information systems. (See Exhibit 3). Most of the outgoing systems are part of MARS-G, the city’s current financial management software.

EXHIBIT 3

SYSTEMS TO BE REPLACED BY ERP

Information System	Current Use
MARS-G Fixed Asset	City assets
MARS-G General Ledger	General ledger, grants, and projects
MARS-G Accounts Payable	Accounts payable
MARS-G Purchasing	Purchasing
MARS-G Buzz	Budget and planning
MARS-G Financial Controller	Encumbrances
MARS-G Budgetary Controls	Budgetary controls
PeopleSoft	Human resources records, payroll, and benefits
FileMaker Pro	Reports
QuickBooks	Leases, lease billing, and receivables
Real Estate Database	City land

Source: IBM’s Oracle ERP Target Process Blueprint

Audit Objectives

This report assesses and provides guidance on processes and controls to be adopted in the ERP system implementation. The report addresses the following questions:

- What plans are in place to connect the ERP system to other city information systems?

- What manual processes will remain if no further changes to business practices are made?
- Do proposed processes for the new system provide effective controls and ensure appropriate levels of access for system users?
- How will the city confirm that the data transferred to the ERP system is accurate and reliable?
- How will the city ensure continuity of business operations with the new system in place?
- Could additional city business practices be streamlined in conjunction with the ERP system implementation?

Scope and Methodology

This audit was conducted in accordance with generally accepted government auditing standards. We conducted our field work from July 2005 through September 2005. The audit covered proposed business processes for the ERP system implementation. The audit methods included:

- Interviewing city staff and consultants regarding the proposed new processes.
- Reviewing the “to-be” processes as presented in “conference room pilots” (CRPs) by the project team. A memorandum summarizing this work was released on August 15, 2005 and can be found in Appendix 1.
- Reviewing the CRP scenarios and scripts.
- Reviewing the ERP “target process blueprint” document. A memorandum on this work was released on September 1, 2005 and can be found in Appendix 2.
- Researching professional literature for information on best practices in ERP system implementations and controls. A bibliography of this literature can be found in Appendix 3.

- Reviewing documentation related to Oracle security and control.
- Reviewing similar work by auditors in other jurisdictions.

The audit staff for this project worked with the ERP implementation team in an advisory capacity. They have not participated in management decisions about control design or other facets of system implementation. In all respects, their participation has followed government audit standards for independence.

Observations and Recommendations

Summary

What plans are in place to connect the ERP system to other city information systems? The ERP system will replace many of the city's current information systems, but some existing systems will still be needed. As a result, the ERP system implementation will include 43 interfaces to connect the new system and other applications. This includes incorporating a new treasury application because the Oracle ERP component for treasury did not meet the city's needs. In addition, the airport ERP system implemented in 2003 will be replaced at an additional cost to the airport. The Department of Aviation reported spending \$12.1 million on its customized Oracle system, which cannot easily be upgraded and incorporated into the new city system.

What manual processes will remain if no further changes to business practices are made? The city wishes to avoid substantial changes to the ERP system to fit all of its business processes. As a result, several current processes will not be automated by the new system. These processes will still be done manually after the ERP system is implemented and therefore will require additional controls outside of the system. Appendix 2 of this report summarizes the highest-risk manual processes identified during the pre-implementation phase, along with our recommendations on controls.

Do proposed processes for the new system provide effective controls and ensure appropriate levels of access for system users? Previous audits done by our office have identified inappropriate access to city systems, which increases the risk of error and fraud. To reduce the risk, city employees should have only the access needed to perform their duties. Personnel authorized to access sensitive areas of the system should be especially limited. Separating incompatible business duties and responsibilities also is a critical access control. The city should ensure that no employee is responsible for two or more of the following functions for a single transaction: record keeping, asset custody, authorization, and reconciliation.

How will the city ensure that the data transferred to the ERP system is accurate and reliable? Current city systems have data integrity problems that should be corrected before information is transferred to the ERP system. The city plans to transfer data from 43 different databases to the new system, making data accuracy and data conversion planning critical issues. The city should ensure that data transferred to the ERP system is accurate and reliable by creating a formal data conversion plan, a definition of clean data (i.e. what constitutes acceptable data), and written specifications for the source and destination of all data items to be converted. Lastly, the conversion should be tested to validate that the conversion was carried out as intended.

How will the city ensure continuity of business operations with the new system? Since an ERP system uses a single database for all of its applications, a failure in any part of the system can affect all of its operations, making a disaster recovery plan an essential part of the transition to the new system. The Department of Information Technology, with help from an outside firm, is beginning to create such a plan for the city's information systems. The city should continue with its disaster recovery planning efforts and have a plan in place when the ERP system is launched.

Could additional city business practices be streamlined in conjunction with the ERP system implementation? The city could make several changes in its HR/payroll processes that would streamline operations and simplify some aspects of ERP implementation. Our recommendations for process changes, most of which come from our audit of the city's payroll process, include the following: consolidate city employees from six pay groups into as few groups as possible, paid at the same frequency, to simplify payroll operations; eliminate compensatory time off for department heads and other senior management staff; discontinue the practice of allowing employees to pay for health benefits without the required 90-day waiting period which will eliminate the need for additional controls; assess the fiscal impact of reducing or eliminating the waiting period for health benefits; eliminate donated leave which will require additional controls and processes in the ERP system and strengthen controls over advanced sick leave; and process reimbursed moving expenses, which may include portions that are taxable, as well as any other taxable employee benefits, through the payroll process so that they are reported as income as required by the IRS.

Some Current Systems and Manual Processes Will Remain in Place

Choices between modifying the Oracle ERP software and changing city processes to fit the new software are a major factor in decisions about how the new ERP system will be implemented. The city's goal is to limit modifications to the software as much as possible, because such changes increase short-term costs and can have long-term consequences. As a result, implementing the ERP system will not only replace many of the city's current information systems, but will also require building interfaces to connect the new system with other systems that remain, as well as developing controls over the manual processes that will not be automated.

Connecting ERP and other systems is part of implementation. Through the ERP system, the city can eliminate many of its current information systems; however, there will still be a need to connect the ERP system with some existing systems. These connections are needed to transfer data between the ERP system and other city systems for specific functions, or between the city and other organizations. These transfers are called interfaces and act as bridges between the applications and the ERP system. Once the ERP system is implemented there will be 43 interfaces between the system and other applications. They include, for example, connections with the city's new water and sewer billing and customer information system, the city employees' credit union, and a new treasury application that better meets the city's needs than the ERP system's treasury component. Building these interfaces is a major part of the ERP system implementation.

Airport ERP system will be replaced at additional cost. The Department of Aviation implemented eight Oracle financial and procurement modules plus three other software programs to manage property, capital projects, and maintenance. According to department staff, the Department of Aviation implemented its ERP System in May 2003 at a cost of \$12.1 million. This system, however, is an older version of Oracle that has been customized and, therefore, cannot easily be upgraded. These factors led the airport to discontinue use of its current system and adopt the city's ERP system for financial management. The airport's specialized software also must be interfaced with the city's new system. As of September 2005, it is not clear how much it will

cost to interface these systems; however, it has been determined that the costs will be paid with airport funds. It is clear, however, that the airport's previous expenditures on its Oracle implementation will not correspondingly reduce the cost of the current implementation.

Manual processes will require additional controls. Because the city plans to minimize the degree of change to the ERP system, the new system will not automate all current processes used by the city. As a result, some processes will change, but others will still be done manually.

The city's goal is to adapt its processes to the new system

Consequently, controls over such processes will have to be enforced outside the ERP system. Our review of the target process blueprint focused on these manual processes and the controls that will be needed (see Appendix 2).

The city has sound reasons for minimizing changes to the ERP software. When such changes are made, it affects short-term implementation costs because it requires programming services that are costly. Further, Oracle may not support customized software, so the risks of maintaining the system in the long term would be borne more heavily by the city. When system upgrades are needed, the programming changes would be required again. In some cases, the system may have been modified too much for an upgrade to be practical or even possible. The city has experienced this problem with its PeopleSoft system and with the Oracle system at the airport.

Effective Controls Will Require Preventive Measures and Limits on System Access

The nature of ERP systems in general, as well as previous audit findings on the city's current systems, suggests that certain types of controls should be emphasized in the city's new system. First, the controls built into the system must be used to prevent problems before they occur, often by limiting the data the system will accept and the operations the system will perform. Second, employee access to the system must be carefully structured to

match their roles and to prevent individuals from having such broad access that the risk of error and fraud is increased.

ERP Systems require different types of controls. In an ERP system, controls shift from detecting to preventing problems. Detective controls catch problems after they occur, whereas preventive controls are designed to stop problems before they occur. ERP systems entered into have preventive controls built into their operations, many of which are lacking in the city's current systems. Additionally, the ERP system will rely more on configuration settings, which control what can be processed by the system. A common problem encountered during implementation of an ERP system is eliminating traditional controls without replacing them with other effective control measures. The control recommendations in our memoranda on Phase I (see Appendices 1 and 2) are aimed at avoiding this problem.

Employee access to new system must be carefully managed. High integration among the city's business functions allow increased access to data. The city needs to be careful that the level of access given to employees is appropriate. A key objective for securing the ERP system database is to ensure that direct user rights to the database are as limited as practically possible. Furthermore, security and controls to the database should be built into the new ERP system rather than added after the system goes live.

Previous audits identified inappropriate access to current systems. The March 2004 audit, *Payments to Deceased Pensioners* (pension audit) identified employees that had access to too many functions. Employees, for example, had access to master files, master file maintenance, and payroll. Such access allows a single individual to create a master record for an employee, change and update the employee's information, and authorize payments to the employee. A follow-up done on the pension audit in March 2005 found that employees still had access to too many functions.

The 2005 payroll audit also found employees processing payroll at the department level who were performing incompatible job functions. In various work locations, the same person maintained, administered, and distributed payroll, and in one case, one person both prepared and approved payroll. We also found a location

where the same person prepared and approved turnaround documents, which are used to change an employee's position, pay, or status.

The city's external auditors have found many cases of inappropriate access as well, ranging from incompatible duties to broad access for terminated employees and those whose jobs have changed.

Access should be based on roles. Users should have only the access needed to perform their duties. The roles that personnel fulfill within an organization should be translated to system access permissions necessary for them to perform their daily business activities. When employees take on new responsibilities or change positions within the organization, their access should be changed to correspond to the level of access required for them to perform their new job responsibilities.

Access to sensitive areas should be limited. In our review of the to-be processes (see Appendix 1) that the city foresees using when the ERP system is implemented, we identified several areas that access should be limited, such as the ability to update the chart of accounts, to make prior period adjustments to the general ledger, and the ability to write-off accounts receivable. Additionally, the city should restrict the following functions (organized by module) to authorized personnel only.

General ledger module

- Access to the entry, import, definition, setup, and generation of journal entries.
- The ability to reverse journal entries.
- Access to the Financial Statement Generator (FSG) report definition and generation.
- The ability to open and close periods
- The ability to approve and post journal entries

Accounts Payable module

- Access to supplier master files.
- Access to invoices, accounting periods, credit/debit memos, setup and distribution sets

Other modules

- Access to add, change, or delete the archive and purge functionality.
- The ability to input, change, cancel, or release credit memos.
- The ability to input, change, or cancel goods received.

Lastly, access control processes should be in place to create, change, and terminate user access. These processes should be fully documented and continually refined throughout the ERP system implementation.

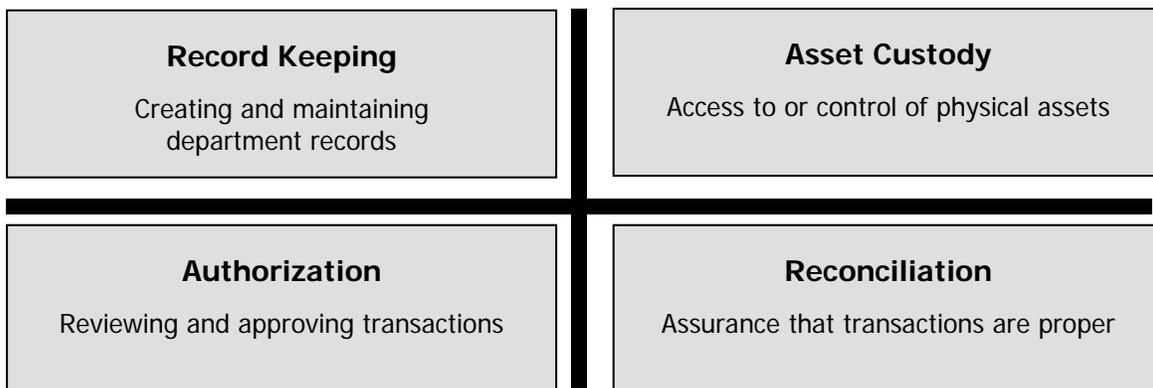
Incompatible business functions should be separated.

Certain types of duties should be done by different employees as a control measure to ensure appropriate data entry and to prevent misuse of company resources. Consequently, incompatible business duties and responsibilities should be separated. This principal applies both to functions (i.e. what a person can do) and to information (i.e. what a person can see).

Incompatible duties assigned to one employee increase the risk of inaccurate or fraudulent transactions. To control this risk, no employee should be responsible for more than one of the following types of functions for a single type of transaction. (See Exhibit 4.)

EXHIBIT 4

FRAMEWORK FOR SEPARATING DUTIES



Source: Institute of Internal Auditors (Copyright 2004 Deloitte Development LLC)

Examples of the risks of combining these types of functions are shown below:

Record Keeping and Asset Custody: An employee is responsible for recording inventory and has access to the same inventory. A risk exists that the employee can steal city inventory.

Record Keeping and Authorization: An employee has access to set up a supplier in accounts payable and can authorize an invoice for payment. A risk exists that the employee can pay themselves with city funds.

Record Keeping and Reconciliation: An employee has the ability to write off accounts receivable and is responsible for reviewing all write-offs. A risk exists that the employee will write off debts that should not be.

Asset Custody and Authorization: An employee is responsible for a fleet of city vehicles and is responsible for performing a physical count of the vehicles at year end. A risk exists that the employee can steal a city-owned vehicle.

Asset Custody and Reconciliation: An employee collects cash generated from parking tickets and then is responsible for balancing his cash drawer at the end of the day. A risk exists that the employee can take the city's cash.

Authorization and Reconciliation: An employee has the authority to authorize a payment from a city account and has the responsibility of reconciling the bank account at the end of the month. A risk exists that the employee can misappropriate city funds.

A more detailed list of incompatible duties that should be separated is provided as Appendix 5 of this report.

Data Transferred to the ERP System Must be Accurate and Reliable

The city plans to transfer information from 43 different databases to the ERP system. These data currently reside in MARS-G, PeopleSoft, QuickBooks, Grants Management, and in various

billing systems. When data are moved from one location to another and from one format to another, there is always a risk that the data will be corrupted, that some will be lost, and that data will be added unintentionally. It is vital that the data converted to the ERP system are valid, pertinent, and in the proper format.

Current systems have data integrity problems. ERP systems require extensive interfaces and data conversions, which make the importance of maintaining data integrity essential. If inaccurate data is entered in one module of the ERP system then other modules are exposed to the bad data. In previous audits, we have found numerous data errors. Errors in the personnel and payroll information in PeopleSoft, for example, included the following:

- Employees with multiple employee identification numbers.
- Payments processed without a social security number or with an obviously invalid social security number such as 999-99-9999.
- Employees with the same position number at the same time for multiple pay periods.
- Employee records with obviously erroneous name changes. Their names had been changed to the name of an organization.
- Employee hire dates of January 1, 2000, the date of the city's conversion to PeopleSoft, instead of their actual hire date.
- Employee records with names, birth dates, gender, or other information that did not match their social security numbers.

City is responsible for data conversion. The quality assurance firm for the ERP implementation identified data conversion planning as a high risk in September 2005. Data conversion is the responsibility of city staff. The city expects to have a data conversion plan finalized by November 2005. The plan should provide for the following four phases, identify the responsible parties, and establish deadlines for the work to be done. The ERP Implementation Steering Committee should monitor the implementation of the data conversion plan.

Data conversion provides an ideal opportunity to clean the data to make sure that data is worth using in the future. The data conversion process should consist of four phases, which are described in Exhibit 5.

EXHIBIT 5

PHASES OF DATA CONVERSION PLAN

Phase 1: Planning - All data conversion work needs to be planned. A formal plan must exist that comprehensively covers all aspects of the conversion and makes a realistic estimate of the time and resources needed.

Phase 2: Data Cleansing - A significant amount of time should be budgeted for this manually intensive phase. A definition of “clean data” must be established providing answers to the following questions: Which fields must contain data items? Are there any required relationships between different data items? Are the data items’ values actually correct? A thorough analysis is required to ensure that all “clean data” criteria are identified. Old system documentation can assist in this process. Before any cleansing takes place, a backup of the data should be created, and a copy of the database should be used to avoid potential data corruption. Errors found by automated checking must be investigated and corrected manually. Lastly, the original data must be updated as errors are discovered.

Phase 3: Conversion - The relationship between the old database and the new ERP system should be properly defined. Additionally, there should be written specifications of the source and destination of all data items being converted, any data items that are created by the process, and data items that will be deleted. As with the data cleansing phase, the whole process should be tested on copies of the database before the actual conversion takes place.

Phase 4: Validation - Once all of the phases have been completed, the database needs to be checked to ensure that the conversion was carried out in the way it was intended. To facilitate this validation, tests should have been created and documented in advance during the planning phase.

Source: Alan Oliphant, “Data Conversion”, *IT Audit*, vol. 5, 11.01.02, pp. 2-5.

In addition to the converted data, the city should maintain the historical data from its current systems that will not be transferred to the ERP system. Keeping this historical data is important as it may be the only record of past transactions and events. The city should ensure that this data is kept in a secure location and is accessible only to authorized personnel.

Disaster Recovery Plan for New System is Critical

ERP system components are interdependent and rely on a single database. This makes a disaster recovery plan, which would

outline methods for continuing operations and recovering data in the event of a major system interruption, especially important. The city has begun developing a disaster recovery plan for its information systems. This is a first step toward a more comprehensive business continuity plan for all essential city operations. Such a plan was recommended by the city's external auditors in their 2004 report on internal controls, a suggestion with which we concur.

Single failure has major implications in ERP systems. An ERP system is essentially a single-point-of-failure system as all data is stored within one database. Since the entire system is linked together, a failure in one part of the system affects the other parts as well. Failures may result not only from disasters such as fires, floods, or other causes of property damage, but also from more mundane causes like hardware or software malfunctions.

City has begun disaster recovery planning for information systems. The Department of Information Technology, with help from an outside firm, is in the process of creating a disaster recovery plan for the information systems they support, which will include the ERP system. The city should base its disaster recovery strategy on two key parameters:

- How long can the organization afford to be without a particular IT system?
- How much data can the organization afford to lose or recreate after recovering the backup of systems and data?

In general, the shorter the data recovery time needed, the higher the data recovery costs.

Data recovery options include (ranked in descending order from the fastest recovery time and the highest cost of adoption):

- Hot site: An alternate facility which is fully equipped with the resources needed to recover business processes almost immediately. The location and size of a hot site should be proportionate to the amount of equipment and resources needed to ensure complete business recovery.
- Warm site: An alternate facility only partially equipped with resources such as hardware, communications interfaces, electricity, and environmental conditioning. Such a facility

may enable an organization to resume business operations within six to 12 hours following a disaster.

- Cold site: An alternate facility that offers only environmental conditions, such as air conditioning and raised flooring. The equipment and resources required for resuming critical operations must be set up after a disaster has occurred. This option may enable an organization to be operational within two to four days following a disaster.

Business continuity planning should continue. Disaster recovery for IT is one aspect of a business continuity plan. Business continuity planning identifies alternate operational and communications strategies for all critical city processes to use if the city's offices and facilities are shut down by natural disaster, terrorism, or other adverse events. In their report on internal controls for the 2004 financial audit, the city's external auditors identified the elements of a business continuity plan that go beyond information systems. They include:

- Identification and prioritization of risks and controls;
- Operational impact analyses by process flow;
- Effective reaction strategies;
- Development of the continuity plan;
- Training of teams and other personnel;
- Plan testing;
- Plan maintenance procedures;
- Emergency response and evacuation procedures;
- Declaration procedures;
- Executive and employee notification procedures;
- Recovery resources and procedures for the mobilization of employees and resources; and
- Employee responsibilities and action steps for emergency, recovery, and restoration operations.

Previous external auditors for the city also have noted the lack of business continuity planning. We recommend that the city administration develop a long-term strategy to complete not only a disaster recovery plan for the ERP and other IT systems, but a comprehensive business continuity plan as well.

Additional HR/Payroll Process Changes Could Simplify New System

The city could make changes in several HR/payroll processes that would streamline these operations. We believe these changes in business processes would aid in the city becoming more efficient and add to the productivity gains that the city will realize when the ERP system implementation is complete. A primary purpose of the ERP system implementation is to improve processes and adopt best practices.

These recommendations are based on results of a forthcoming payroll audit. They are summarized here with emphasis on how they would affect the ERP implementation.

Consolidate City Employees into Fewer Groups

Paying city employees is a labor-intensive operation that includes duplicative manual and automated processes. To handle the workload, city employees are paid on six different pay schedules and at three different frequencies as seen in Exhibit 6.

EXHIBIT 6

CITY PAY GROUPS			
	PAY FREQUENCY	PAY DAY	EMPLOYEES
Group 1	Biweekly	Every other Wed (alternates with group 3)	Police
Group 2	Weekly	Every Friday	Sanitation
Group 3	Biweekly	Every other Wed (alternates with group 1)	General
Group 4	Biweekly	Every other Fri (alternates with group 6)	General
Group 5	Monthly	Last Friday	City Council
Group 6	Biweekly	Every other Fri (alternates with group 4)	Fire

Source: City records

In a typical month, the city has eight pay days or a pay day every Wednesday and Friday. Further complexity is added by paying different employee groups at different intervals.

The current system requires so much manual processing and data entry that payrolls are staggered to spread out the workload for central payroll staff. The use of the Kronos system for time and attendance, coupled with the ERP system for payroll, should eliminate most of the manual processes and duplicate data entry. A single pay frequency and fewer pay dates should reduce the work of configuring the new system. Paying all city employees on the same frequency (either biweekly or semimonthly) and in fewer pay groups should reduce administrative costs and free up payroll staff to perform customer service and payroll-related accounting functions.

Eliminate Optional Payment for Early Health Benefits

The city Code of Ordinances, section 2-850 specifies that city officers and employees will become eligible for the group health and dental benefits after 90 days of continuous service. Employees can, however, elect to pay the full cost of coverage and obtain health and dental insurance from the start of their employment.

Our first memorandum on proposed ERP processes raised the issue of verifying employee payment under this option and otherwise enforcing the 90-day waiting period. We made recommendations for system controls and manual controls over the process (see Appendix 1). Even with different configuration of the ERP system, assuring compliance with this requirement will depend on manual processes and controls.

Because the Code of Ordinances does not provide for the option of paying for health benefits to avoid the waiting period, we believe the practice should be discontinued. This would simplify process controls and system configuration. The finance department also should analyze the fiscal impact of reducing or eliminating the 90-day waiting period.

Include Taxable Employee Benefits in Payroll Process

The city's current practice of paying certain employee fringe benefits outside of the payroll process makes it difficult to ensure that these payments are reported correctly to the IRS for tax purposes. Our audit of the city's tax reporting responsibilities is still in progress. The audit is assessing the extent and

consequences of noncompliance with IRS requirements for reporting taxable fringe benefits, such as personal use of automobiles, cell phones and other mobile devices, and moving expense reimbursements. While we do not yet have the audit results, the ERP implementation provides an opportunity now to reduce the risk of future noncompliance. This can be accomplished by handling these benefits and payments through the payroll process, which differs from current practice.

The city's method for reimbursing eligible employees for relocation expenses, for example, creates a risk that taxable reimbursements will not be reported as income to the employee and the IRS. The HR administrative policy on relocation expenses allows reimbursement of expenses that are not tax-deductible, such as house-hunting trips and temporary living expenses. City payment of these expenses is taxable income to the employee. The city does not, however, issue the reimbursement through payroll, but rather through accounts payable. As a result, the payment is not automatically subject to tax withholding and reporting as required.

The payroll component of the ERP system should be configured to record all taxable fringe benefits and to pay all taxable expense reimbursements. This will ensure that such benefits and income are reported correctly to the employee and to the IRS for income tax purposes.

Eliminate Compensatory Time for High-Level Salaried Employees

The city's policies governing compensatory time off for salaried employees have been inconsistent, confusing, and difficult to administer. Salaried employees are exempt from the requirements of the Fair Labor Standards Act (FLSA), which regulates work hours and overtime pay for hourly employees, and they are prohibited from receiving overtime pay by the city Code of Ordinances. The FLSA states that salaried employees can be expected to work more than 40 hours per week without additional compensation. However the city code allows, but does not require, compensatory time off for these employees. The current HR administrative policies prohibit salaried employees at pay grade 30 and above from accruing formal compensatory time but allows them to track extra hours worked and take equivalent time off at a later date.

In the payroll audit, we found noncompliance with the administrative policy and varying practices among departments regarding compensatory time for salaried employees at all pay grades. Some departments were keeping their own records of compensatory time that vary considerably from the city's official payroll records, and they were allowed to use compensatory time based on these informal records. We found other errors and inconsistencies in payments to salaried employees for unused compensatory time when they left city employment.

Giving salaried employees compensatory time does not violate the FLSA. However in our inquiries about other cities' practices, we have found it unusual for department heads and other senior management staff to receive compensatory time. In addition, the practice of keeping informal records of compensatory time impairs transparency and weakens accountability.

Policies governing compensatory time for salaried employees must be clarified before the HR/payroll components of the ERP system are configured. We recommend that the city Code of Ordinances be revised to prohibit compensatory time for department heads and other senior management staff to be defined, and that the HR administrative policy be revised accordingly. Controls in the ERP system should be established to prevent this group of employees from earning or taking compensatory time off.

Discontinue Donated Leave and Strengthen Controls Over Advanced Sick Leave

The city has had problems recording and controlling the use of advanced sick leave and donated leave. Both are authorized in the city Code of Ordinances for use by employees who, because of protracted illness or serious injury, have used all of their earned leave and still are unable to return to work.

Advanced sick leave essentially is a loan from the city. When the employee returns to work, their earned vacation leave is deducted until the advanced leave is paid back; if the employee leaves city employment before all advanced leave is recovered, then the cost of the leave is deducted from their final pay. Donated leave is contributed by other employees, deducted from their leave balances, and recorded in the leave balance of the recipient. Leave that is donated but not used is forfeited.

In the payroll audit, we found numerous violations of the requirements for both advanced and donated leave. Advanced sick leave was not consistently paid back through leave deductions, and employees left the city without repaying advanced leave and without deductions from their final pay. Employees received more than the one year of donated leave allowed by the city code, and some received donated leave when they still had earned leave. Some employees were paid for leave donated to them but not used when they left city employment. Records of donated leave were missing or incomplete. Some donated leave was not deducted from the leave balances of those who donated it.

The city should discontinue its donated leave program rather than incorporate it into the ERP system implementation. Donated leave requires manual processes that increase the risk of error and abuse. Donations have to be tracked for each employee who donates leave, and many employees may donate to a single individual. Even with the new ERP system, donated leave would still be processed by hand.

In addition, donated leave weakens individual responsibility for use of leave, increases the city's potential liability for unused leave, and imposes the salary and lost productivity costs of long-term absences on individual work units. The city's pension plans provide long-term disability coverage, and the city could explore options for short-term disability coverage as well.

The ERP system can accommodate advanced sick leave more easily and can build in constraints to reduce risk of error and abuse. Added controls should include the following:

- Limit the amount of advanced sick leave granted per incident and per lifetime for employees.
- Create fields in the ERP system to track advanced sick leave and to keep the leave separate from other leave balances.
- Create fields in the ERP system to track the dollar amount of advanced sick leave that is still owed by the employee.
- Allow employees to repay the amount of advanced leave with deductions from either sick or vacation leave.
- Establish a limit on time the employee has to repay the leave.

Recommendations

Our recommendations include three types of actions. First, several recommended actions should be part of the ERP system implementation. Second are actions that should run parallel to the implementation, because they will support and complement the system once it is operating. Finally, several recommended actions should occur before the HR/Payroll components of the system are implemented, because they call for legislative and administrative policy decisions that will affect how the system is configured.

All of our recommendations are directed to the ERP Steering Committee because it is the administration's governing body for this project. The steering committee should make decisions about all recommendations and monitor their implementation status, while individual department heads should be charged with initiating the recommended actions.

1. The ERP Steering Committee should include in the ERP project budget the estimated additional cost of system implementation at the airport. Once included, the actual costs should be tracked against the budget in the same way as other project costs.
2. The ERP Steering Committee should ensure that written policies and procedures are prepared for all manual processes that are not automated in the new system implementation.
3. The ERP Steering Committee should oversee development of a formal plan for system access that user departments must follow when the new system is operational. The plan should be based on the following principles:
 - Access to very sensitive resources is limited to a few individuals.
 - Employees are restricted from performing functions beyond their responsibility.
 - Information resources are classified according to their criticality and sensitivity.

- Policies and procedures are instituted for authorizing access to information resources and documenting such authorization.
 - Emergency and temporary access authorization is controlled.
 - Employees are prohibited from performing two or more of the following functions for a single type of transaction: record-keeping, asset custody, authorization, and reconciliation.
4. The ERP Steering Committee should oversee the data conversion process to ensure that the data transferred to the ERP system is accurate and reliable. The data conversion process should be based on a formal data conversion plan, a definition of clean data, and written specifications for the source and destination of all data items being converted. Further, the steering committee should ensure that the conversion process is tested to validate that the conversion was carried out in the way it was intended.
 5. The ERP Steering Committee should ensure that the city has an adequate disaster recovery plan for the ERP system and that the plan has been tested before the ERP system is operational.
 6. The ERP Steering Committee should facilitate a decision process about the following HR/Payroll policies and practices. Policy changes should be completed before the HR/Payroll components of the new system are configured.
 - a. Consolidate the city's six pay groups into as few pay groups as possible, and pay all city employees at the same frequency.
 - b. Observe the 90-day waiting period for health benefits, and discontinue the practice of providing earlier coverage to employees who pay the full cost.
 - c. Analyze the fiscal impact of reducing or eliminating the 90-day waiting period for employees to receive health benefits.

- d. Include all taxable employee benefits and taxable employee expense reimbursements in the payroll process to ensure that they are reported to the IRS as required.
 - e. Propose legislation to eliminate compensatory time off for department heads and other senior management staff to be defined, and revise the HR administrative policy on compensatory time for salaried employees accordingly.
 - f. Propose legislation to eliminate donated leave.
7. The ERP Steering Committee should ensure that controls for advanced sick leave are included in the system implementation and related administrative policies and procedures, as listed on page 26 of this report.

Appendices

APPENDIX 1

"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES



CITY OF ATLANTA

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TO: Sherman Bryant, Oracle ERP Program Director

FROM: Leslie Ward, City Auditor

DATE: August 15, 2005

SUBJECT: Oracle To-Be Processes

This memo includes our preliminary recommendations on design of controls for the city's Oracle Enterprise Resource Planning (ERP) phase 1 implementation. We have reviewed the proposed to-be processes that the city envisions using when the ERP implementation is completed.

Our review has included these methods:

- Attending the Conference Room Pilots (CRPs)
- Reviewing the to-be process workbooks
- Reviewing the CRP scenarios and scripts
- Reviewing best practice materials
- Reviewing documentation related to Oracle security and control
- Interviewing city staff and consultants regarding the proposed new processes

The work has been conducted in accordance with government auditing standards for performance audits.

To the best of our knowledge, our recommendations can be implemented without customization of the Oracle system during phase 2. We believe these suggestions will enhance the controls within and around the new system. The recommendations are organized by the three functional areas. A few recommendations, however, apply to multiple functional areas.

Human Resources and Payroll – these 14 recommendations address controls over positions, payroll, tax reporting, and benefits.

1. Temporary positions should be set up in Oracle with both a "to" and "from" effective date to help ensure that temporary positions are not occupied past their intended dates.

APPENDIX 1 (Continued)

"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

Comments: Yes, temporary positions will be setup in Oracle with both a "to" and "from" effective date to help ensure that temporary positions are not occupied past their intended dates.

2. The city should create an employee termination checklist in Oracle to ensure terminated employees return all city equipment, access cards, and pay outstanding debts (e.g. advanced leave), etc. when they leave city employment.

Comments: Yes, employee termination checklist will be created in Oracle to ensure terminated employees return all city equipment, access cards, and pay outstanding debts (e.g. advanced leave), etc. when they leave city employment.

3. When an employee is terminated, access to Oracle should be denied as soon as the termination is effective. Currently, access to PeopleSoft has to be changed or removed manually, which sometimes does not occur until long after the termination.

Comments: Yes, when an employee is terminated, access to Oracle should be denied as soon as the termination is effective. This is however contingent upon how soon the communication reaches HR.

4. Oracle allows records to be changed through the use of either the "update" or "correction" key. The use of the "correction" key removes the previous record and does not track who made the change. Furthermore, this information is not kept in Oracle's audit trail. Given these consequences, use of the "correction" key should be strictly limited to as few users as possible and only in situations in which the correction applies retroactively. The city should adopt and strictly enforce these limitations.

Comments: The city should adopt and strictly enforce these limitations.

5. Oracle should be configured to require hourly employees to submit a timecard to be paid. For these employees, the "time card required" field should be checked as a default. Any exceptions to this rule should be determined beforehand so that Oracle can be properly configured.

Comments: Yes, team is planning to enable the time card required field to YES.

6. Social Security Numbers (SSN) are not a required field in Oracle; however, the city should enter the SSN for each employee. The city should require use of the Employer Verification Service to verify SSN and use Oracle to record and track compliance.

Comments: The city should require use of the Employer Verification Service to verify SSN and use Oracle to record and track compliance.

7. Oracle should be configured to prohibit exempt employees from receiving overtime pay.

Comments: Yes, the team is planning to configure Oracle to prohibit exempt employees from receiving Overtime Pay. However there are few salaried employees who receive Overtime Pay. For such employees this rule will be overridden.

APPENDIX 1 (Continued)

"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

8. Oracle should be configured to prevent negative leave balances.

Comments: This will be treated slightly differently. If a person's leave type is approved and he does not have any leaves to his/her credit) it will be recorded against Advanced Sick leave and not under Vacation or Sick Leave. However if the leave type is not approved it will be treated as Leave without pay.

9. Oracle should be configured to identify employees working on F-1, J-1, M-1, and Q-1 visas and comply with the different Medicare withholding rules that apply to these individuals.

Comments: Yes, the team is planning to configure Oracle to to identify employees working on F-1, J-1, M-1, and Q-1 visas and comply with the different Medicare withholding rules that apply to these individuals.

10. Tuition reimbursement (under the current agreement with Georgia State University) should be tracked in Oracle to ensure that the city can monitor this benefit for (1) potential tax reporting requirements and (2) potential repayment requirements if the employee leaves city employment.

Comments: The team is planning to track Tuition reimbursement in Oracle to ensure that the city can monitor this benefit for (1) potential tax reporting requirements and (2) potential repayment requirements if the employee leaves the City employment.

11. The city should ensure that Oracle is configured to track taxable benefits received by employees, such as personal use of city-owned vehicles and cell phones.

Comments: Yes, the team is planning to configure Oracle to track taxable benefits received by employees, such as personal use of city-owned vehicles and cell phones.

12. If the city continues its policy of a 90-day waiting period before it pays the employer's share of employee health insurance premiums, additional controls should be established over any exception to this policy. The advanced benefits module has a field that allows someone who is ineligible for benefits to receive benefits, if the "allows override" field is enabled. This feature can be used to grant employees benefits during their first 90 days with the city, but the override cannot be linked to payroll to ensure that the full cost is being withheld. The city should use an exception report to review periodically the health insurance premiums being withheld for any employees for whom the override feature is in effect. Furthermore, access to this field should be restricted to only a few users.

Comments: Concur.

13. The choices for benefits eligibility are eligible, ineligible, and "eligible or ineligible." The choice of "eligible and ineligible" should be disabled.

Comments: Yes the choice of "eligible and ineligible" will not be disabled but it can be disabled if there is no requirement to utilize it.

APPENDIX 1 (Continued)

"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

14. For temporary employees, Oracle should default to ineligible for benefits. Any exceptions to this rule should be determined beforehand so that Oracle can be properly configured.

Comments: Yes for temporary employees, Oracle will default to ineligible for benefits.

Financial – these 13 recommendations address controls over accounting, budgeting, payables, receivables, fixed assets, grants, investments, and debt issuance.

1. The sub-ledgers in Oracle should be reconciled against the Oracle general ledger at least monthly.

Comments: The City will have a monthly closing process schedule which will detail the reconciliation procedures that need to occur on a monthly basis between the sub-ledgers and the General Ledger.

2. The city should enter only the accounts from the State's Uniform Chart of Accounts that it actually uses. Entering unnecessary accounts will hamper Oracle's response time and thus constrain system efficiency.

Comments: The City is planning on using on accounts valid for the City's business purposes.

3. Only one or two staff should have access to update the chart of accounts, once it is entered in Oracle. The same employee(s) should not have access to both disable and re-activate accounts.

Comments: Oracle standard functionality allows the same user the ability to "enable" and "disable" accounts by way of a check box. Security will be setup to limit access to the account maintenance screens to a select individuals for the City as whole.

4. Attachments posted to the general ledger should be read-only to prevent the documents from being altered.

Comments: Standard functional in Oracle does not allow an attached document to be modified. However, an attached document can be deleted. The Team will explore system settings that will prevent attached documents from being deleted.

5. Prior period adjustments to the general ledger should require at least two levels of approvals before the adjustments are posted.

Comments: The processes will be adjusted to require an additional level of approval.

6. The general ledger module should be configured to apply the unique document number feature to journal entries. This feature automatically assigns the next available journal entry number in sequence and ensures that all journal entries are accounted for.

Comments: The Team is planning to implement this functionality.

APPENDIX 1 (Continued)

"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

7. Budget controls should be set to default to "absolute" to prevent the budgeted amounts from being overspent.

Comments: The Team is planning implement budgetary controls with absolute setting for all budgetary accounts. Standard Functionality defaults Budgetary control settings to be "None". However, access to creating a budget forms in Oracle will be restricted to select individuals for the City as a whole.

8. Only U.S. currency should be enabled in Oracle.

Comments: The Team is planning to only enable USD as the currency.

9. Users should be trained to avoid duplicate postings, and reports should be run and reviewed regularly to identify potential duplicate postings. Oracle cannot prevent duplicate postings; through the Applications Desktop Integrator (ADI), a user can inadvertently post the same journal entry to the general ledger more than once.

Comments: User procedures will be put in place to control the uploading of ADI journals to General Ledger. In addition, all journals coming from ADI are subject to the same approvals routings as regular journals. Only select individuals will have access to ADI.

10. The same employee(s) should not have access to both create and execute bank transfers.

Comments: The Team agrees with this recommendation. The Team is planning to segregate these two functions.

11. Manual processes and procedures should be done to direct all refunds to be deposited into Accounts Payable to ensure that the vendor history information is maintained.

Comments: The Team is planning to implement this process.

12. Manual policies and procedures should be done to instruct all individuals entering receiving items to enter serial number, descriptions and tag number for accurate tracking of assets.

Comments: User procedures will be developed to help ensure that users have proper training with regard to the receiving of assets. In addition to serial number, description, and tag numbers, the team is exploring additional data (i.e. VIN #) that can be captured during receiving. We are working with the Procurement Team to firm up this process.

13. Access to write off accounts receivable should be restricted to a few users and require at least one level of supervisory approval.

Comments: The Team is planning to limit write-off capability to a few users and also establish approval limits for users to require two levels of approval.

APPENDIX 1 (Continued)

"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

Purchasing – these 6 recommendations address the procurement process, from bid and contract documents to receiving to document retention.

1. Oracle should be set up for blind receiving to ensure an accurate count of services and items actually received.

Comments: iProcurement will allow you to turn "on" or "off" the blind receipt function. Blind receiving will be turned "on" (activated) in the City's ERP System

2. Requisition numbers, purchase order numbers, and bid numbers should be computer-generated with intelligence, for both tracking and error prevention.

Comments: Purchase Orders will have intelligence similar to current process. Bid Numbers will have intelligence similar to current process. Requisition Intelligence will be limited to on-screen in Oracle not on requisition.

3. The Contract Terms Library Module should be implemented to facilitate consistency and inclusion of required provisions in bid and contract documents. The module also will facilitate status tracking and maintain a repository of these documents.

Comments: The Contract Terms Library will be configured to allow for consistency and inclusion of required provisions in bids and contract documents. Additionally, it will be repository for these documents. However, the Purchasing Module will be used for status tracking.

4. Required receiving information should include condition of goods received from vendor, in order to track defective items and other problems.

Comments: If damage goods are visible at time of receiving, goods will not be received. Therefore, there is not a need to note damage receipt at this time. If damage goods are discovered after receipt, goods will be returned. There are "Return Codes" in Oracle that the Receiving Clerk must populate to state reason for return.

5. Oracle should be configured to view and track Minority Business Enterprise and other supplier classification codes for Federal and State reporting requirements.

Comments: This information will be tracked via Business Classification Codes.

6. The city should review its document retention policies and practices in light of Oracle implementation. Because system entry of purchase, payment, and receipt transactions will occur from several locations, responsibility for retention and storage of supporting documents should be specified clearly. User departments will not have to submit documents to Finance or Procurement in order to process transactions, as they do now. Federal and state laws require the retention of purchasing, payment, receipt and supporting documentation for a specified number of years.

Comments: This will require a business policy decision that requires input from various departments, i.e., DOP, DOL, DOF and selected user agencies.

APPENDIX 1 (Continued)
**"TO-BE PROCESSES" MEMORANDUM FROM CITY AUDITOR
TO ERP PROGRAM DIRECTOR WITH RESPONSES**

We appreciate the opportunity to provide feedback on phase I of the Oracle ERP implementation and would like to thank the project team for their courtesy and cooperation with our review. We look forward to continuing this constructive relationship throughout the implementation process. Please feel free to contact Gerald Schaefer at 404/330-6876 if you have questions or would like to discuss further. You can reach me directly at 404/330-6804.

Distribution:

Delicia Nwadike, Finance Lead
Wiley Hamby, Human Resources Co-Lead
Felita Jones, Human Resources Co-Lead
Keith Brooks, Procurement Lead
Heather Cocozza, IBM Project Manager

Copies: Steering Committee

APPENDIX 2

"TARGET PROCESS BLUEPRINT" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES



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Mayor Shirley Franklin
Council President Lisa Borders

TO: Sherman Bryant, Oracle ERP Program Director

FROM: Leslie Ward, City Auditor

DATE: September 1, 2005

SUBJECT: Oracle ERP Target Process Blueprint

This memo includes our preliminary recommendations on the Oracle ERP Target Processes for the city's Oracle Enterprise Resource Planning (ERP) phase 1 implementation. The focus of this memo is a review of the Oracle ERP Target Process Blueprint document. This document was developed to ensure that the software, process, enhancement, and reporting levels for the ERP project have been properly defined and to identify if any further changes are necessary to support the envisioned ERP implementation.

Our review has included these methods:

- Reviewing the gap analysis documents and analyzing gaps with manual processes solution recommendations
- Reviewing the ERP target process blueprint document and comparing information with the functional workbook analysis and gap analysis documents
- Reviewing documentation related to Oracle security and control
- Interviewing city staff and consultants regarding the proposed new processes and gap analysis solutions
- Identifying any changes or updates to the gap analysis manual process solutions

The work has been conducted in accordance with government auditing standards for performance audits.

Our recommendations focus on the gaps that have proposed manual procedures (as of September 1, 2005) as solutions. These processes will not be completely automated in Oracle because doing so would require costly customization. We believe these suggestions will enhance the controls over these processes. All 10 recommendations pertain to gaps identified in the financial modules. The gaps are listed in bold text and are followed by our recommendations.

APPENDIX 2 (Continued)

"TARGET PROCESS BLUEPRINT" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

1. Change Asset Type to CIP

Standard functionality in Oracle transfers cost lines from projects to fixed assets and places the costs in the "fixed assets prepare mass additions" table with the asset type listed as capitalized. The city wants the asset type changed to CIP. The steps needed to change an asset type to CIP instead of capitalized, when cost lines are transferred from projects to fixed assets, should include the following controls: a) a level of supervisory review to ensure that the asset type is entered correctly; b) limit access to change the asset type to one or two staff; c) generate and review weekly asset reports to identify asset type errors.

Comments: Agreed. Security will be limited to who can assess the Prepare Mass Additions screen where the Asset Type field is located. Oracle standard functionality does not build security on the specific Asset Type field.

2. Accounts Payable Retainage

Oracle cannot automate the retainage process. To ensure efficient and effective processing, the city should restrict the ability to process retainage invoices and payments to a single individual (with a trained backup person). A contract showing retainage amount should also accompany all retainage invoices. Furthermore, weekly retainage reports should be generated and reviewed to provide additional assurance that retainage payments are accurate and done in a timely manner.

Comments: The Accounts Payable Team is recommending two-way matching (Purchase Orders) together with workflow approvals. This will streamline the processing of all invoices, including retainage invoices. In the proposed centralized accounts payable environment, retainage invoices will not be readily identifiable. Retainage procedures will be defined to ensure that all payments of invoices with respect to retainage will be supported by appropriate documentation and an approval workflow process. Retainage reports have been identified for development to facilitate the tracking of retainage invoices. In a centralized Accounts Payable environment, I am not sure how realistic it is to have only one individual responsible for entering retainage invoices.

3. Automatic Hold on Employee Advances

The Oracle system cannot automatically place a hold on an employee expense account with outstanding expense advances. To ensure that there are no outstanding advances prior to approval, the city should require both the department and accounts payables to perform a query in Oracle to review expense information for all employees requesting advances to detect any outstanding advances. The requesting department should make a notation on the expense request that a check was performed for outstanding advances prior to sending the request to accounts payable. Lastly, accounts payable should generate a monthly report on advances overdue 30 days or more, distribute it to all departments, and request immediate processing of overdue advance documents to more effectively manage outstanding advances.

Comments: Agreed

APPENDIX 2 (Continued)

"TARGET PROCESS BLUEPRINT" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

4. Workflow Routing

The City has complex routing requirements to route project-related and service-related invoices through an approval process. To avoid overdue or late payments, the city should set a time limit for invoices to be approved by the department and returned to accounts payable for processing.

Comments: Agreed. Time limits will be set as part of the approval workflow of accounts payable invoices.

5. Customer Refunds

Processing customer refunds in Oracle requires a two-step process. Step one is to write off the receivable, and step two is to set up the customer as a vendor in accounts payable in order to remit payment to the customer. These tasks should be performed by two different individuals to maintain proper separation of duties. Furthermore, it should be noted in Oracle that the write-off was due to a customer refund so that it can be distinguished from write-offs for receivables deemed uncollectible.

Comments: Agreed.

6. Milestone Functionality (Procurement)

The process of notifying users of events and milestones (e.g. insurance premium dates, lease renewal dates, etc.) should be automated outside of Oracle (since it cannot be done in Oracle) to ensure due dates and dead lines are not inadvertently missed.

Comments: Reports will be run upon request or as scheduled to monitor milestones.

7. Property Definition (Procurement)

The Oracle fixed assets and property manager modules are not integrated. Property, even though defined in Fixed Assets, will have to be redefined in the property manager module. To ensure that the property information is accurate in property manager, the city should match property information against information in the fixed asset module.

Comments: Agreed. The Fixed Asset Number will be incorporated in the naming segment in the Property Module.

8. Lease Purchase Order (Procurement)

Oracle is unable to create purchase orders for a lease so that funds can be encumbered in the general ledger module. For better control and accuracy, manual encumbering and tracking of lease payments should be restricted to one or two individuals. The lease account and payment amounts should be reconciled at least monthly for accuracy and for monitoring of the lease termination date.

Comments: TAR was issued to determine if Oracle will support customization to integrate Property Manager and Accounts Payable. Work-around solution includes processing recurring invoices.

9. Abstract and User Responsible Fields (Procurement)

APPENDIX 2 (Continued)

"TARGET PROCESS BLUEPRINT" MEMORANDUM FROM CITY AUDITOR TO ERP PROGRAM DIRECTOR WITH RESPONSES

Oracle cannot place default values in the Abstracted By and User Responsibility fields, consequently the incorrect person could be entered in the fields. The person selected would then have access to the property manager module. To maintain tight security and avoid giving unauthorized or too much access to users, these fields should be restricted to only a few individuals.

*Comments: Oracle **does** place default values in the Abstracted By field only. To safeguard against unauthorized use of this module, limited access will be granted to both Abstracted By and User.*

10. Collection Late Payment Fees if Fixed Amount

Oracle cannot calculate interest charges or late payment fees on accounts receivable entered directly into the accounts receivable module. These charges or fees have to be entered manually. To ensure that these charges and fees are applied to all of the appropriate delinquent accounts, employees should periodically run Oracle aging reports to check that all overdue accounts have been properly assessed the correct fees and charges.

Comments: Oracle cannot calculate interest charges or late payment fees based on a fixed fee rate. However, interest charges or late payment fees can be calculated based on a percentage of an outstanding customer invoice balance. The Team has identified procedures whereby, if applicable, additional lines on an invoice or debit memos will be entered for customers requiring a fixed interest/late payment fee.

We need written responses to these recommendations no later than **September 6**. We appreciate the opportunity to provide feedback on phase I of the Oracle ERP implementation and would like to thank the project team for their courtesy and cooperation with our review. We look forward to continuing this constructive relationship throughout the implementation process. Please feel free to contact Gerald Schaefer at 404/330-6876 if you have questions or would like to discuss further. You can reach me directly at 404/330-6804.

Distribution:

Delicia Nwadike, Finance Lead
Wiley Hamby, Human Resources Co-Lead
Felita Jones, Human Resources Co-Lead
Keith Brooks, Procurement Lead
Heather Coccozza, IBM Project Manager

Copies: Steering Committee

APPENDIX 3

BIBLIOGRAPHY: ERP SYSTEM IMPLEMENTATION AND CONTROLS

- "Auditing Governance in ERP Projects" S. Anantha Sayana. Volume 2, 2004. *Information Systems Control Journal*.
- "Auditing Security and Privacy in ERP Applications" S. Anantha Sayana. Volume 4, 2004. *Information Systems Control Journal*.
- "Business Continuity: A Business Survival Strategy." Ken Doughty. Volume 1, 2002. *Information Systems Control Journal*.
- "Business Continuity Plan Testing: Considerations and Best Practices." Brian Zawada. *Information Systems Audit and Control Association InfoBytes*.
- "Business Continuity Planning: Don't Be Caught Off Guard." Annie Cushing. Volume 27, No.5, 2005. *Auditwire*.
- "Considerations for Software Upgrades." John Silltow. Volume 5, November 15, 2002. *IT Audit*.
- "Data Conversion." Alan Oliphant. Volume 5, November 1, 2002. *IT Audit*.
- "Data-recovery Plans Can Avert Disaster" Ira Gupta. Volume 7, November 1, 2004. *IT Audit*.
- "Disaster Recovery and Business Continuity Planning: Testing an Organization's Plans." Yusafli F. Musaji. Volume 1, 2002. *Information Systems Control Journal*.
- "Enterprise Resource Planning: Can it be risky?-Part 1" Akhilesh Tuteja. Volume 3, May 1, 2000. *IT Audit*.
- Enterprise Software Implementation for Auditors*. Deloitte Development LLC. 2004.
- "Guide to Enterprise Management: The Electronic Decision-Maker." Ellen Perlman. July 2000. *Governing*.
- "Implementation of ERP Systems: Accounting and Auditing Implications" Benjamin Bae and Paul Ashcroft. Volume 5, 2005. *Information Systems Control Journal*.
- IS Standards, Guidelines and Procedures for Auditing and Control Professionals*. Information Systems Audit and Control Association. 2005.

APPENDIX 3 (Continued)

BIBLIOGRAPHY: ERP SYSTEM IMPLEMENTATION AND CONTROLS

- "Manager's Guide to Enterprise Resource Planning (ERP) Systems" Les Pang. Volume 4, 2001. *Information Systems Control Journal*.
- Oracle Database Security, Audit and Control Features*. IT Governance Institute. 2004.
- Security, Audit and Control Features Oracle Applications: A Technical and Risk Management Reference Guide*. IT Governance Institute. 2003.
- "Risk and Governance Issues for ERP Enterprise Applications." Stephen Addison. Volume 4, 2001. *Information Systems Control Journal*.
- Security, Audit and Control Features Oracle Applications: Audit Programs and Internal Control Questionnaires*. Information Systems Audit and Control Association.
- "Segregation of Duties in ERP" Susan S. Lightle. Volume 6, December 1, 2003. *IT Audit*.
- "The Auditor's Role in Reviewing Business Continuity Planning." Ravi Muthukrishnan. Volume 4, 2005. *Information Systems Control Journal*.
- "The ERPworks: Recoding the guts of an enterprise can bring a city or state to the brink of failure, fatigue and notoriety." Ellen Perlamn. May 2005. *Governing*.
- "The Importance of Business Continuity Planning." Nagarajan Nagarajan. Volume 5, November 1, 2002. *IT Audit*.
- "The Six Deadly ERP Sins." White Paper. Manoeuvre Pty. Ltd. October 2001.

APPENDIX 4

PLANNED MODULES FOR THE ERP SYSTEM

Financial Modules
1. Oracle Public Sector General Ledger
2. Oracle Public Sector Accounts Payable
3. Oracle iExpense
4. Oracle Public Sector Accounts Receivable
5. Oracle iReceivables
6. Oracle Fixed Assets
7. Oracle Property Manager
8. Oracle Cash Management
9. Oracle Project Accounting
10. Oracle Grants Accounting
11. Oracle Financials Intelligence
12. Oracle Public Sector Budgeting
13. Oracle Collections
Procurement Modules
14. Oracle Public Sector Purchasing
15. Oracle iProcurement
16. Contracts Management
17. Oracle Sourcing
18. Oracle iSupplier Portal
19. Oracle Purchasing Intelligence
Human Resources Modules
20. Oracle Human Resources Management System
21. Oracle iRecruitment
22. Oracle Payroll
23. Oracle Advanced Benefits
24. Oracle Training Administration
25. Oracle Self-Service HR
26. Oracle HR Intelligence
27. Oracle Labor Distribution
Other Modules Under Consideration
Oracle Internal Controls Manager
Oracle Grants Proposal

APPENDIX 5

EXAMPLES OF INCOMPATIBLE DUTIES

Separate this function	From this function
Ability to create and change purchase orders	Ability to process payments
Ability to create and change purchase orders	Ability to create or change vendors
Ability to maintain asset master data	Ability to run and review depreciation expense
Ability to create and change general ledger accounts	Ability to generate journal entries or other financial transactions
Ability to create and change deliveries	All other order processing activities
Ability to create and change purchase orders	Credit management activities
Ability to authorize payments	Ability to change bank information
Ability to create a purchase order	Ability to receive goods
Ability to create or change employee master data	Ability to process payroll
Ability to create and change customer master records	Ability to approve & process collections
Ability to maintain customer credit limits	Ability to approve & process collections
Ability to approve & process collections	Ability to issue goods
Ability to record revenues	Responsible for reconciling bank accounts
Ability to close accounts (period closings)	Ability to post journal entries

APPENDIX 6
AUDIT RESPONSE – ERP STEERING COMMITTEE



CITY OF ATLANTA

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MAYOR

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LYNNETTE W. YOUNG
CHIEF OPERATING OFFICER

TO: Leslie Ward, City Auditor

FROM: Lynnette Young, Chair, ERP Steering Committee 

cc: Abe Kani, Sherman Bryant

DATE: October 21, 2005

RE: **Draft Audit Report Pre –Implementation Review of the ERP System Response**

The Steering Committee has reviewed the recommendations and are providing you with the responses to the Draft Audit Report – *Pre Implementation Review on the ERP System* dated October 7, 2005. The responses are provided in the attached matrix and include the due date for implementing the recommendations.

In the areas where there is a disagreement between our response and your recommendations, the appropriate staff member(s) are available to schedule time with you to attempt to resolve the issue.

APPENDIX 6 (Continued)
AUDIT RESPONSE – ERP STEERING COMMITTEE

ERP Steering Committee Performance Audit Response

	Recommendation	Resp.	Acceptance	Response	Implementation Date
1	Include Airport cost and track actuals	PMO	Agree	Will report ongoing cost	1-Nov-05
2	Prepare policies and procedures for manual processes that are not automated	PMO	Agree	Will update during development of Training materials	15-Sep-06
3	Development of Formal System Access Plan	PMO	Agree	Will develop using IBM System Profile & Role and Responsibility Matrix deliverable	15-Sep-06
4	Data Conversion Process Management	PMO	Agree	Ongoing management including testing starting 15 Nov 2005 after development of IBM's Data Conversion Strategy	15-Nov-05
5	Adequate ERP Disaster Recovery Plan	PMO/DIT	Agree	Disaster Recovery Plan included in Infrastructure Plan, City to have full DR Plan in Nov 2005 and Test ERP in UAT in Aug 2006.	15-Aug-06
6	Facilitate HR/Payroll Decisions				
	a. Consolidate the city's six pay groups into as few pay groups as possible	Finance	Agree	a. Plan is to move to (2) Pay Groups Sworn and Non Sworn employees.	TBD
	b. Include all taxable employee benefits and taxable employee expense reimbursements in the payroll process	Finance	Agree	b. Will be done as a part of the HR/Payroll starting with design, testing and implementation process	Jul-06
	c. Observe the 90-day waiting period for health benefits, and discontinue the practice of providing earlier coverage to employees who pay the full cost	Finance	Agree	c. No exceptions to the 90-day period will be allowed	TBD
	d. Analyze the fiscal impact of reducing or eliminating the 90-day waiting period for employees to receive health benefits	Finance	Agree	d. We will assess the impact to the Budget.	TBD
	e. Propose Legislation to eliminate compensatory time off for Dept. Heads and Senior Management	HR	Disagree	e. Compensatory time will be accounted for as outlined in the City Code.	No Action Required
	f. Propose Legislation to Eliminate Donated Leave	HR	Disagree	f. Management supports the donation of leave between employees for catastrophic cases. Will be better managed in Oracle.	No Action Required
7	Include controls for Advanced Sick Leave in the system	HR	Agree	Will be done as a part of the HR/Benefits starting with design, testing and implementation process. Will decide with Finance on whether to eliminate advance sick leave.	Jul-06

