"Customer Information System Project Implementation Phase"

Summary

The City is currently in the process of replacing the Utility Services Customer Information System (CIS). To date, this project is approximately 30% complete, expenditures are within budget, and the revised "go live" date is November 2001. This date will most likely be affected by the challenge facing the project team to provide extensive training required for customer service personnel during the peak period, July through August, while retaining a high level of service to utility customers.

This report is the first of a series on the CIS project. The purpose of our review is to provide assurance as to CIS compliance with City policies and procedures and contract requirements.

Based on our review, we can provide assurances that:

√ project staff has substantially complied with City policies and procedures and contract requirements;

√ contract deliverables were received and accepted before payments to SPL Worldgroup, Inc., (the consultant) were processed; and

√ except as noted below, risks and project controls are being addressed.

We have summarized the implementation components that have been completed satisfactorily, are still in progress, or are outstanding and have not been completed, and have identified areas that can be improved. These areas include:

♦ documenting executive steering committee meetings;

♦ updating the project management plan;

♦ furthering the development of user procedures;

♦ reporting quarterly to the Information Systems Services Steering Committee; and

♦ communicating with the project team.

In addition to assurances provided above, this report also summarizes the significant issues identified by the project team as of December 31, 2000, that need to be resolved as the CIS project progresses. These issues include:

♦ providing adequate staff resources to meet the project schedule;

♦ ensuring that ISS staff have the needed technical skills to support the new client/server applications being implemented by the City;

♦ planning for adequate customer service staffing levels so that staff can receive adequate training on the new system;

♦ providing an automated change management solution to manage changes to client/server applications;

♦ preventing duplication in system functionality among concurrent systems implementation projects;

♦ identifying solutions to reduce the customer service representative telephone time;

♦ identifying solutions to prevent current duplicate data entry; and

♦ developing a reporting environment to support the new CIS when it goes live.

We have also provided management's planned actions to address or resolve each issue. The extent to which these or such other alternative resolution approaches are utilized by management will be addressed in our next report on the implementation of CIS. These issues are listed at this time for information and for management's further analysis and resolution.

Scope, Objectives, and Methodology

The Office of the City Auditor is providing assurance and consulting services to assist management throughout the implementation of the CIS Project. As part of these services, we will be issuing at least two reports.

Our objectives for this report are to:

• determine compliance with City policies and procedures and contract requirements;

• provide an independent assessment of risk management and project controls;

• report on the project status and accomplishments as of December 31, 2000; and

• communicate the significant issues identified as of December 31, 2000.

This report focuses on the implementation phase of the project. Providing a progress report during the middle of the implementation phase allows management to

address the identified issues in a timely and less costly manner.

To achieve our objectives, we participated in an "Independent Verification & Validation" review conducted by a consultant Project Director during the week of December 4-8, 2000. This project director had no direct responsibilities in the CIS project.

In addition, we participated in an advisory capacity on the project team and executive steering committee; reviewed key documentation, including project management plan, monthly status reports, gap analysis, modifications requirements, and test documentation; and conducted interviews with project team, consultants, and executive steering committee members. These audit procedures were conducted in accordance with Generally Accepted Government Auditing Standards.

Background

Project Life Cycle

Every information technology (IT) project follows similar life cycle phases, such as:

Planning Phase – defining business problems, potential solutions, project scope, system interfaces, systems and software requirements, and resource needs. Other activities include identifying risks, costs and benefits associated with each solution, developing a project plan, and obtaining funding.

Acquisition Phase – developing a request for proposal and evaluation criteria, evaluating proposals, selecting a vendor, and negotiating the contract.

Implementation Phase – managing the vendor contract and project staff, installing software, defining business rules and processes, converting data, planning and performing testing, preparing technical and user documentation, and putting the system into production.

Post-Implementation Evaluation Phase – evaluating to determine if the system meets the users' needs and requirements.
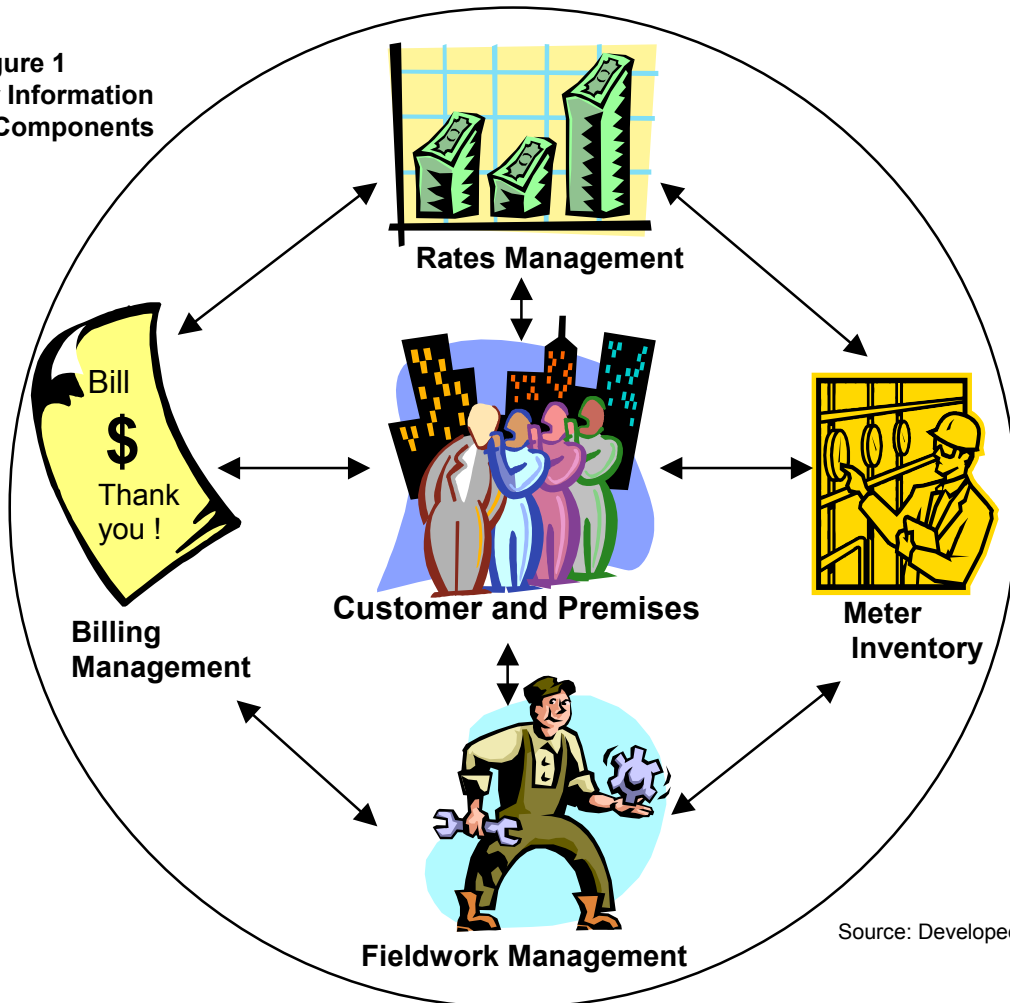
This project is in the implementation phase. As described above, the implementation phase consists of numerous activities, many of which occur simultaneously, culminating when the application is moved into production and is successfully working.

Utility Services Managed in CIS

The City provides utility services for approximately 95,000 customers: 78,000 residential and 17,000 non-residential. The CIS is a comprehensive software application that handles the City's electric, water, sewer, gas, solid waste, stormwater billing and customer service functions, such as: site, account and service set-up; turn-ons; turn-offs; transfers; customer maintenance; and other related functions. In addition, the CIS tracks energy efficiency loans provided to customers.

Figure 1 identifies the data management components within a CIS.

**Figure 1
Customer Information
Systems Components**

Rates Management

Bill
$
Thank you !

Billing Management

Customer and Premises

Meter Inventory

Fieldwork Management

Source: Developed by Audit Staff

The customer and/or premises are the focal points in the system. Each system component performs specific business functions that are related either to a customer or premises receiving services.

Explaining the process of starting electric service for a new customer can show how the CIS is utilized. The prospective customer visits Customer Service and provides them personal information to establish an account. The customer is assigned a rate type (residential or non-residential) and information is collected regarding the premises, including where it is located (City or non-City). Next, a fieldwork service order is created to install an electric meter at the premises and an initial meter reading is recorded. At the end of the billing period, another meter reading is recorded, consumption is determined, payment due is calculated, a bill is sent to the customer, and payment received from the customer is recorded. The same scenario is followed for providing any other metered utility service, i.e., water and gas. Billing for solid waste is based on number and type of services provided. Service charges are aggregated to create one monthly bill for all services provided.

CIS Project Description

The City's current mainframe CIS was purchased in FY 1988 and implemented during 1989. The City has recognized the need to replace its CIS for some time. A request for proposal (RFP) was originally released in 1996 in a joint project to replace both the CIS and Financial Management System. The City determined not to select a vendor at that time. Subsequently, these two projects were divided into separate projects, and the CIS project was funded at $4.2 million. A second RFP for the CIS was released in July 1999, and the RFPs were evaluated during the fall 1999.

To acquire and install the software for CIS and bill printing, the City executed the following three vendor agreements, totaling $2.3 million, plus travel expenses:

1. PeopleSoft, Inc. – Software, license and support agreement for CIS software.

2. Group1 - Software and license agreement for the report generator and bill design/printing software.

3. SPL Worldgroup, Inc. – Consultant agreement to be the prime contractor for the installation and acceptance of the PeopleSoft CIS installed product.

As of December 31, 2000, $1,993,661 (47%) of the project funds have been expended and/or encumbered.

On March 22, 2000, the City Commission authorized the City Manager to execute the three agreements. SPL Worldgroup was contracted to perform implementation and post-evaluation services. Work is being conducted concurrently in Phases II, III, and IV. The CIS project is currently completing the consultant's Process Analysis phase (III). In addition, they are still completing the modifications document, which is a deliverable in Phase II. Figure 2, in the top of the next column, shows how the activities defined in their contract compare to the

project life cycle phases described above.

Figure 2

IT Project Phases	SPL Worldgroup Phases
Planning	(not applicable)
Acquisition	(not applicable)
Implementation	I. Discovery II. Functional Gap Analysis & Modification Definition III. Process Analysis IV. Implementation V. Acceptance
Post-Implementation Evaluation	VI. Follow-up

An Information Systems Services (ISS) project manager manages the CIS project and is responsible for managing all work performed by City project staff and the consultants to ensure that all work done conforms to the City's requirements. The consultant also has a project manager responsible for the consultant staff. The ISS project manager and the consultant project manager work very closely together.

The project team consists of ten members representing City staff from Utility Business and Customer Services (UBCS), ISS, and the consultant. There are an additional 23 staff from the various utility service areas that interact with the CIS that are serving on sub-teams as experts for specific business functions. The sub-teams meet only when their specific business functional area is affected.

An executive steering committee consisting of five members, including the Utility Services Assistant City Manager, directors of Electric Operations and UBCS, Chief Information Systems Officer, and Director of Management and Administration, provides project oversight. The executive steering committee has been meeting on a monthly basis.

Project Progress and Accomplishments to Date

As stated above, the CIS project is close to completing Phases II and III and has already begun work in the Phase IV "Implementation." As described in the project life cycle section above, there are common activities conducted during the implementation phase of an IT project. Some of these activities are required by City administrative policies and procedures or by the consultant contract, while others are considered to be "good business practices." Table 1, on the next page, provides a listing of the implementation components that were identified for this project, the status, and auditor comments (if applicable). The components are separated as to the source of the requirement.

Table 1

Implementation Components	Status/Comments
APP #801, "IT Acquisition Policy"	
Business problem and project scope is defined	√ Defined in the Project Charter
A signed project charter validates the business relationship between ISS and the Executive Owner (Utilities)	√ Signed on October 5, 2000
An executive steering committee is overseeing the project	√ Committee meets regularly Comment: This area can be improved. Specifically, meeting minutes should be documented and distributed so that decisions are recorded and communicated.
Contract with Vendor contains: ⇒ Vendor responsibilities and deliverables ⇒ Payment terms and dates ⇒ Acceptance criteria ⇒ Warranties ⇒ Ownership of hardware and software ⇒ Access of source code ⇒ Cancellation options	 √ Addressed in contract and Statement of Work √ Payments based on deliverables √ Addressed √ Addressed √ Licenses for software, not applicable for hardware √ Software Source Code Escrow Agreement √ Termination clause included
A project management plan (PMP) is utilized to manage the project	♦ On-going. The PMP is co-managed by the ISS and consultant project managers. Comment: This area can be improved. Specifically, the PMP should be updated to reflect the project status or changes in the plan at the task level.
Quarterly reports are submitted to the ISS Steering Committee	✗ ISS Committee does not receive quarterly reports.
Project documentation adequately addresses:	
⇒ System modifications (what is to be modified, detailed design and cost approved by executive owner)	√ Completed
⇒ Data conversion (conversion plan, methodology, and controls)	♦ Conversion plan is being developed.
⇒ Testing (testing plan, methodology, problem resolution process, acceptance criteria, and review/approval)	o Testing plan to be developed in Phase IV, Implementation.
⇒ Installation of the software to all appropriate locations (i.e., server, users' computers, etc.)	o Installation plan to be developed in Phase IV, Implementation. Currently, the software is installed only in limited areas for use by Project Team.
⇒ User procedures (instructions for how users are to perform business functions using the software)	♦ User procedures are in progress. Comment: This area can be improved. Specifically, the development of these procedures is behind schedule.
⇒ System documentation (technical manual of how the system is set up, including, but not limited to, tables, records, fields, data definitions, forms, queries, reports)	Documents were delivered with system; initial system setup is completed and loaded. System documentation will still need to be revised based on modifications to be made.
⇒ Training (training strategy, and plan with goals and objectives, content, schedule, etc.)	√ Initial training for Project Team has been completed o User training plan to be developed in Phase IV, Implementation
⇒ "Go Live" - move software into production (plan, methodology, controls, contingency plan)	"Go Live" plan is to be developed in Phase V, Acceptance

APP #630, "Internal Control Guidelines"	
Transaction and Events relating to processing deliverables and contract payments are properly executed.	♦ On-going. Project Manager is ensuring that deliverables are received and approved before payment.
There is Direct Activity Management – including clear communication regarding team members' roles and responsibilities, staff accountability, approving work at critical points.	♦ On-going. The project manager performs these functions. Comment: Project Manager has identified communication with the project team members as an area that can be improved. Specifically, project team members need to be updated with project status, schedule and understand their upcoming responsibilities.
Top Level Reviews of actual performance vs. budgets and forecasts, and tracking major initiatives to measure the extent to which targets are being reached.	♦ On-going. Monthly status reports developed by COT and consultant project managers are available. ♦ On-going. Status reports are to be provided to executive steering committee members at least monthly.
Contract with SPL Worldgroup, Inc.	
Project Management – SPL is providing professional project management services to coordinate activities and responsibilities under the contract, and includes attending planning and reporting meetings, and coordinating and overseeing the City's responsibilities.	♦ On-going
Phase I – Discovery (Project Scope) - reviewing the City business practices and procedures to provide a basis for SPL to analyze system functionality.	
⇒ Conduct workshops with project team to review business practices and project scope. Develop a scope report that includes: scope, objectives, known constraints and assumptions made by project team and SPL, overview of CIS processes being implemented, system interfaces, data conversion strategy and implementation schedule.	√ Completed
⇒ Develop project plan and work plan.	√ Completed
⇒ Install software for development purposes.	√ Completed
Phase II – Functional Gap Analysis and Modification Definition – identify the gaps between what the City has requested in a system and what is available in the PeopleSoft CIS software.	
⇒ Conduct workshops with project team to define and prioritize system modifications.	√ Completed
⇒ Provide a priority listing of modifications, designs, and cost estimates.	√ Completed
⇒ Provide proposed test acceptance criteria.	o Moved. To be completed in Phase IV, Implementation
Phase III – Process Analysis – technical environment is established and software is installed, and project team begins examining functional capabilities based on specific business processes.	
⇒ Conduct workshops for each functional business process.	√ Completed
⇒ Develop business process report.	♦ In progress
⇒ Develop a conversion and interface plan.	♦ In progress
⇒ Install PeopleSoft CIS software.	√ Completed
Phase IV – Implementation (including system modifications to the CIS package) – system is prepared for testing and acceptance in order to bring the products into live operation, based on strategies agreed upon during the process analysis phase.	
⇒ Document interface and report designs	♦ In progress
⇒ Develop conversion design document	♦ In progress

⇒ Develop acceptance test plans and quality assurance process	o Scheduled to begin in Jan. 2001
⇒ Finalize the software set up	o Scheduled to begin in Jan. 2001
⇒ Provide implementation support	o Scheduled to begin in Jan. 2001
⇒ Update and refine cutover and contingency plans	o Scheduled to begin in Jan. 2001
Phase V – Acceptance – application and system testing is conducted in a controlled, orderly manner to verify that the new system will operate as required, and software application is moved into the production environment. ⇒ Develop software "cutover" (move into production) plan ⇒ Provide cutover support ⇒ Conduct interface testing ⇒ Provide training materials ⇒ Provide "Train the Trainer" training sessions	TO BE SCHEDULED
Phase VI – Follow-up – assessing the overall operation of the new applications and identify opportunities for improvement. ⇒ Facilitate focus group review sessions with application user groups ⇒ Assist in writing follow-up report ⇒ Conduct follow-up training refresher workshops	TO BE SCHEDULED

Table Legend: ⇒ **Sub component** ♦ **In Progress** ✗ **Not being done**
√ **Completed Satisfactorily** o **Not Due Yet**

In summary, we can provide assurances that: CIS has complied with City policies and procedures and contract requirements, except as stated above in Table 1; contract deliverables have been received and accepted before payment to the consultants is processed; and the CIS Project Team and the executive steering committee are assessing risk and project controls. For management's review and consideration, we have identified areas where further improvements can be made. These include: documenting executive steering committee meetings; updating the project management plan; furthering the development of user procedures; reporting quarterly to the ISS Steering Committee; and communicating with project team. To date, this project is approximately 30% complete, expenditures are within budget, and the revised "go live" date is November 2001.

Communication of Significant Issues Identified as of December 31, 2000

It is important to note that identifying and resolving significant issues are a normal activity for every project team. If the project team is unable to resolve an issue, then they are to educate the executive steering committee regarding the issue, recommend alternative solutions, and seek their guidance.

There were many issues identified by the project team that will impact the project's success. The team was able to resolve many of these issues, but there are some significant issues that still need to be resolved to ensure the successful implementation of the project. Significant issues identified to date are provided in Table 2. Each significant issue identified is listed in the left column, and the right column provides management's actions, the current status, and auditor comments (if applicable).

The extent to which these or such other alternative resolution approaches are utilized by management will be addressed in our next report to address the CIS implementation. These issues are listed at this time for information and for management's further analysis and resolution.

Table 2

Significant Issues Identified as of December 31, 2000	Management Actions/Status
Staffing Resources	
There is a risk that this project will be delayed due to the lack of project management and functional business resources. The ISS project manager has been assigned other responsibilities that may cause an estimated 4-6 week delay in the CIS project. The City does not have the needed additional staff to fill in for utility services staff so that project team members can be dedicated to the CIS Project. While it is difficult to determine what the actual delay will be, without these resources the project will most likely face delays during the work intensive project tasks that lie ahead.	♦ Project Manager and Consultants are in the process of developing a revised project plan. It is their intention to bring the revised plan to the next steering committee meeting for review, discussion, and approval. Comment: We consider this a high risk among all the system projects.

Examples of the upcoming project tasks include: data cleansing and conversion, development of user and training materials, and training. Without adequate project management resources, the project could be delayed further.	
ISS does not currently have the needed technical skill sets to be able to support the applications being implemented in the City. In the past, the majority of employees' programming skills in the ISS were suitable to support mainframe applications. ISS applications staff must attain a high skill set in client/server and web applications to be able to support the PeopleSoft applications being implemented. Currently, the lack of staff skilled in this area is causing project delays in other system implementation projects. It can also affect performance and system availability after the applications are moved into production.	♦ To address this issue, ISS has developed a training plan for each employee and defined areas in which the employees must improve their skills. The plan is included during the employees' annual performance evaluation. Also, ISS will be: 1. hiring a new employee with many of the skills we need to replace the retired Business Systems Analyst. Additionally, ISS is developing an aggressive training schedule so this employee will have the specific skills needed to support the CIS PeopleSoft environment. 2. providing training to the database administrators so they will be able to support the PeopleSoft and ORACLE environments.
Plans have not been made to meet Customer Service staffing needs so that the customer service representatives (CSR) are able to receive the much-needed training on the new CIS. The CIS consultants highly recommend that the heavy CIS users will need at least 120 hours of training to be able to navigate through the new CIS to be able to perform their jobs. Customer service representatives are responsible to respond directly to customer inquiry and requests and must be able to perform their jobs efficiently when the new system becomes activated.	♦ Utility Business and Customer Services managers recognize that the training requirements for the CSRs are extensive. They will be examining the scheduled CIS "go live" date to develop a staffing strategy that will include hiring time-limited positions to serve customers while providing adequate dedicated training to the CSRs.
Software Management	
The city does not have an automated process to manage the changes made to the application software during the implementation or afterward. The manual process currently performed increases the risk that a change can be made without being documented. It is very difficult to manage changes when multiple programmers have access to and make changes to software. Undocumented changes can cause future problems when software versions and updates mistakenly over-write the wrong version of software. This issue is relevant to all client/server applications, including the PeopleSoft CIS, Human Resources, and Financials applications.	♦ ISS is aware of this concern and understands this is a client/server issue that must be addressed. The immaturity of the client/server change management software has limited ISS from selecting and implementing a solution to address this need. ISS has funding and will be researching a solution to manage the future version and release changes of the software packages being obtained. Comment: We consider this a high risk among all the system projects.
System Functionality	
There may be duplication in system functionality and implementation efforts among concurrent system implementation projects, including CIS, Financials, and Technology Integration (outage, mobile workforce management, and call center applications). There are several cases where the system being considered contains functionality that currently exists in another City system. For example, the new CIS contains some call center, outage, and mobile workorder functionality. It also contains some functions available in the new Financials system, including billing, project management, and workorder functionality. While the existing systems' functionality may not meet the business process needs, this existing system should be fully evaluated for its potential value before additional funds are expended.	♦ The project managers are becoming aware of system functionality that overlaps and are beginning to address those issues. For instance, CIS may be able to bill for accounts receivable, instead of implementing this module in the Financials system. A meeting of core representatives from CIS, Financials, and Accounting will be scheduled to review the feasibility of using CIS to perform this function. Comment: We consider this a high risk among all the system projects.
Actual telephone time with customer calls will increase with the new CIS. While the Utility Services strategy is to improve customer service and increase customer service representative	♦ There is more information available in the new CIS, which may make navigation around the new system more difficult. One solution is to

productivity, there is a risk that the level of customer service could decline due to the customer service representatives not being able to respond to customer requests in a timely manner.	develop a summary information screen that would display common customer information on one screen. The common information has been defined and the project team will be determining the most cost effective and efficient method to develop the screen(s).
Efforts need to be made to eliminate the duplicate data entry that is currently occurring in the Growth Management Permitting System (PETS) and in CIS. Currently, customer and premises data entered into PETS during the permitting process must be re-keyed into the CIS. This increases the workload for staff that must enter the same data into two systems and increases the risk of errors resulting in different data in the two systems.	♦ This issue is being addressed as an interface to CIS. The interface has not been completely defined and there are issues surrounding this entire process that the project team will be addressing.
CIS Reporting and Internet	
It is not in the scope of the CIS project or any other project to develop a Data Warehouse, Data Mart, or other reporting environment needed by UBCS so that it will be ready when the new CIS "goes live." Currently, because the data extraction and calculations for the necessary reports are very taxing on the system, these reports are not produced within the CIS. Instead, data is extracted nightly from the CIS to provide a picture of the CIS data in a "data mart" available for UBCS to extract complex reports. This data mart provides management the capability of producing voluminous reports without disturbing the CIS on-line performance.	♦ The project manager is tasked to work with ORACLE and the CIS consultants to obtain cost estimates to re-develop the Warehouse and Web environments. Although funding is not available at this time, management is committed to ensuring that this environment is ready when the CIS goes live.

Table Legend: ♦ **Currently being addressed – in process**   ○ **Not currently being addressed - Outstanding**

In summary, the project team has been challenged to identify and resolve many issues during the first three phases of this implementation project. The resolution of issues identified above relating to the staffing resources, system functionality, and CIS reporting and Internet will have an impact on the success of the CIS implementation project as it moves forward. These issues are listed at this time for information and for management's further analysis and resolution.

Conclusion

This report has communicated the project progress and accomplishments, as well as the significant issues identified as of December 31, 2000. Our office will continue to provide assurance and consulting services throughout the life of this project. The objectives of our future reports will focus on the progress of the project's implementation activities and post-evaluation phase.

We would like to thank the CIS executive steering committee, project manager, consultants, and project team for their cooperation and assistance during the development of this progress report.

Appointed Official Response

City Manager: I appreciate the audit staff's participation in this project. This active participation ensures that our project team does not overlook any important areas in our implementation plan. As can be seen in the action plans, we have already addressed or plan to address all areas of concern.