

Memorandum



CITY OF DALLAS
(Report No. A09-006)

Date: February 27, 2009

To: Honorable Mayor and Members of the City Council

Subject: Final Report – Follow-Up of Audit Recommendations, Department of Communication and Information Services, Fiscal Year 2007

The Department of Communication and Information Services (CIS) has responded to 22 recommendations resulting from audits of the City's Mainframe Operating Systems, Security and Operations and the Audit of Mainframe Utilization. *Attachment A* provides detailed information for the 13 recommendations included in this audit¹ report.

Nine other recommendations from the *Confidential Memo Pertaining to the Mainframe Operating Systems, Security and Operations* have been communicated to the appropriate security personnel. Only two of the nine recommendations have been fully implemented.

Summary of Follow-up Audit Results

Fiscal Year Audit Report Issued	Number of Report Recommendations	Recommendations Implemented	Recommendations Partially Implemented	Recommendations Not Implemented
2007	13	5	4	4

The migration from mainframe applications to client-server applications will reduce the reliance on the mainframe computers, **but there are still issues associated with the effectiveness of mainframe operations, maintenance of the mainframe computers, security, and the allocation of mainframe costs as departments transition to the client-server technology.** Many of these issues were originally reported in 2004 yet still remain unresolved.

¹ This audit was conducted under the authority of the City Charter, Chapter IX, Section 3 and in accordance with generally accepted government auditing standards. The audit objective was to verify that management has taken corrective action(s), the corrective action(s) are achieving the desired results, or management has assumed the risk of not taking corrective action(s). This performance audit was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective. We believe that the evidence obtained provides a reasonable basis for our findings and conclusion based on our audit objective. We interviewed CIS department personnel, reviewed policies and procedures, and evaluated internal workplans.

This report was discussed with CIS management. Although a written response was not requested, the Chief Information Officer (CIO) expressed his disagreement with the "Not Implemented" status of the recommendation to provide funding to allow a backup LINC programmer to be hired or trained.

According to the CIO, LINC is an obsolete operating system and additional programming expertise or training is not available. The department continues to rely on two individuals on staff that have some LINC expertise or, when necessary, a retired City employee who was instrumental in operating and maintaining the LINC system.

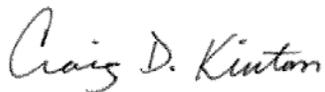
The CIO stated that two critical systems continue to rely on the LINC operating system:

- 1) the Police Department's Records Management System scheduled for migration in FY 2011; and,
- 2) the Courts Management system which does not currently have a timeline for migration.

We believe that the City will continue to be at risk until all LINC-based applications have been migrated to new operating system platforms.

If you have any questions or need additional information, please contact me at 214-670-3222 or Gary Lewis, Assistant City Auditor, at 214-670-5347.

Sincerely,



Craig D. Kinton
City Auditor

Attachment A

C: Mary K. Suhm, City Manager
Ramon F. Miguez, P.E., Assistant City Manager
Worris Levine, Director – Communication and Information Services

ATTACHMENT A

Audit Report	Audit Issues	Audit Recommendations	Audit Follow-Up Results
<p>Audit of the City's Mainframe Operating Systems, Security and Operations (January 5, 2007)</p>	<p>The assignment of operational responsibilities with Communications and Information Services current organizational structure appears to be causing operational inefficiencies or service gaps.</p>	<p>- Conduct an analysis focused on matching the appropriate alignment of functional tasks to organizational hierarchical responsibilities within CIS.</p> <hr/> <p>- Develop and implement a plan to execute the results of the organizational analysis.</p>	<p>Implemented. CIS has aligned functional tasks along four areas of organizational responsibility. The four areas are: Technology Management, Strategic Management, Application Management, and Business Management. Functional tasks are appropriately aligned within the organizational hierarchy.</p> <hr/> <p>Implemented. CIS has implemented organizational changes; the most recent was effective June 2008.</p>
	<p>Although controls exist for the change notification process, current procedures are not adequate to ensure a high level of quality in the software development process.</p>	<p>- Review and adopt the software review process as outlined in the Capability Maturity Model Integration Software (CMMI-SW), Version 1.1.</p> <hr/> <p>- Implement the use of software measurement tools to monitor the progress and quality of all created and modified code.</p>	<p>Implemented. CIS has developed a Project Management Framework which has a pre-defined set of processes for software development projects. The software development lifecycle has five stages: Initiating, Planning, Executing/Controlling, Closing, and Continuous Improvement. There are five major quality assurance "gates" imbedded in the lifecycle.</p> <hr/> <p>Not Implemented. CIS does not have a software measurement tool for mainframe applications. CIS uses WorkSoft Certify software to test enhancements, changes, and modifications for the Pay1 billing system, but Pay1 is a client-server application.</p>

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	<p>Lack of effective strategic planning may result in the areas of workforce composition, succession, training, and software application technology that are not being responsive to future needs.</p>	<p>- Provide funding to allow a backup LINC programmer to be hired or trained.</p> <hr/> <p>- Adopt the five principles for workforce planning as specified in the Government Accounting Office (GAO) report.</p>	<p>Not Implemented. CIS responded on October 31, 2008 that “the department has trained staff to support applications running on the LINC operating system and the implementation of the Computer Assisted Dispatch (CAD) project will remove approximately 80 percent of the dependency on the LINC operating system.” However, there are still City departments, such as the City Secretary, Courts, and Police that rely on LINC applications and the need for a backup programmer still exists.</p> <hr/> <p>Not Implemented. Per CIS, the City of Dallas is migrating systems off the mainframe and will not implement workforce planning for the mainframe.</p>
	<p>Preventative maintenance is not adequate on key operational equipment for the data center and places unnecessary risk on critical City operations.</p>	<p>- Renew support and maintenance agreements for all the components of the City’s emergency Uninterruptible Power Supply (UPS) back-up systems.</p> <hr/> <p>- Enforce the testing provisions of the fire suppression system maintenance contract.</p>	<p>Not Implemented. The UPS support and maintenance agreements have not been renewed. The systems were serviced during June 2007 and the vendor recommended establishing a UPS inspection schedule. Per CIS, a Request for Competitive Sealed Proposal will be advertised in March 2009 with an expected award in June 2009.</p> <hr/> <p>Partially Implemented. The fire suppression system was tested May 21, 2007 and failed. A contract for engineering and design improvements to the electrical, mechanical, and air handling systems was awarded by City Council on December 10, 2008. The contracted services are necessary to upgrade the Data Center’s systems to meet cooling and fire suppression requirements.</p>

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		<ul style="list-style-type: none"> - Develop and implement a plan to identify and remove unused cabling in the raised-flooring. 	<p>Partially Implemented. A contract for engineering and design improvements to the electrical, mechanical, and air handling systems was awarded by City Council on December 10, 2008. This is necessary to upgrade the Data Center's systems to meet cooling and fire suppression requirements.</p>
<p>Audit of Mainframe Utilization (March 30, 2007)</p>	<p>Management has not routinely measured and monitored the performance and utilization of the mainframe.</p>	<ul style="list-style-type: none"> - Direct mainframe operations personnel to gather and routinely report performance and utilization measurements. - Develop and implement a system to measure and monitor the effectiveness of mainframe operations in providing service to the City. - Perform analysis regarding applications running on the mainframe to determine the appropriate computational and operational environment for the application. 	<p>Implemented. Reports are generated on a daily, weekly and monthly basis covering: LINC activity, Direct Access Storage Device usage, print jobs, and jobs submitted through Control-D and Control-M.</p> <p>Partially Implemented. CIS has an "Operations Daily Flash Report" which is a snapshot of operational statistics such as data center incidents, lines printed, and server backup status. However, CIS did not provide evidence of ongoing analysis of the operational statistics which is necessary to measure and monitor the effectiveness of mainframe operations.</p> <p>Implemented. CIS has developed a Mainframe Application Replacement plan, but did not provide evidence of the formal analysis used to determine the appropriate computational and operational environment for computer applications.</p>

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		<p>- Develop, document, publish, and implement a plan that integrates mainframe operations into CIS service delivery strategy.</p>	<p>Partially Implemented. CIS has developed a "Mainframe Application Replacement" plan with application names, Key Focus Areas, budget timeframes, and status. Several mainframe applications, such as the 911 Support System and PAY1, are either implemented or in progress. However, the plan does not address ongoing maintenance, the effectiveness of mainframe operations, or the allocation of costs. Remaining departments will have to bear an increased proportion of the operating costs of the mainframe as departments are no longer charged for the use of the mainframe as applications are shifted to the client-server environment.</p>