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TO: Honorable Mayor and Members of the City Council

FROM: Leslie Ward

DATE: December 1, 2014

SUBJECT: Implementation of Audit Recommendations: Department of Information Technology

We undertook this audit to assess the extent to which responsible officials have taken timely, appropriate corrective action in response to audit findings and recommendations. The city charter requires my office to report on completed audits, major findings, management's corrective actions, and significant findings that have not been fully addressed.

We followed up on 24 recommendations issued to the Department of Information Technology from five audits: *Department of Watershed Management Automated Meter Reading* (December 2007), *Department of Watershed Management Customer Information System* (December 2009), *Information Technology General Controls* (November 2010), *Information Technology Controls at the Department of Aviation* (November 2011), and *Implementation of Audit Recommendations: Department of Information Technology* (May 2012). The recommendations range in age from 29 to 83 months old. Management agreed with all recommendations and planned to implement them within thirteen months. We conducted this follow-up in accordance with generally accepted government auditing standards. Our methods included:

- obtaining and reviewing departments' responses and data submissions to understand how management addressed each audit recommendation

- reviewing prior follow-up work related to recommendations

The Department of Information Technology implemented ten and partially implemented five of the recommendations we assessed in this report. The remaining nine recommendations have not been implemented. Based on our follow up, we are closing 14 recommendations and leaving 10 recommendations open for future follow up. We are deferring follow-up on five

additional recommendations that we made to the Department of Information Technology related to the city's Oracle implementation until after the planned upgrade. Attachments A and B summarize our assessments of each recommendation.

Generally accepted government auditing 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We appreciate the courtesy and cooperation of city staff throughout the audit. The team for this project was Michael Schroth and Christopher Armstead.

Cc:
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Rhonda Dauphin Johnson, Municipal Clerk
Tangela Williams, Director, Council Staff
Dexter Chambers, Director, City Council Office of Communications
Dasheika M. Ruffin, Policy Analyst, Finance/Executive Committee
Audit Committee

Attachment A:

Audit Recommendations Open

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
1	*Department of Watershed Management Customer Information System* December 2009 Management Agreed Expected Implementation Date: March 2010	Ensure that watershed management staff review all user accounts in enQuesta and the UNIX operating system and remove IDs belonging to terminated users and generic IDs that are no longer needed.	The department has removed IDs belonging to terminated users found in our 2012 follow-up; however, we found two terminated employees in a sample of 25 current user accounts.	**Not Implemented**
2	*Information Technology General Controls* November 2010 Management Agreed Expected Implementation Date: TBD	The chief information officer should evaluate options and seek funding to develop business continuity and disaster recovery plans for the city.	The department was unable to provide documentation to support that it has implemented this recommendation. The department currently does not have funding for business continuity and disaster recovery plans.	**Not Implemented**
3	*Information Technology General Controls* November 2010 Management Agreed Expected Implementation Date: TBD	The chief information officer should work with departments to establish service level agreements consistent with the department's updated strategic plan.	Except for the Department of Aviation, the Department of Information Technology has no service level agreements in place with individual departments. The department created its own standards of quality in Numara Footprints. Departments did not provide input in setting these standards.	**Not Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
4	**Information Technology General Controls** November 2010 Management Agreed Expected Implementation Date: Complete	The chief information officer should update the department's strategic plan to reflect the city's current needs. The plan should include staffing needs, contractor support, and clearly indicate the basis for its calculations.	The draft strategic plan that the department provided for our review did not address staffing needs or contractor support.	**Not Implemented**
5	**Information Technology Controls at the Department of Aviation** November 2011 Management Agreed Expected Implementation Date: April 2012	Periodically review user access to applications, basing the frequency of review on risk. Maintain evidence of review for at least 18 months.	While the department documented that it reviewed user access to its Active Directory, we recommended periodic review of seven applications.	**Not Implemented**
6	**Information Technology Controls at the Department of Aviation** November 2011 Management Agreed Expected Implementation Date: February 2012	Require access request forms for all applications and maintain evidence of request and approval for at least 18 months.	The department has not provided documentation that this recommendation was implemented.	**Not Implemented**
7	**Information Technology Controls at the Department of Aviation** November 2011 Management Agreed Expected Implementation Date: January 2012	Implement prior recommendations or document why implementation is not feasible and implement alternative controls (applies to 6 of the 7 open recommendations made by Sunera).	The department has partially implemented a recommendation by Sunera to strengthen password controls for an application. The department has not provided documentation that it implemented the remaining recommendations or developed alternative controls.	**Partially Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
8	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: February 2012	Implement a process to promptly remove contractor access to systems when the contract term expires and/or contractor is no longer working on behalf of the city.	The department has not provided documentation that this recommendation was implemented.	**Not Implemented**
9	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: June 2012	Finalize C4 hot site operations and then develop and test a full disaster recovery plan.	The department stated that the C4 hot site is operational; however, the department did not provide documentation of the development and testing of a full disaster recovery plan.	**Not Implemented**
10	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: January 2012	We recommended four specific changes to network configuration settings to better secure critical resources. We omit details in this report that could compromise system security pursuant to the Georgia Open Records Act, O.C.G.A. § 50-18-72(15)(A)(i)..	Our review of documentation related to one of four recommended changes in network configuration found that only one of the changes was implemented. The department acknowledged that it has not changed the other three configuration settings as we had recommended.	**Not Implemented**

Attachment B:

Audit Recommendations Closed

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
1	***Department of Watershed Management Automated Meter Reading Program*** December 2007 Management Agreed Expected Implementation Date: June 2008	Work with program IT staff to assign a program code in the data collectors to identify manual meter reading entries in order to more easily identify meters that need repair by the city or contractor.	We confirmed in our 2013 audit, *Water Meter Reading, Estimates, and Adjusted Billings,* that the department's program code now distinguishes between automatic and manual entries for meter readings.	**Implemented**
2	***Department of Watershed Management Customer Information System*** December 2009 Management Agreed Expected Implementation Date: N/A	Ensure that watershed management staff reviews all user accounts (with the exception of the root account) and enforces the established password policies.	In our review of password settings for 593 enQuesta accounts, we found 5 accounts without a minimum password length of 8 characters and 8 accounts with no restrictions on password reuse.	**Partially Implemented**
3	***Department of Watershed Management Customer Information System*** December 2009 Management Agreed Expected Implementation Date: March 2010	Establish a policy that limits vendor access to the production instance of enQuesta to an as-needed basis and governs how, when, and who is responsible for granting the vendor system access, and consider monitoring what is done by the vendor.	Since the original audit, the Department of Watershed's IT section moved under the city's Department of Information Technology and adopted all of the department's policies regarding vendor access. These policies govern all city applications.	**Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
4	*Department of Watershed Management Customer Information System* December 2009 Management Agreed Expected Implementation Date: March 2010	Establish a policy that governs the periodic review and recertification of users for the enQuesta application and removal of terminated users.	Since the original audit, the Department of Watershed's IT section moved under the city's Department of Information Technology and adopted all of the department's policies regarding the removal of terminated users. These policies govern all city applications.	**Implemented**
5	*Department of Watershed Management Customer Information System* December 2009 Management Agreed Expected Implementation Date: N/A	Determine why some system requirements were not implemented and whether the vendor can be held accountable for implementing them now: (1)Customers are enabled to apply for service via the internet. (2)The enQuesta application provides the ability to link accounts for the purpose of generating a single bill to a master account. (3)The enQuesta application provides the ability to request budget billing via the internet. (4)The enQuesta Water CIS application provides the ability to generate a roll-forward of receivables one year old, two years old, three years old, four years old and years greater indicating the beginning balance, adjustments, payments and ending balance by each year in order to compute the allowance for doubtful account and/or bad debt ratio. (5)The enQuesta Water CIS application provides the ability to generate a monthly roll-forward of total receivables indicating the beginning balance, adjustments, payments and ending balance. (6)The enQuesta CIS application provides	The department determined that the first three requirements were unnecessary to meet the current strategic needs of the business. The department has created a monthly roll-forward report (5) and a roll-forward of receivables report for one year, two years, three years, and four years or greater (4), however these reports do not indicate beginning balances, adjustments and payments. The department has created aging reports by 30 days, 60 days, 90 days, one year, two years, three years, four years and amounts greater than four years (6). The vendor created a table to capture billing and payment transaction records from which the department can calculate the current collection rate.	**Partially Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
		the ability to provide an aging report by 30 days, 60 days, 90 days, one year, two years, three years, four years and amounts greater than four years. (7)The enQuesta CIS application provides a computation of the billing versus collection rate separating current billings / current collections and also total billings/total collections, which includes prior year calculations. The application also provides this information by class of customer i.e. residential, commercial, industrial, and institutional.		
6	*Department of Watershed Management Customer Information System* December 2009 Management Agreed Expected Implementation Date: N/A	Enforce system settings to limit remote logon using the root account.	In our 2012 follow-up, we found that the department had restricted remote logon to the root account for one protocol, but noted other protocols where remote logon to the root account was not limited. We found no change in our review of current settings.	**Partially Implemented**
7	*Information Technology General Controls* November 2010 Management Agreed Expected Implementation Date: TBD	The chief information officer should work with the commissioner of human resources to ensure the department is notified when employees leave city employment to enable prompt removal of user access to city systems.	The department has developed a procedure with human resources to promptly remove user access to Oracle when employees leave city employment.	**Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
8	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: Completed	Ship backup tapes off-site at least monthly to preserve their availability in the event of an onsite disaster.	The department provided receipts for evidence of the monthly shipping of backup tapes offsite.	**Implemented**
9	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: January 2012	Evaluate past performance and implement a strategy for meeting service level agreement targets.	The department has developed a strategy for meeting aviation service level agreement targets using weekly meetings, customer surveys and the monitoring of metrics. We obtained three months of metrics, which show that the department generally met or exceeded its service level agreement targets.	**Implemented**
10	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: April 2012	Perform a network discovery scan and update the network diagram to include all critical components.	During our 2014 audit, *Airport Parking Fees,* we obtained evidence of a PCI compliance audit performed in 2013 for the airport's parking revenue control system. The PCI compliance review indicated that the network diagram was complete.	**Implemented**
11	*Information Technology Controls at the Department of Aviation* November 2011 Management Agreed Expected Implementation Date: December 2012	Implement a process to promptly remove terminated employees' system access.	We reviewed user access lists for three applications to confirm that all employees were currently active.	**Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
12	*Implementation of Audit Recommendations: Department of Information Technology* May 2012 Management Agreed Expected Implementation Date: September 2012	The chief information officer should develop reports showing variances between Kronos and Oracle. These reports should contain details for each employee having hours paid in Oracle different to what is recorded in Kronos.	The department has developed reports showing variances between Kronos and Oracle, including details for each employee with a different number of paid hours recorded in Oracle than was recorded as worked in Kronos.	**Implemented**
13	*Implementation of Audit Recommendations: Department of Information Technology* May 2012 Management Agreed Expected Implementation Date: May 2012	The chief information officer should ensure that the controls established to ensure the integrity of system changes are followed by IT personnel. These controls include documenting: 1. request for changes 2. authorization of the change by the functional/owner base 3. user testing verifying the change worked as intended 4. approval to migrate the change into the production environment 5. review by DBA to ensure all documentation is available prior to moving into production 6. post implementation assessment of the change to ensure it had the desired effect and no subsequent issues have developed	The documents for our judgmentally selected change ticket indicated that the following change management controls were in place: 1. a proper request for a change 2. authorization of the change by functional owner 3. user testing of the change to verify that it works as intended 4. approval to migrate the change into the production environment 5. DBA review prior to moving change into production 6. post-implementation assessment.	**Implemented**

	Report Title and Date	Recommendation	City Auditor Analysis	Implementation Status
14	***Implementation of Audit Recommendations: Department of Information Technology*** May 2012 Management Agreed Expected Implementation Date: June 2012	The chief information officer should enforce the established policies to strengthen security and to reflect actual practices in order to clarify expectations of staff and ensure consistency. Measures should be developed to identify when the following controls are not enforced : • periodically reviewing security logs • applying the established password settings for the Oracle Financials application user base	The department has established password settings for the Oracle Financials application consistent with city policy. The department provided security logs but could provide no documentation of periodic review of these logs.	**Partially Implemented**