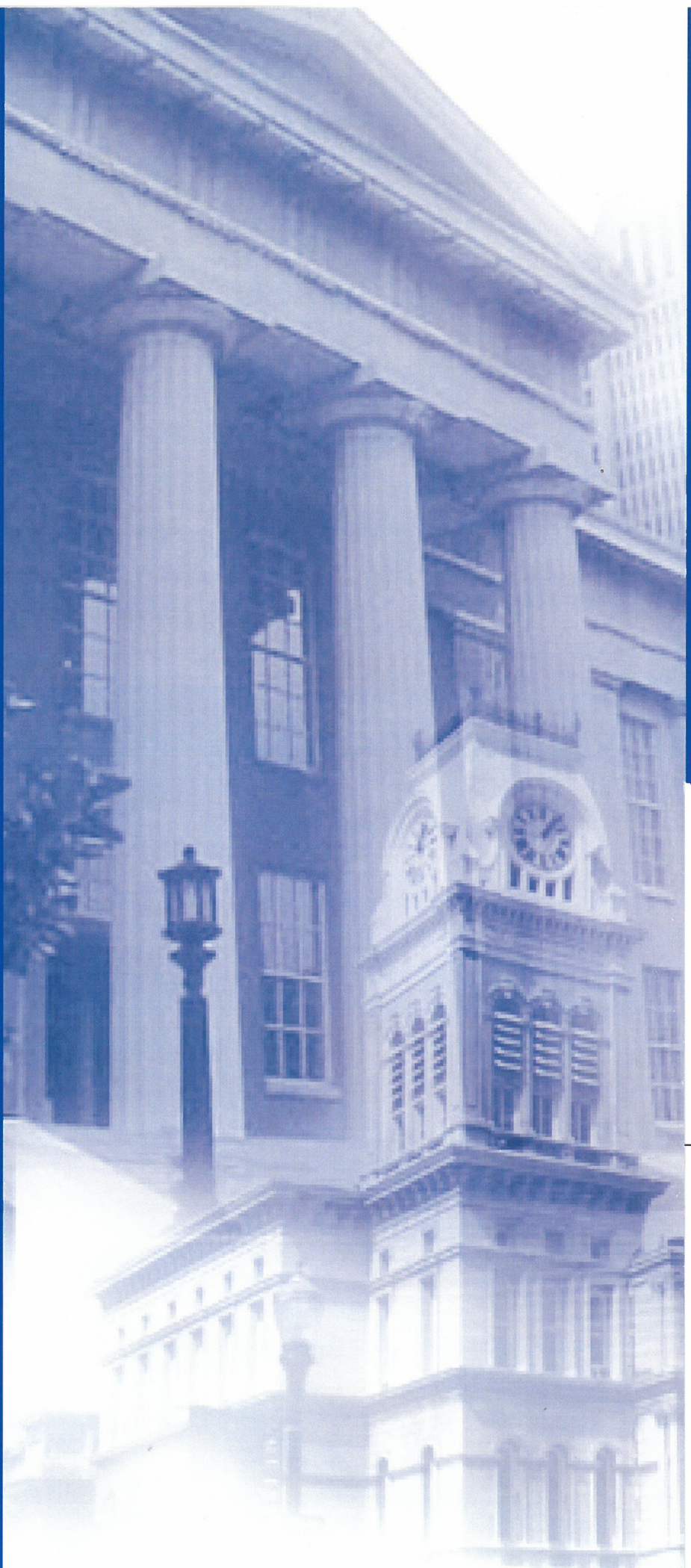




Greg Fischer  
Mayor

Louisville Metro Council

The Office of Internal Audit provides independent, objective assurance and consulting services that adds value to and improves Louisville Metro Government.



# Office of Internal Audit

Louisville Metro Government

Cellular Device Management and Usage



# Audit Report

## Louisville Metro Government

### Cellular Device Management and Usage

January 2017



**Table of Contents**

**Executive Summary ..... 2**

**Transmittal Letter ..... 3**

    Introduction..... 3

    Scope..... 4

    Opinion ..... 4

    Corrective Action Plan..... 5

    Internal Control Rating ..... 6

    Background..... 7

    Summary of Audit Results..... 7

**Observations and Recommendations ..... 9**

    1) Cellular Device Provisioning ..... 10

    2) Cellular Device De-provisioning..... 12

    3) General Administrative ..... 14

## Executive Summary

### PROJECT TITLE

**Louisville Metro Government – Cellular Device Management and Usage**

### OBJECTIVE AND SCOPE

The objective was to perform a review of Louisville Metro Government's Cellular Device Management and Usage. The applicable policies, procedures and records were reviewed. The primary focus was the operational and fiscal administration of the activity regarding cellular device usage and management. This included how the activity was processed, recorded, and monitored. The objective was to obtain assurance that the risks are adequately mitigated through the internal controls in the process.

This was an operational assurance review based on cellular device management and usage activity and the related internal controls. The review included activity that occurred during the period of April 30, 2015 through May 1, 2016. The details of the scope and methodology of the review are addressed in the Observations and Recommendations section of this report.

### INTERNAL CONTROL ASSESSMENT

#### Needs Improvement

### RESULTS

Opportunities exist for improving the internal control structure related to the Louisville Metro Government's Cellular Device Management and Usage. Examples include the following.

- **Cellular Device Provisioning.** There were issues regarding cellular device provisioning.
  - There were issues regarding the authorization to purchase cellular devices and the accompanying service.
  - There were issues regarding the documentation of user acknowledgement and agreement to applicable policies.
- **Cellular Device De-provisioning.** There were issues regarding cellular device de-provisioning.
  - There were employees terminated during the review period, whose cellular service had not been deactivated after the employees' date of termination.
  - There were issues noted regarding the application used to synchronize email with cellular devices and desktop computers.
- **General Administration.** There were issues regarding policies and procedures, safeguarding of assets, and segregation of duties.



OFFICE OF INTERNAL AUDIT  
LOUISVILLE, KENTUCKY

GREG FISCHER  
MAYOR

MAY R. PORTER, CHIEF AUDIT EXECUTIVE

DAVID YATES  
PRESIDENT METRO COUNCIL

## Transmittal Letter

January 4, 2017

The Honorable Greg Fischer  
Mayor of Louisville Metro  
Louisville Metro Hall  
Louisville, KY 40202

**Subject: Audit of the Louisville Metro Government – Cellular Device Management and Usage.**

### Introduction

An audit of Louisville Metro Government's Cellular Device Management and Usage was performed. The applicable policies, procedures and records were reviewed. The primary focus was the operational and fiscal administration of the activity regarding cellular device usage and management. This includes how the activity is processed, recorded, and monitored. The objective was to obtain assurance that the risks are adequately mitigated through the internal controls in the process.

The audit was conducted in accordance with Government Auditing Standards issued by the Comptroller General of the United States and with the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors.

As a part of the audit, the internal control structure was evaluated. The objective of internal control is to provide reasonable, but not absolute, assurance regarding the achievement of objectives in the following categories:

- Achievement of business objectives and goals
- Effectiveness and efficiency of operations
- Reliability of financial reporting
- Compliance with applicable laws and regulations
- Safeguarding of assets

There are inherent limitations in any system of internal control. Errors may result from misunderstanding of instructions, mistakes of judgment, carelessness, or other

personnel factors. Some controls may be circumvented by collusion. Similarly, management may circumvent control procedures by administrative oversight.

### **Scope**

A thorough understanding of cellular device management and usage was obtained in order to evaluate the internal control structure. This was achieved through interviews of key personnel and examination of supporting documentation. This included obtaining an understanding of the policies and procedures for processing, recording, monitoring, and reconciling activity. Testing of activity was also performed to determine the effectiveness of controls.

Cellular device management and usage activity, including user provisioning and de-provisioning, and usage plan appropriateness was reviewed. The review included activity that occurred during April 30, 2015 through May 1, 2016. The details of the scope and methodology of the review are addressed in the Observations and Recommendations section of this report. The examination would not identify all weaknesses because it was based on selective review of data.

### **Opinion**

It is our opinion that the internal control structure for Louisville Metro Government's Cellular Device Management and Usage needs improvement. The internal control rating is on page 6 of this report. The rating quantifies our opinion regarding the internal controls, and identifies areas requiring corrective action. Opportunities to strengthen the internal control structure were noted. Examples include the following.

- **Cellular Device Provisioning.** There were issues regarding cellular device provisioning.
  - There were issues regarding the authorization to purchase cellular devices and the accompanying service.
  - There were issues noted regarding the documentation of user acknowledgement and agreement to applicable policies.
- **Cellular Device De-provisioning.** There were issues regarding cellular device de-provisioning.
  - There were employees terminated during the review period, whose cellular service had not been deactivated after the employees' date of termination.
  - There were issues noted regarding the application used to synchronize email with cellular devices and desktop computers.
- **General Administration.** There were issues regarding policies and procedures, safeguarding of assets, and segregation of duties.

**Corrective Action Plan**

Representatives from the Department of Information Technology have reviewed the results and are committed to addressing the issues noted. Corrective action plans are included in this report in the Observations and Recommendation section. We will continue to work with the Department of Information Technology to ensure the actions taken are effective to address the issues noted.

Sincerely,

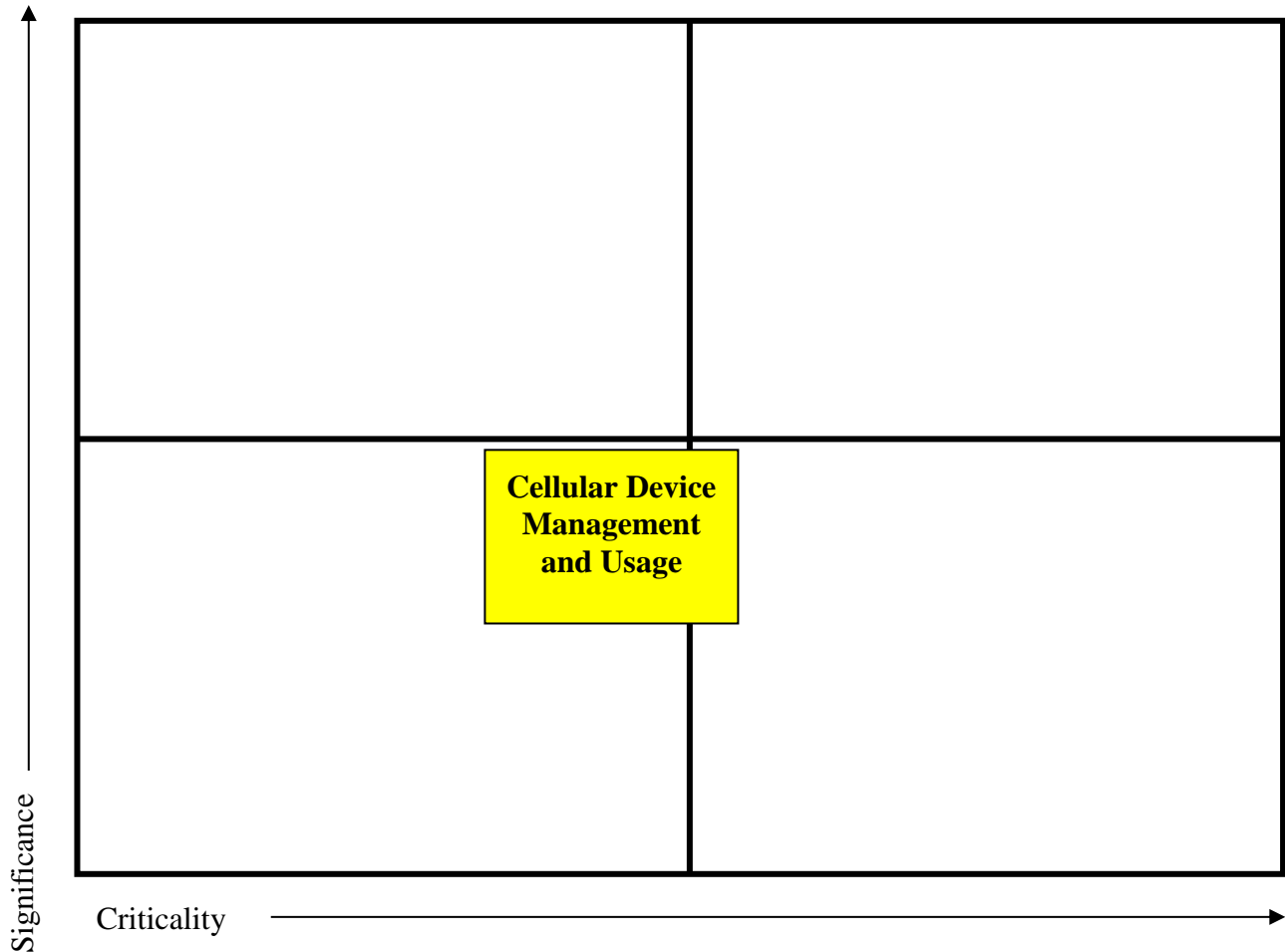


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May R. Porter, CIA  
Chief Audit Executive

cc: Louisville Metro Council Government Accountability and Ethics Committee  
Director of the Department of Information Technology  
Louisville Metro External Auditors  
Louisville Metro Council President

**Internal Control Rating**



<u>Legend</u>			
<b><u>Criteria Issues</u></b>	<b><u>Satisfactory</u></b> Not likely to impact operations.	<b><u>Needs Improvement</u></b> Impact on operations likely contained.	<b><u>Inadequate</u></b> Impact on operations likely widespread or compounding.
<b><u>Controls</u></b>	Effective.	Opportunity exists to improve effectiveness.	Do not exist or are not reliable.
<b><u>Policy Compliance</u></b>	Non-compliance issues are minor.	Non-compliance issues may be systemic.	Non-compliance issues are pervasive, significant, or have severe consequences.
<b><u>Image</u></b>	No, or low, level of risk.	Potential for damage.	Severe risk of damage.
<b><u>Corrective Action</u></b>	May be necessary.	Prompt.	Immediate.



## **Background**

The Louisville Metro Government Department of Information Technology (DoIT) is responsible for the administration of cellular device management and usage activity. However, some processes related to the activity are managed at the department level. Cellular device management and usage activity includes, but is not limited to, cellular device issuance (provisioning) termination (de-provisioning), usage monitoring, call plan monitoring, device and information security, as well as general oversight.

During the audit period, April 30, 2015 through May 1, 2016, Louisville Metro Government spent approximately \$528,000 on cellular service. As of May 1, 2016 there were approximately 900 cellular devices in service. There were 315 cellular devices provisioned and 91 cellular devices de-provisioned during the audit period.

This was a scheduled audit.

## **Summary of Audit Results**

### **I. Current Audit Results**

See the Observations and Recommendations section of this report.

### **II. Prior Audit Issues**

The Office of Internal Audit has previously conducted a Cellular Telephone Policies and Procedures Review (2002) and Cellular Telephone Procedures Review (1999). Unless otherwise noted, all prior issues have been satisfactorily addressed.

### **III. Statement of Auditing Standards**

The audit was performed in accordance with Government Auditing Standards issued by the Comptroller General of the United States and with the International Standards for the Professional Practice of Internal Auditing issued by the Institute of Internal Auditors.

### **IV. Statement of Internal Control**

An understanding of the internal control structure was obtained in order to support the final opinion.

### **V. Statement of Irregularities, Illegal Acts, and Other Noncompliance**

The review did not disclose any instances of irregularities, any indications of illegal acts, and nothing was detected during the review that would indicate evidence of such. Any significant instances of noncompliance with laws and regulations are reported in the Observations and Recommendations section of this report.

## **VI. Views of Responsible Officials / Action Plan**

A draft report was issued to the Department of Information Technology (DoIT) on November 9, 2016. An exit conference was held at the Internal Audit conference room on December 5, 2016. Attending were Jason Ballard, Tim Welsh, Ken Hillebrand, Jimmy Gassler, Terry Yates, and Luke Casey representing Department of Information Technology and Mayria Porter and Glen Reed representing Internal Audit. Final audit results were discussed.

The views of the agency officials were received on December 20, 2016 and are included as corrective action plans in the Observations and Recommendations section of the report. The plans indicate a commitment to addressing the issues noted.

LMCO §30.36(B) requires Louisville Metro Agencies to respond to draft audit reports in a timely manner. It specifically states that

*“The response must be forwarded to the Office of Internal Audit within 15 days of the exit conference, or no longer than 30 days of receipt of the draft report.”*

The agency’s response was provided within this required timeframe.

## Observations and Recommendations

### Scope and Methodology

An audit of the Louisville Metro Government's Cellular Device Management and Usage was performed. The applicable policies, procedures and records were reviewed. The primary focus was the operational and fiscal administration of the activity regarding cellular device usage and management. This included how the activity is processed, recorded, and monitored. The objective was to obtain assurance that the risks are adequately mitigated through the internal controls in the process.

The review included activity that occurred during April 30, 2015 through May 1, 2016. The details of the scope and methodology of the review are addressed in the Observations and Recommendations section of this report.

The examination would not reveal all non-compliance issues because it was based on selective review of data.

### Observations

Issues were noted with the Louisville Metro Government Cellular Device Management and Usage process. As a result, the effectiveness of the internal control structure needs improvement. Areas in which there are opportunities to strengthen the controls include the following.

- 1) Cellular Device Provisioning
- 2) Cellular Device De-provisioning
- 3) General Administration

Details of these begin on the following page.

## **1) Cellular Device Provisioning**

- **Purchasing Authorization.** Authorization to purchase a cellular device and the accompanying service is requested and documented by way of the Letter of Authorization form. The Letter of Authorization form includes authorization for the purchase, as evidenced by the signature of the department director or the Metro Council President. There were issues regarding the authorization to purchase cellular devices and the accompanying service.
  - There were 12 of 25 instances in which the Letter of Authorization could not be located. As a result, it could not be determined if the cellular purchase was properly authorized.
  - There were 6 of the 25 instances in which authorization was not evidenced by way of the signature of the department director.
  - There was 1 of 25 instances in which a cellular device user did not receive authorization by way of the Letter of Authorization.
  
- **Louisville Mobile Device User Agreement.** Acknowledgement and agreement to the policies for the use of Louisville Metro Government (LMG) resources and data on LMG owned and personal cellular devices are documented by way of the user signature on the Louisville Mobile Device User Agreement form. There were issues noted regarding the documentation of user acknowledgement and agreement to applicable policies.
  - There were 20 of 25 instances in which the Louisville Mobile Device User Agreement form could not be located. As a result, it could not be determined if the cellular device user had agreed to comply with the applicable policies.
  - There was 1 of 25 instances in which the cellular device user did not document acknowledgement and agreement to applicable policies, by way of the Louisville Mobile Device User Agreement.

### **Recommendations**

Appropriate personnel should take corrective actions to address the issues noted. Recommendations include the following.

- ✓ Obtain a list of authorized signers from each department and use this list to determine if a Letter of Authorization is properly authorized. In addition, consider the following:
  - Change the terminology on the Letter of Authorization from “Director” to “Authorizing Signature”
  - Require the signer’s name to be printed to ensure legibility.
- ✓ Develop a repository to store the Letter of Authorization form and the Louisville Mobile Device User Agreement form in accordance with the Louisville Metro Government Records Retention Schedule.

- ✓ Enforce the policy that requires a completed Letter of Authorization and a completed User Agreement before issuing a cellular device.

**Department of Information Technology Corrective Action Plan**

The Department of Information Technology concurs with and will implement the recommendations related to cellular device provisioning.



## **2) Cellular Device De-provisioning**

- **Cellular Device De-provisioning.** Cellular device de-provisioning includes device returns, service deactivation, and system access removal. There were issues noted regarding cellular device de-provisioning.
  - There were 23 employees terminated during the review period, whose cellular service had not been deactivated after the employees' date of termination. In some instances the cellular device remained in service over 7 months after the employee was terminated.
- **System Access.** ActiveSync is the application used to synchronize email with cellular devices and desktop computers. Each cellular device user must have an ActiveSync user license to access LMG emails. During the de-provisioning process the remote wiping feature within ActiveSync should be used to prevent unauthorized access to confidential information on the device.
  - There were 11 of 11 instances in which there was insufficient documentation to determine that a remote wipe had taken place.
  - There is not a documented, consistent process to designate ActiveSync licenses as available for reuse during the de-provisioning process. The lack of a designation makes it difficult to maintain a comprehensive list of licenses available for reuse. This may cause LMG to purchase additional licenses while licenses from de-provisioned devices go unused.

## **Recommendations**

Appropriate personnel should take corrective actions to address the issues noted. Recommendations include the following.

- ✓ Include cellular de-provisioning in the Department of Information Technology's change management process. The change management process, specific to terminated employees, currently includes deactivation of user access to LMG systems and applications (i.e. active directory, LeAP, etc.) upon receipt of notification of an employee's termination. This recommendation would shift the responsibility from the department level to the DoIT.
- ✓ Provide adequate documentation to indicate that the cellular device was protected from use by an unauthorized party by performing the following:
  - Document the date of the ActiveSync remote wipe or document why the remote wipe is not necessary.
  - Update the ActiveSync license database each time a cellular device assigned an ActiveSync license is terminated.
  - Periodically compare the ActiveSync license database, and a list of terminated employees to determine if their list of available ActiveSync licenses is accurate.

## **Department of Information Technology Corrective Action Plan**

The Department of Information Technology does not concur with and will not implement the recommendation to include cellular de-provisioning in the Department of Information Technology's change management process. In addition, Department of Information Technology noted the following:

Deciding on what phones to de-provision will lie with the department representatives and the responsibility for ensuring those lines are discontinued or transferred will lie with the same. We do not always de-activate a line when someone leaves as the department occasionally wants the number to stay with the position. Language will be added to the wireless authorization approval form emphasizing the department's responsibility for notifying DoIT when lines should be discontinued or transferred. DoIT will investigate methods to compare terminated employee information with active phone records to periodically notify agencies of phones that show up as being assigned to terminated employees.

The Department of Information Technology concurs with but will not implement the recommendation to provide adequate documentation to indicate that the cellular device was protected from use by an unauthorized party. In addition, Department of Information Technology noted the following:

We will only provide documentation for a remote wipe when phone has been reported lost or stolen. We, by process, perform a factory wipe of all phones when they are turned in.

### **3) General Administrative**

- **Policies and Procedures.** There were no documented policies and procedures to guide personnel in performing the provisioning and de-provisioning of cellular devices. It is a best practice to develop and maintain policies and procedures to monitor for duplicate devices, abuse of the replacement policy, and usage by terminated employees and/or unauthorized users.
- **Safeguarding of Assets.** Cellular devices of terminated employees and cellular devices that are no longer appropriate for use by LMG are not collected, tracked, or safeguarded in a uniform manner that provides internal control. Some departments hold them for possible future use, some departments return them to DoIT, and some departments are not aware of the disposition of the devices assigned to departmental employees. The lack of monitoring of unused cellular devices coupled with inadequate de-provisioning controls increases the risk of a data breach as many cellular devices contain sensitive information.
- **Segregation of Duties.** A single staff person is responsible for all functions of the cellular device procurement process. The staff person receives the request for a cellular device, initiates the request to the vendor for that device, receives the device, and updates records concerning that device.
- **Record Keeping.** Kentucky General Schedule for Electronic and Related Records requires that “records used to document requests for technical assistance and responses to these requests as well as to collect information on the use of computer equipment for program delivery, security, or other purposes” be maintained for “1 year after creation.”
  - There were 16 of 25 newly provisioned devices in which the service desk ticket for provisioning could not be located.
  - There were 5 of 11 de-provisioned devices for which the service desk ticket for de-provisioning could not be located.

### **Recommendations**

Appropriate personnel should take corrective actions to address the issues noted. Recommendations include the following.

- ✓ Documented policies and procedures should be developed to guide appropriate personnel in the administration of cellular device provisioning and de-provisioning. In addition, a master listing of all LMG cellular devices, cellular users, and cellular service accounts should be developed and maintained. The master listing will aid in monitoring requests for duplicate devices, abuse of the replacement policy, use by terminated employees, and unauthorized users. The policies and procedures should be updated periodically.
- ✓ Develop and implement a policy regarding the collection, disposal, reassignment and reuse of cellular devices. The policy should include specific clear instructions for

ensuring all devices of terminated employees, unused devices, and obsolete devices are collected and submitted to a centralized repository, such as the DoIT service desk, for processing.

- ✓ A single individual should not be responsible for two or more of the following four functions for a single transaction: record keeping, asset custody, authorization, and reconciliation. In cases where complete segregation is not feasible (e.g., staff size constraints), appropriate compensating controls should be practiced (e.g., supervisory review, monitoring).
- ✓ Review the Kentucky General Schedule for Electronic and Related Records. Develop a policy and a process to ensure records are maintained for the required period.

### **Department of Information Technology Corrective Action Plan**

The Department of Information Technology concurs and will implement the recommendation to develop policies and procedures to guide appropriate personnel in the provisioning and de-provisioning of cellular devices.

The Department of Information Technology concurs and will implement the recommendation to develop and implement a policy regarding the collection, disposal, reassignment and reuse of cellular devices.

The Department of Information Technology concurs but will not implement the recommendation related to segregation of duties. In addition, Department of Information Technologies noted the following:

This is not possible with our current labor model. We will continue as we have been with authorization coming from the director or designee, all charges being audited by the receiving departments with Record keeping, custody and record keeping still falling under the control of the service desk however. This work is now also being handled by two employees instead of one.

The Department of Information Technology concurs and will implement the recommendation to develop a policy and a process to ensure records are maintained for the required period.



The purpose of this survey is to solicit your opinion concerning the quality of the **Louisville Metro Government – Cellular Device Management and Usage Audit Report**. Please feel free to expand on any areas that you wish to clarify in the comment area at the end. Please return the completed survey electronically to [IAUDITIMB@Louisvilleky.gov](mailto:IAUDITIMB@Louisvilleky.gov) or to ATTN: Internal Audit 609 W. Jefferson St Louisville, KY 40202. We sincerely appreciate your feedback. The survey can also be completed online at the following link: <https://louisvilleky.wufoo.com/forms/audit-report-satisfaction-survey/>

### Survey

1. The audit report thoroughly explained the scope, objectives, and timing of the audit.  
  
 Strongly Agree  
 Agree  
 Neither Agree or Disagree  
 Disagree  
 Strongly Disagree
  
2. The audit report reflects knowledge of the departmental/governmental policies related to the area or process being audited.  
  
 Strongly Agree  
 Agree  
 Neither Agree or Disagree  
 Disagree  
 Strongly Disagree
  
3. The audit report is accurate and clearly communicated the audit results.  
  
 Strongly Agree  
 Agree  
 Neither Agree or Disagree  
 Disagree  
 Strongly Disagree
  
4. The audit recommendations were constructive, relevant, and actionable.  
  
 Strongly Agree  
 Agree  
 Neither Agree or Disagree  
 Disagree  
 Strongly Disagree
  
5. \*\*Was there anything about the audit report that you especially liked?
  
6. \*\*Was there anything about the audit report that you especially disliked?



Office of Internal Audit

Phone: 502.574.3291

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