



## **PERFORMANCE AUDIT REPORT**

### **BALTIMORE CITY OFFICE OF INFORMATION & TECHNOLOGY (Formerly Known as Mayor's Office of Information Technology)**

**Fiscal Years Ended  
June 30, 2016 and 2015**

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Honorable Joan M. Pratt, Comptroller  
and Other Members  
of the Board of Estimates  
City of Baltimore, Maryland

## Executive Summary

We conducted a performance audit of selected functions within the Baltimore City Office of Information & Technology (BCIT), formerly known as the Mayor's Office of Information Technology (MOIT), for the fiscal years ended June 30, 2016 and 2015 (the stated period). The purpose of our performance audit was to determine whether BCIT met its performance measure targets, and to determine whether its internal controls and the related policies and procedures were effectively designed and placed in operation to monitor, control, and report valid and reliable information that is significant to selected performance measures or functions for the stated period. Our performance audit also included a follow-up of findings and recommendations that were included as part of the previous performance audit report of the BCIT, dated November 17, 2016.

As a result of our audit, we determined that some of the targets for the selected performance measures were not met. We also noted information regarding performance measure targets and actual amounts was not consistently reported in the Agency Detail Board of Estimates Recommendations (Budget Book) from one fiscal year to another.

In addition, we noted certain areas where the effectiveness of the control procedures could be improved, and we recommend that:

- BCIT establish written policies and procedures to document the methodology for developing performance measure targets and reporting actual results, including procedures for recording, reviewing, maintaining, and reporting actual results of the performance measures. We also recommend that when performance measures become obsolete or inadequate, the agency document the reason why the performance measure is no longer useful.

- Prior year performance measure targets should not be changed in subsequent year Budget Books without adequate disclosure by the Bureau of Budget and Management Research (BBMR), in order to avoid misleading performance results. Also, changes to performance measure targets and/or actual amounts should be approved by the Department of Finance and adequately disclosed by BBMR in the Budget Books. We also recommend that when performance measures are not met or become obsolete or inadequate, the agency document the reason the performance measure was not met, and why the performance measure is no longer useful.



Audrey Askew, CPA  
Acting City Auditor

June 28, 2018

**Baltimore City Office of Information & Technology**  
**Background Information**  
**Fiscal Years Ended June 30, 2016 and 2015**

The Baltimore City Office of Information & Technology (BCIT) is responsible for providing information technology leadership to the entire City of Baltimore, utilizing and leveraging information technology to enhance productivity, broadening operational capabilities, reducing the operating costs of City government and, ultimately, improving the quality and timeliness of services delivered to the citizenry.

BCIT is also responsible for the development, implementation and continuing support of the CitiTrack Customer Service Request System, which provides a universal, standardized, inter-agency call-intake and work order management methodology with a direct linkage to the CitiStat system and process. The CitiTrack system is the Customer Relations Management (CRM) tool for the City's One Call Center which is also directly supported and managed by BCIT.

In July 2012 BCIT took over 911 and Police Dispatch under the first phase of moving toward a Unified Communications Center to improve efficiency; this function however, transitioned to the Fire Department in FY 2016.

The following is a summary of the various services provided by BCIT that were included as part of our Performance Audit:

1. **Enterprise Innovation and Application Services (Service 803)** develops, installs, maintains and operates the computer systems and applications that enable Baltimore City agencies to effectively and efficiently manage their operations. BCIT supports both mainframe based business and internet applications that allow citizens to access information and perform transactions online. BCIT also supports the Enterprise-wide Geographic Information System (EGIS).
2. **Enterprise IT Delivery Services (Service 805)** is responsible for maintaining the City's Internet connectivity, Closed-Captioned Television System (CCTV) operation, the Safety Radio System infrastructure and connectivity, mainframe infrastructure and Help Desk support. The Help Desk processes approximately 500 service requests per week.

**Baltimore City Office of Information & Technology**  
**Audit Scope, Objectives and Methodology**  
**Fiscal Years Ended June 30, 2016 and 2015**

We conducted a performance audit of selected functions within the Baltimore City Office of Information & Technology (BCIT) for the stated period. The purpose of our performance audit was to determine: a) whether BCIT met its performance measure targets, and b) whether its internal controls and the related policies and procedures were effectively designed and placed in operation to monitor, control, and report valid and reliable information that is significant to selected performance measures or functions for the stated period. Our performance audit included follow-ups of prior findings and recommendations included in BCIT's previous performance audit report, dated November 17, 2016. We conducted our performance audit 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The objectives of our audit were to determine whether BCIT met its targets for selected performance measures in the stated period and to assess whether BCIT's internal controls and related policies, processes, and procedures were effectively designed and placed in operation to monitor, control, and report valid and reliable information related to those performance measures. In addition to our follow-up on the findings and recommendations contained in our previous performance audits, our audit included selected performance measures within the following BCIT Service Areas:

1. **Enterprise Innovation and Application Services – Service 803.** We conducted our audit of the BCIT's efforts to meet its targets for the **number** of applications moved off the mainframe for fiscal year 2016 and the **percent** of applications moved off the mainframe for fiscal year 2015. (Priority Outcome: Innovative Government)
2. **Enterprise IT Delivery Services – Service 805.** We conducted our audit of the BCIT's efforts to meet its targets for number of cybersecurity awareness trainings. (Priority Outcome: Innovative Government)

To accomplish our objectives, we conducted inquiries of key individuals to obtain an understanding of the internal controls and related policies, processes and procedures, and systems established by the BCIT for the selected performance measures. Where possible, we also utilized the systems' documentation obtained as part of our audit of the City's Comprehensive Annual Financial Report (CAFR).

We also performed tests, as necessary, to verify our understanding of the applicable policies and procedures; reviewed applicable records and reports utilized to process, record, monitor, and control BCIT's functions pertaining to the selected performance measures; assessed the efficiency and effectiveness of those policies and procedures; and determined whether the BCIT met its performance measure targets.

The findings and recommendations are detailed in the Findings, Recommendations and Audit Results section of this report, along with responses from BCIT.

**Baltimore City Office of Information & Technology**  
**Findings, Recommendations and Audit Results**  
**Fiscal Years Ended June 30, 2016 and 2015**

*Enterprise Innovation and Application Services – Service 803.* **Number** of applications moved off the mainframe for fiscal year 2016, and the **Percent** of applications moved off the mainframe for fiscal year 2015.

**Finding #1**

BCIT did not have written policies and procedures to document the methodology for developing the 2016 and 2015 performance measure targets and reporting actual results for the number or percent of applications removed from the mainframe.

**Recommendation #1**

**We recommend that BCIT establish written policies and procedures to document the methodology for developing performance measure targets and reporting actual results, including procedures for recording, reviewing, maintaining, and reporting actual results of the performance measures.**

**Agency Response**

BCIT concurs with the recommendation and is currently working on establishing a performance measure dictionary. The dictionary will document definitions, methodologies, and procedures surrounding the agency's performance measures and reporting.

**Finding #2**

Fiscal year 2015 performance measure for the percentage of applications moved off the mainframe (25%) was changed in the fiscal year 2016 Budget Book to the number of applications moved off the mainframe (one). In addition, those performance measure targets and the actual amounts were no longer included in the 2017 and 2018 Budget Books. (Note: Actual amounts related to performance measure targets are normally reported in the Budget Books two years after the related target years). Although the actual amounts for fiscal years 2016 and 2015 were not reported in subsequent years' Budget Books, according to BCIT, no applications were removed from the mainframe in fiscal years 2016 and 2015. Therefore, BCIT did not meet its performance measure targets for those years.

**Recommendation #2**

**Prior year performance measure targets should not be changed in subsequent year Budget Books without adequate disclosure by the Bureau of Budget and Management Research (BBMR), in order to avoid misleading performance results. Also, changes to performance measure targets and/or actual amounts should be approved by the Department of Finance and adequately disclosed by BBMR in the Budget Books. We also recommend that when performance measures are not met or become obsolete or inadequate, the agency document the reason the performance measure was not met, and why the performance measure is no longer useful.**

**Agency Response**

The Department of Finance concurs with the recommendation. The Bureau of Budget and Management Research was aware of the change to the performance measures.

**Baltimore City Office of Information & Technology**  
**Findings, Recommendations and Audit Results**  
**Fiscal Years Ended June 30, 2016 and 2015**

**Agency Response (*continued*)**

However, the change was not properly disclosed in the budget document. Going forward BBMR will ensure all budget analysts are properly instructed as to this procedure prior to each budget cycle, emphasizing that changes to the performance data must be properly disclosed in the budget document.

***Enterprise IT Delivery Services – Service 805. Number of cybersecurity awareness trainings.***

**Audit Results**

The performance measure for the number of cyber security awareness trainings was a new performance measure established in fiscal year 2016, with a target of 32. According to a note in the fiscal year 2016 Budget Book, BCIT's Information Security Office planned to offer 32 email broadcasts and awareness training sessions in fiscal year 2016. According to BCIT, however, because expected funding to conduct those training sessions was not received, BCIT generated 44 cyber security email broadcasts and also disseminated cyber security calendars, posters and flyers to keep City employees well informed about cyber security awareness information. Therefore, BCIT met its performance measure target for fiscal year 2016. This performance measure target was no longer included in the Budget Books for fiscal years 2017 and 2018.

**Baltimore City Office of Information & Technology**  
**Status of Prior Findings and Recommendations**  
**Fiscal Years Ended June 30, 2016 and 2015**

The following is a summary of the status of prior findings and recommendations for the performance audit report of the Baltimore City Office of Information & Technology, dated November 17, 2016.

Note: Because the previous audit was performed under the previous name of the Mayor's Office of Information Technology (MOIT) for the agency, the Prior Findings and Recommendations will be listed as MOIT; however, the Department of Audit's follow-up status will be reported under the current name of the Baltimore City Office of Information & Technology (BCIT),

**Enterprise IT Delivery Services – Service 805**

**Average Resolution Time per Ticket**

**Previous Finding #1**

The auditors were not able to recalculate the actual value of the performance measure due to unavailable data. There was no operational data transferred to Footprints from OTRS Business Solutions when the system was changed in FY 2014, and the OTR Business Solutions data could not be located.

**Previous Recommendation #1**

None.

**Follow-up Status #1**

***Not Applicable:*** No prior year recommendation was made.

**Previous Finding #2A**

The performance measure target reasonably represented past performance for FY 2012 and FY 2014 but not for FY 2013, in which the target was established at 0.5 days when the FY 2012 result was 3.0 days. Establishing unreasonable targets decreases the overall impact of outcome based budgeting and limits the ability of MOIT to effectively improve performance.

**Previous Recommendation #2A**

The auditor recommended MOIT to evaluate the process for supporting and reviewing the changes in target values from year to year based on actual performance results to ensure that the proposed targets reasonably represent a goal for improving performance.

**Follow-up Status #2A**

***Partially Implemented:*** BCIT has partially evaluated the process for supporting and reviewing changes in target values.

**Previous Finding #2B**

According to management, current system settings automatically offer stakeholders a service satisfaction survey after each ticket is closed. The Division however, does not have formal policies

**Baltimore City Office of Information & Technology**  
**Status of Prior Findings and Recommendations**  
**Fiscal Years Ended June 30, 2016 and 2015**

**Previous Finding #2B** *(continued)*

and procedures in place to evaluate and report the survey results on a periodic basis, or to use the results in a structure manner for processing improvement initiatives.

**Previous Recommendation #2B**

Management should develop mechanisms to summarize and periodically report survey results by client City agency from the data automatically captured by the ticketing system. Best practice information technology surveys are short (five-questions or less) to increase participation level.

**Follow-up Status #2B**

**Implemented:** BCIT has developed mechanisms to summarize and periodically report survey results. We did not perform any testing.

**Enterprise Unified Call Center – Service 804**

**Number of City Services and General Information Calls Received**

**Previous Finding #3**

The performance measure target established for FY 2014 reasonably represents the performance in FY 2013. However, the FY 2013 target (1.3M calls) is not reasonable since it is three times larger than the FY 2012 result (422K calls). Because of this, the FY 2013 target does not reasonably represent performance improvement expectations.

**Previous Recommendation #3**

The auditor recommended MOIT to evaluate the process for supporting and reviewing the changes in target values from year to year based on actual performance results. The process should also ensure that proposed targets reasonably represent a goal for improving performance.

**Follow-up Status #3**

According to BCIT, the numbers were corrected for FY 2015, and it revised previous numbers to combine 311 calls and 311 non-emergency calls to reflect a total call volume for 311 calls. Going forward, 911 call taking service and police dispatch will be transferred to the Fire Department and Police Department, respectively.

**Baltimore City Office of Information & Technology**  
**Status of Prior Findings and Recommendations**  
**Fiscal Years Ended June 30, 2016 and 2015**

**Percent of City Services and General Information Calls Answered within 20 Seconds**

**Previous Finding #4**

The performance measure's actual results were accurate in the two of the three years the auditor recalculated the value reported in the budget from the One Call Center data and reports. The actual value reported in FY 2013 was inaccurate.

**Previous Recommendation #4**

None.

**Follow-up Status #4**

According to BCIT, the numbers were corrected for FY 2015, and it revised previous numbers to combine 311 calls and 311 non-emergency calls to reflect a total call volume for 311 calls. Going forward, 911 call taking service and police dispatch will be transferred to the Fire Department and Police Department, respectively.

**Previous Finding #5A**

Although performance data on call volume and percent of calls answered within 20 seconds for Non-Emergency calls is also available in the One Call Center database, the Division does not report that information. Non-Emergency calls typically represent between 35 and 44 percent of the total calls received and not reporting results in this area, depicts an incomplete picture of the Enterprise Unified Call Center operation.

**Previous Recommendation #5A**

Include and report for Non-Emergency calls the same performance measures reported from City Services and General Information calls. Together, the two types of calls will illustrate a more complete representation of the success of the operation as a whole.

Additionally, add a measure for the average time to answer a call, which is another set of data readily available for both Non-Emergency and City Services and General Information calls. By adding this measure, the Division will be able to provide an even clearer representation of customer service level.

**Follow-up Status #5A**

**Implemented:** The metrics being published in the Budget Book is limited; however, BCIT is closely monitoring daily both the 311 emergency and non-emergency calls.

**Previous Finding #5B**

The auditor completed a five-year analysis that showed that the average time to answer City Services and General Information calls increased 11 minutes between FY 2012 and FY 2016, approximately a 50% increase. Conversely, the average time to answer Non-Emergency calls decreased 3 min in between FY 2012 and FY 2016, approximately a 30% decrease.

**Baltimore City Office of Information & Technology**  
**Status of Prior Findings and Recommendations**  
**Fiscal Years Ended June 30, 2016 and 2015**

**Previous Recommendation #5B**

None.

**Follow-up Status #5B**

*Not Applicable*: No prior recommendation was made.

**Number of 911 Calls Received**

**Previous Finding #6**

The auditor was able to reproduce the actual value of the performance measure directly from the One Call Center data and performance reports. The performance measure's actual results were accurately reported in one of the three years where actual results were available. For two years however, a difference of 9% and 10% between the actual value reported and the auditor's recalculation for FY 2012 and FY 2014, respectively.

The One Call Center reports include two values, the Number of Calls Accepted and the Number of Calls Answered; the difference between the two, are the number of calls abandoned. The report also includes data on the number of calls answered within specific time ranges, which is calculated using the calls answered data. Even if the difference between the reported and the auditor's recalculated value had been calculated using the Number of Calls Accepted (which would not have been appropriate based on the reason previously described), there would have been differences as well.

**Previous Recommendation #6**

Develop a mechanism to accurately report the actual performance measure results as extracted from the database. Make sure that the Number of Calls Answered, not the Number of Calls Accepted, is used to document the actual value reported in the budget.

**Follow-up Status #6**

*Implemented*: The call center installed a new VoIP telephone system. Prior to the VoIP telephone system, there were two reporting columns (calls accepted, and calls received). Calls received was the most accurate measure. The new reporting system offers only calls accepted as an indication for calls received creating consistency in reporting that metric. Going forward, 911 call taking service and police dispatch will be transferred to the Fire Department and Police Department, respectively.

**Baltimore City Office of Information & Technology**  
**Status of Prior Findings and Recommendations**  
**Fiscal Years Ended June 30, 2016 and 2015**

**Number of 911 Calls Answered within 10 Seconds**

**Previous Finding #7**

Although the differences were not significant, the performance measure's actual results reported in the budget were generally different from the data summarized from the One Call Center reports for the three years where data was available.

**Previous Recommendation #7**

None.

**Follow-up Status #7**

**Not Applicable:** No prior recommendation was made.

**Enterprise Innovation and Application Services – Service 803**

**Previous Finding #8**

The auditor's assessment of the reliability, validity, and relevance of selected performance measures for the four fiscal years 2011 to 2014, including an evaluation of the mechanisms in place to track and generate performance data, was limited due to several number of factors and no measures were selected for testing. Limiting factors included –

- Many target and actual data points were not reported from year to year.
- Through inquiry with members of management, it was noted that supporting documentation for the target performance was generally not available. Consequently, the auditor was not able to determine whether the performance measure targets reasonably represented the performance of the prior years, or the performance improvement the group planned to achieve.
- Also through inquiry, the auditor determined that the data relating to actual performance measurements during the period evaluated was also generally not available or complete.
- Absence of internal controls, policies or procedures for recording, reviewing, maintaining or reporting performance measurement.

Current MOIT leadership recognizes the existing performance measurement constraints, particularly for Enterprise Innovation and Application Services and has made it a priority to develop a more robust performance measurement system. The lack of continuity and maturity of the performance measuring system for this business unit can be attributable to changes in leadership during the period evaluated.

**Baltimore City Office of Information & Technology**  
**Status of Prior Findings and Recommendations**  
**Fiscal Years Ended June 30, 2016 and 2015**

**Previous Recommendation #8**

Revise current measures, and consider developing and tracking additional efficiency and effectiveness measures for each of the key functions/services within the Enterprise Innovation and Application Services Division and its units/activities. Management should determine that the performance measures provide a reliable representation of what these units are producing not only in terms of workload, but also in terms of what is it costing to produce the service.

Management should work with each unit to identify relevant performance measures, prescribe realistic targets, and find or create sources for reliable data. With a comprehensive set of measures, corresponding operations can be managed more efficiently as Division management optimizes allocation of limited resources by integrating performance data into its decision-making process. This is especially important in light of the decision MOIT needs to make between keeping the existing mainframe infrastructure and acquiring a new Enterprise resource planning (ERP) solution.

Management should also develop policies or procedures for recording, reviewing, maintaining or reporting performance measurement.

**Follow-up Status #8**

***Not Implemented.*** We noted no evidence that the above recommendation was implemented.