

Audit Report

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**University System of Maryland  
University of Maryland, Baltimore**

September 2016

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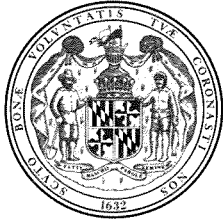
**OFFICE OF LEGISLATIVE AUDITS**  
DEPARTMENT OF LEGISLATIVE SERVICES  
MARYLAND GENERAL ASSEMBLY

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DEPARTMENT OF LEGISLATIVE SERVICES  
OFFICE OF LEGISLATIVE AUDITS  
MARYLAND GENERAL ASSEMBLY

Warren G. Deschenaux  
Executive Director

Thomas J. Barnickel III, CPA  
Legislative Auditor

September 22, 2016

Senator Guy J. Guzzone, Co-Chair, Joint Audit Committee  
Delegate C. William Frick, Co-Chair, Joint Audit Committee  
Members of Joint Audit Committee  
Annapolis, Maryland

Ladies and Gentlemen:

We have conducted a fiscal compliance audit of the University System of Maryland (USM) – University of Maryland, Baltimore (UMB) for the period beginning September 7, 2011 and ending June 30, 2015. UMB is a comprehensive public institution of USM and provides professional and graduate level instruction through its schools of Dentistry, Law, Medicine, Nursing, Pharmacy, and Social Work, and its Graduate School.

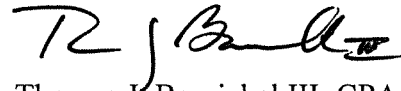
Our audit disclosed that transactions recorded in UMB's automated systems for several critical applications, including financial aid, student accounts receivable, purchases and disbursements, and payroll were not adequately controlled. In many cases, certain transactions (such as adjustments to student financial aid awards, student account balances, and employee payroll) were not subject to independent review and approval.

We also noted that UMB acquired certain information technology services totaling \$539,000 for another State agency through an interagency agreement, which essentially allowed that agency to avoid using a competitive procurement process for acquiring those services.

Furthermore, our review of UMB's information systems security and control disclosed that UMB's network was not sufficiently secured. Specifically, properly configured firewall rules and effective intrusion detection prevention system coverage did not exist and numerous workstations were not sufficiently protected against malware.

The USM Office's response to this audit, on behalf of UMB, is included as an appendix to this report. We wish to acknowledge the cooperation extended to us during the course of this audit by UMB.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'TJ Barnickel III', with a stylized flourish at the end.

Thomas J. Barnickel III, CPA  
Legislative Auditor

## **Table of Contents**

<b>Background Information</b>	<b>5</b>
Agency Responsibilities	5
Status of Findings From Preceding Audit Report	5
<b>Findings and Recommendations</b>	<b>6</b>
<b>Student Financial Aid</b>	
Finding 1 – UMB lacked an independent verification of adjustments to financial aid awards posted to student accounts, and certain employees had incompatible system access capabilities that allowed them to both adjust and disburse financial aid awards.	6
Finding 2 – There was no independent verification to ensure that all fund requests for reimbursement of federal financial aid were received.	7
<b>Student Accounts Receivable</b>	
Finding 3 – Several employees, including some who did not require the applicable system capabilities for their job duties, could process certain student account transactions, such as tuition waivers, without independent verification.	7
<b>Purchases and Disbursements</b>	
Finding 4 – Certain employees were assigned system access capabilities to process purchase orders and disbursement transactions without independent review and approval.	9
<b>Interagency Agreement</b>	
Finding 5 – Through an interagency agreement, UMB acquired certain information technology services totaling \$539,000 on behalf of the Maryland Longitudinal Data System Center, which allowed the Center to avoid using a competitive procurement process for those services.	10
<b>Payroll</b>	
Finding 6 – UMB did not always use available output reports to ensure that only valid payroll adjustments were processed.	11

<b>Information Systems Security and Control</b>	
Finding 7 – The UMB network was not sufficiently secured in that properly configured firewall rules and effective intrusion detection prevention system coverage did not exist.	12
Finding 8 – UMB procedures were not sufficient for maintaining and securing numerous workstations against malware.	14
<b>Audit Scope, Objectives, and Methodology</b>	16
<b>Agency Response</b>	Appendix

## **Background Information**

### **Agency Responsibilities**

The University of Maryland, Baltimore (UMB) provides professional and graduate level instruction through its schools of Dentistry, Law, Medicine, Nursing, Pharmacy, and Social Work, and its Graduate School. UMB students who receive instruction in health care professions obtain clinical experience at various health care facilities, including the University of Maryland Medical Center, which is a component of the University of Maryland Medical System Corporation.

For the Fall 2015 semester, UMB's enrollment totaled 6,329 students. UMB's budget is funded by unrestricted revenues, such as tuition and student fees, a State general fund appropriation, and restricted revenues, such as federal grants and contracts. According to the State's records, fiscal year 2015 revenues totaled approximately \$1.05 billion, which included a State general fund appropriation of \$199.1 million. These records also indicated that UMB's expenditures for fiscal year 2015 totaled approximately \$1.05 billion.

### **Status of Findings From Preceding Audit Report**

Our audit included a review to determine the status of the seven findings contained in our preceding audit report dated April 8, 2013. We determined that UMB satisfactorily addressed these findings.

## **Findings and Recommendations**

### **Student Financial Aid**

#### **Finding 1**

**The University of Maryland, Baltimore (UMB) lacked an independent verification of adjustments to financial aid awards posted to student accounts, and certain employees had incompatible system access capabilities that allowed them to both adjust and disburse financial aid awards.**

#### **Analysis**

Sufficient controls were not established to ensure the propriety of financial aid posted to student accounts. According to UMB's records, during fiscal year 2015, financial aid awarded to students, including grants and scholarships, totaled approximately \$138 million.

Adjustments to financial aid award amounts were not independently verified for propriety. UMB's financial aid system automatically calculates award amounts and generates recommended financial aid award packages for students based on various eligibility criteria. UMB employees may manually record adjustments to those award amounts based on individual student situations, such as when a student drops classes and may no longer be eligible for the original award amount. However, these adjustments were not subject to independent supervisory review and approval, using available output reports, to ensure their propriety.

Additionally, seven employees responsible for manually recording adjustments to financial aid awards in student accounts also had system access capabilities that allowed them to release (disburse) the aid even though these capabilities were not necessary to perform their job duties.

#### **Recommendation 1**

**We recommend that UMB**

- a. use available output reports to independently verify that all adjustments to financial aid were proper, and**
- b. eliminate incompatible user capabilities so that the same individual cannot both adjust and release (disburse) financial aid.**



**Finding 2**

**There was no independent verification to ensure that all fund requests for reimbursement of federal financial aid were received.**

**Analysis**

UMB did not have an adequate process to ensure that funds were deposited in the State's bank account for all requests to the federal government for reimbursement of financial aid. UMB received federal financial aid for student grants and loans totaling approximately \$122 million for the 2014-2015 academic year, primarily from the United States Department of Education (USDOE).

An independent employee did not use available output reports of federal financial aid funds requested to verify that all requested funds were received and deposited into the State's bank account. This procedure is a particularly important control based on representations we received from the USDOE regarding the requirements for changing the bank account into which requested funds are deposited. In this regard, USDOE's procedures and documentation requirements would allow the employee responsible for requesting federal financial aid to redirect the funds to be deposited into a different bank account. Accordingly, there was a lack of assurance that all funds due to UMB were received and deposited into the State's account.

**Recommendation 2**

**We recommend that an employee independent from the process of requesting federal financial aid use available automated reports of requests made to verify that all requested funds were properly deposited into the State's bank account.**

**Student Accounts Receivable****Finding 3**

**Several employees, including some who did not require the applicable system capabilities for their job duties, could process certain transactions, such as tuition waivers, without independent verification.**

**Analysis**

Controls over critical transactions posted to student accounts in UMB's automated system were not sufficient. Several employees processed these transactions without independent verification of their propriety, and other employees had system access capabilities that allowed them to process certain of these

transactions even though they did not require these capabilities to perform their job duties.

Several employees responsible for processing tuition waivers, making and recording residency determinations, writing off delinquent student accounts, or removing system holds from student accounts that were intended to prevent students with delinquent accounts from registering for classes could do so without independent verification of the transactions. Automated output reports of these transactions either were not generated or were not used in a manner that provided for an adequate independent verification. For example, the employee responsible for verifying the propriety of tuition waivers posted to student accounts could also record the waivers. Consequently, there was a lack of assurance that all tuition waivers, which totaled approximately \$3.1 million for the Fall 2014 and Spring 2015 semesters, were valid.

In addition, 11 employees had system access capabilities that allowed them to write-off student account balances or modify student residency status even though they did not require these capabilities to perform their job duties.

During the 2014-2015 academic year, student account charges totaled approximately \$145.2 million. Each of the aforementioned transactions could significantly affect a student's account balance and, therefore, must be adequately controlled.

### **Recommendation 3**

**We recommend that UMB**

- a. establish procedures, including the use of available output reports, to independently verify the propriety of critical transactions posted to student accounts; and**
- b. remove the aforementioned unnecessary employee system access capabilities.**

## Purchases and Disbursements

### **Finding 4**

**Certain employees were assigned system access capabilities to process purchase orders and disbursement transactions without independent review and approval.**

### **Analysis**

UMB did not establish adequate controls over certain purchasing and disbursement transactions processed in its automated system. As a result, unauthorized transactions could be processed that may not be readily detected.

- Eighteen employees had been assigned system access capabilities that allowed them to process purchase orders that were not subject to independent review and approval. In lieu of an on-line approval process, UMB's procedures required these users to submit a paper copy of purchase orders that exceeded a specified dollar amount to their supervisors for review. However, output reports were not generated and used to ensure that all applicable purchase orders were subject to this independent review and approval process. UMB processed purchase orders during fiscal year 2015 totaling approximately \$113.5 million.
- Two employees had been assigned system access capabilities that allowed them to process certain types of disbursement transactions, such as honorariums and stipends, and release the transactions to the Comptroller of Maryland's General Accounting Division for payment without further automated or manual review and approval. According to UMB's records, these two employees processed disbursements totaling approximately \$404,000 and \$95,000, respectively, for these types of transactions during the period July 1, 2012 through June 30, 2015.

### **Recommendation 4**

**We recommend that UMB ensure that all purchase orders in excess of the dollar amounts specified by UMB and all disbursement transactions are subject to independent review and approval.**

## Interagency Agreement

### **Finding 5**

**Through an interagency agreement, UMB acquired certain information technology services totaling \$539,000 on behalf of the Maryland Longitudinal Data System Center, which allowed the Center to avoid using a competitive procurement process for those services.**

### **Analysis**

UMB acquired certain information technology services for the Maryland Longitudinal Data System Center through an existing interagency agreement between UMB and the Center, allowing the Center to avoid using a competitive procurement process for those services. UMB's interagency agreement and related contract extensions with the Center were for research services and covered the period from July 1, 2013 to June 30, 2016 at a total cost of approximately \$1.2 million for the three years. However, the Center and UMB improperly used the agreement to procure additional services from third-party vendors, and oversight of the vendors remained under the control of the Center.

Specifically, through the interagency agreement, the Center requested UMB to contract with two vendors to obtain the services of two specific individuals for information technology services during the period from July 2014 to March 2016, at a cost of approximately \$539,000. The interagency agreement was amended to support these additional costs and services. Additionally, UMB's agreement with the Center included a facilities and administrative fee, ranging from 10 to 15 percent that UMB added to its billings to the Center, even though UMB did not exercise any contractual responsibilities other than procuring the contracts and processing related payments to the companies. Specifically, the daily supervision and monitoring of the individuals and companies, including assigning tasks and ensuring that defined responsibilities were fulfilled, was performed by the Center.

The Center provided UMB with a sole source explanation that stated that the requested individuals had previously worked as contractors on the initial development of the Center's information technology system. However, this explanation did not justify why no other vendor could provide the services nor did it explain why the Center needed UMB to conduct the hiring. Furthermore, UMB did not provide prior notification of the sole source procurements to the University System of Maryland (USM) Office as required. *USM Procurement Policies and Procedures* requires prior notification be given in writing for any sole source procurement exceeding \$100,000.

UMB believes that the contracted services were within the scope of work for the interagency agreement because the data provided by the information system was used for the research covered by the agreement and, therefore, it was justified in acquiring these services on behalf of the Center. However, the specific contracted services were beyond what was anticipated in the original scope of work and the work was performed for, and directed by, the Center and not UMB. UMB also advised that the proposed contract amounts were evaluated and considered to be reasonable. However, because these services were obtained under an interagency agreement between State agencies, the Center avoided using a competitive procurement process and obtaining control agency approval for the procurements as required by State procurement regulations. Accordingly, assurance was lacking that these services were obtained at the most advantageous cost to the State. We confirmed with staff at the Board of Public Works that the use of an interagency agreement to procure these contractual services was not appropriate.

#### **Recommendation 5**

**We recommend that UMB**

- a. discontinue using interagency agreements which enable another agency to avoid a competitive procurement process; and**
- b. notify the USM Office of all sole source procurements in excess of \$100,000, including the aforementioned contracts, as required.**

## **Payroll**

### **Finding 6**

**UMB did not always use available output reports to ensure that only valid adjustments to its payroll were processed.**

#### **Analysis**

Available output reports were not always being reviewed to ensure that only authorized payroll adjustments, such as payments for overtime and accumulated leave, were processed by UMB's payroll department. Each pay period, UMB submitted its approved payroll to the University of Maryland, College Park (UMCP) to be forwarded to the State's Central Payroll Bureau (CPB) for final processing. Although output reports of payroll processed by CPB were available, not all UMB departments used these reports to verify that only approved payroll adjustments were processed. Our review of procedures in place at five departments disclosed three, with 1,168 employees, that were not using the output reports for verification purposes.

According to UMB's records, the University had 6,743 regular employees as of October 2015. According to the State's records, UMB's payroll expenditures totaled approximately \$741.3 million for fiscal year 2015.

#### **Recommendation 6**

**We recommend that UMB establish procedures requiring independent review and approval of the payroll output reports subsequent to CPB processing for all departments to ensure that only properly approved payroll adjustments were processed by UMB's payroll department.**

### **Information Systems Security and Control**

#### **Background**

UMB's Center for Information Technology Services (CITS) provides information technology support to UMB, including its six professional schools, its graduate school, and its administrative and academic units by developing and maintaining University-wide administrative applications, such as the student information management system and the financial system.

CITS also operates UMB's campus-wide network, which is used for both administrative and academic purposes, with connections to numerous buildings on the UMB campus. The internal network has Internet connectivity and network connections to USM institutions over the Maryland Research and Education Network. In addition, the campus network is connected to the networks of several affiliated entities (for example, the University of Maryland Medical System Corporation). The internal network includes a perimeter firewall and redundant firewalls at the core of the network to logically segment administrative portions of the campus network from untrusted network segments (for example, student computer labs and private companies leasing space from the University). CITS personnel maintain the aforementioned UMB perimeter and core firewalls.

#### **Finding 7**

**The UMB network was not sufficiently secured in that properly configured firewall rules and effective intrusion detection prevention system coverage did not exist.**

#### **Analysis**

The UMB network was not sufficiently secured in that properly configured firewall rules and effective intrusion detection prevention system coverage did not exist.

- The core firewalls contained 4,433 rules allowing access to the internal network from various sources which were not used by any network traffic for an extended period of time (139 days at the time of our test work). These rules allowed access to the UMB internal network by certain untrusted parties, including students, and allowed access to critical servers supporting the student information management system and financial system. Firewall rules allowing access to the UMB internal network which remain unused and unnecessary for extended periods of time represent a security risk to the UMB network which could be exploited to attack critical devices and systems. The *USM IT Security Standards* states that firewalls should be configured to block all services not required and disable unused ports, and hide and prevent direct accessing of trusted network addresses from untrusted networks.
- Effective intrusion detection prevention system (IDPS) coverage for encrypted network traffic received from untrusted parties did not exist. Specifically, the UMB network-based IDPS devices did not have the capability to decrypt encrypted traffic and the host-based intrusion detection prevention software (HIPS) installed on 123 servers was not properly used to address exploits in encrypted traffic. The absence of effective IDPS coverage for encrypted traffic created a network security risk as such traffic could contain malicious exploits which are not detected or dropped. According to the National Institute of Standards *Guide to Intrusion Detection and Prevention Systems*, complete IDPS coverage includes the use of a properly-configured, network-based IDPS that decrypts and analyzes encrypted traffic, and/or the effective use of a HIPS on critical servers, to aid significantly in the detection and prevention of, and response to, potential network security breaches and attacks.
- Network traffic originating from numerous untrusted sources (for example, the University of Maryland Medical System Corporation) on the UMB campus-wide network to over 100 UMB administrative network segments (for example, the Finance Division) was not subject to the UMB network-based IDPS protection. In addition, the aforementioned HIPS coverage for any of this traffic was deemed to be ineffective. Therefore, there was no effective IDPS coverage for this network traffic. The aforementioned *IT Security Standards* states that institutions must establish automated and manual processes for intrusion detection and/or prevention.

## **Recommendation 7**

**We recommend that UMB**

- a. perform periodic documented reviews of its firewall rules to ensure that only necessary rules remain active and delete/disable rules based on these reviews; and**
- b. perform a documented review and assessment of its network security risks, identify how IDPS and/or HIPS coverage should be best applied to its network, and implement this coverage for traffic (including encrypted traffic) from all untrusted parties.**

## **Finding 8**

**UMB procedures were not sufficient for maintaining and securing numerous workstations against malware.**

### **Analysis**

Procedures were not sufficient for maintaining and securing numerous UMB workstations against malware.

- Certain workstations were configured with users having administrative rights. Administrative rights are the highest permission level that can be granted and allow users to install software and change configuration settings. Our test of 206 workstations disclosed that 14 employees' user accounts (other than system and network administrators) were defined with administrative rights rather than with user rights. As a result, if the workstations used by accounts with administrative rights were infected with malware, the malware would run with administrative rights and expose these workstations to a greater risk of compromise than if the workstations' user accounts operated with only user rights.
- Certain workstations tested had not been updated with the latest releases for software products that are known to have significant security-related vulnerabilities. Although the vendors for these software products frequently provide software patches to address these vulnerabilities, UMB had not updated all of its computers for these patches. For example, of 10 computers tested for one of these software products, we noted that 7 computers were running older versions of this software that had not been updated for periods ranging from 2 to 57 months.
- UMB did not effectively use application restriction software on over 1,000 CITS maintained workstations. Such software can restrict unauthorized applications from executing on workstations in an effort to protect these



workstations from malware (such as ransomware). Specifically, UMB personnel advised us that application restriction software was installed on only 173 of the CITS maintained workstations but was not configured to restrict unauthorized applications from executing on these workstations. The United States Computer Emergency Readiness Team recommends that application restriction software be used to protect computer networks from ransomware.

The USM *IT Security Standards* states that institutions must install software to protect systems from malicious programs such as viruses, trojans, and worms.

#### **Recommendation 8**

**We recommend that UMB**

- a. ensure that administrator rights on workstations are restricted to only those individuals requiring such rights;**
- b. promptly install all critical security-related software updates on its computers; and**
- c. develop, implement, and enforce an application restriction software policy that properly protects CITS maintained workstations.**

## **Audit Scope, Objectives, and Methodology**

We have conducted a fiscal compliance audit of the University System of Maryland (USM) – University of Maryland, Baltimore (UMB) for the period beginning September 7, 2011 and ending June 30, 2015. The 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 objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

As prescribed by the State Government Article, Section 2-1221 of the Annotated Code of Maryland, the objectives of this audit were to examine UMB's financial transactions, records, and internal control, and to evaluate its compliance with applicable State laws, rules, and regulations.

In planning and conducting our audit, we focused on the major financial-related areas of operations based on assessments of significance and risk. The areas addressed by the audit included purchases and disbursements, student accounts receivable, cash receipts, information systems security and control, payroll, working funds, student financial aid, and corporate purchasing cards. We also determined the status of the findings contained in our preceding audit report.

Our audit included support services provided by UMB to certain other USM institutions (such as processing certain construction vendor payments). Our audit did not include certain support services provided to UMB by the USM Office. These support services (such as bond financing) are included within the scope of our audit of the USM Office. In addition, our audit did not include an evaluation of internal controls over compliance with federal laws and regulations for federal financial assistance programs and an assessment of UMB's compliance with those laws and regulations because the State of Maryland engages an independent accounting firm to annually audit such programs administered by State agencies, including the components of the USM.

To accomplish our objectives, our audit procedures included inquiries of appropriate personnel, inspections of documents and records, observations of UMB's operations, and tests of transactions. Generally, transactions were selected for testing based on auditor judgment, which primarily considers risk. Unless otherwise specifically indicated, neither statistical nor non-statistical audit sampling was used to select the transactions tested. Therefore, the results of the

tests cannot be used to project those results to the entire population from which the test items were selected.

We also performed various data extracts of pertinent information from the State's Financial Management Information System (such as expenditure data) and the State's Central Payroll Bureau (payroll data), as well as from the contractor administering the State's Corporate Purchasing Card Program (credit card activity). The extracts are performed as part of ongoing internal processes established by the Office of Legislative Audits and were subject to various tests to determine data reliability. We determined that the data extracted from these various sources were sufficiently reliable for the purposes the data were used during this audit. We also extracted data from UMB's financial systems for the purpose of testing certain areas, such as financial aid and student accounts receivable. We performed various tests of the relevant data and determined that the data were sufficiently reliable for the purposes the data were used during the audit. Finally, we performed other auditing procedures that we considered necessary to achieve our audit objectives. The reliability of data used in this report for background or informational purposes was not assessed.

UMB's management is responsible for establishing and maintaining effective internal control. Internal control is a process designed to provide reasonable assurance that objectives pertaining to the reliability of financial records, effectiveness and efficiency of operations including safeguarding of assets, and compliance with applicable laws, rules, and regulations are achieved.

Because of inherent limitations in internal control, errors or fraud may nevertheless occur and not be detected. Also, projections of any evaluation of internal control to future periods are subject to the risk that conditions may change or compliance with policies and procedures may deteriorate.

Our reports are designed to assist the Maryland General Assembly in exercising its legislative oversight function and to provide constructive recommendations for improving State operations. As a result, our reports generally do not address activities we reviewed that are functioning properly.

This report includes findings relating to conditions that we consider to be significant deficiencies in the design or operation of internal control that could adversely affect UMB's ability to maintain reliable financial records, operate effectively and efficiently, and/or comply with applicable laws, rules, and regulations. Our report also includes findings regarding significant instances of noncompliance with applicable laws, rules, or regulations. Other less significant findings were communicated to UMB that did not warrant inclusion in this report.

The response from the USM Office, on behalf of UMB, to our findings and recommendations is included as an appendix to this report. As prescribed in the State Government Article, Section 2-1224 of the Annotated Code of Maryland, we will advise the USM Office regarding the results of our review of its response.

# APPENDIX



## OFFICE OF THE CHANCELLOR

September 19, 2016

Mr. Thomas J. Barnickel III, CPA  
Legislative Auditor  
Office of Legislative Audits  
State Office Building, Room 1202  
301 West Preston Street  
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1807  
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Frostburg State University

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Coppin State University

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Salisbury University

1925  
University of Baltimore

1925  
University of Maryland  
Center for Environmental  
Science

1947  
University of Maryland  
University College

1966  
University of Maryland,  
Baltimore County

Re: University System of Maryland – University of Maryland, Baltimore  
Period of Audit: September 7, 2011 through June 30, 2015

Dear Mr. Barnickel:

I have enclosed the University System of Maryland's responses to your draft report covering the examination of the accounts and records of the University System of Maryland – University of Maryland, Baltimore. Our comments refer to the individual items in the report.

Sincerely Yours,

Robert L. Caret  
Chancellor

Enclosures

cc:

Dr. Jay A. Perman, MD, President, UMB  
Ms. Dawn Rhodes, Chief Business Financial Officer & Vice President for  
Administration and Finance, UMB  
Mr. James T. Brady, Chair, University System of Maryland Board of Regents  
Mr. Robert L. Page, Associate Vice Chancellor for Financial Affairs, USM Office  
Mr. David Mosca, Director of Internal Audit, USM Office  
Ms. Michelle Evans, Director, Management Advisory Services, UMB

**RESPONSE TO LEGISLATIVE AUDIT REPORT  
UNIVERSITY SYSTEM OF MARYLAND  
UNIVERSITY OF MARYLAND, BALTIMORE  
SEPTEMBER 7, 2011 TO JUNE 30, 2015**

**Student Financial Aid**

**Finding 1**

**The University of Maryland, Baltimore (UMB) lacked an independent verification of adjustments to financial aid awards posted to student accounts, and certain employees had incompatible system access capabilities that allowed them to both adjust and disburse financial aid awards.**

**Recommendation 1**

**We recommend that UMB**

- a. use available output reports to independently verify that all adjustments to financial aid were proper, and**
- b. eliminate incompatible user capabilities so that the same individual cannot both adjust and release (disburse) financial aid.**

**University response**

We agree with the recommendation.

- a. Procedures were implemented during the audit requiring documented supervisory review and approval of manual financial aid award adjustments prior to the entry of the adjustment into the system. Additionally, the daily output report of financial aid disbursements is reviewed, and the review is documented, by an independent employee who does not have the capability to modify and disburse financial aid awards in the system. For FY 15, total manual financial aid award adjustments processed were \$620,460.
- b. Incompatible user capabilities were eliminated during the audit, so the same individual cannot both adjust and disburse financial aid awards to student accounts.

**Finding 2**

**There was no independent verification to ensure that all fund requests for reimbursement of federal financial aid were received.**

**Recommendation 2**

**We recommend that an employee independent from the process of requesting federal financial aid use available automated reports of requests made to verify that all requested funds were properly deposited into the State's bank account.**

**RESPONSE TO LEGISLATIVE AUDIT REPORT  
UNIVERSITY SYSTEM OF MARYLAND  
UNIVERSITY OF MARYLAND, BALTIMORE  
SEPTEMBER 7, 2011 TO JUNE 30, 2015**

**University response**

The procedure for requesting federal financial aid is tightly controlled at UMB, with just three employees (one primary and two backup) authorized in the federal system to execute financial aid draws. A verification was regularly performed to ensure that authorized draws were deposited, but as the State Treasurer's Office (STO) also informed us, we believed that there were verification procedures in place at the United States Department of Education (USDOE) that would have precluded one of those employees from executing draws to any account other than the State's bank account. When the weakness identified in this finding was brought to our attention, we instituted an additional independent verification that will also ensure that all draws identified in the federal funds request system were deposited to the authorized State bank account. So, although we agree to implement the recommendation, the best this additional work will provide is another detective control. To create a preventative control, the auditor should instruct the STO to establish a restriction with the USDOE that would prevent any State agency or institution of higher education from changing the bank account to which federal funds are directed unless the STO has first authorized such a change.

**Student Accounts Receivable**

**Finding 3**

**Several employees, including some who did not require the applicable system capabilities for their job duties, could process certain transactions, such as tuition waivers, without independent verification.**

**Recommendation 3**

**We recommend that UMB**

- a. establish procedures, including the use of available output reports, to independently verify the propriety of critical transactions posted to student accounts; and**
- b. remove the aforementioned unnecessary employee system access capabilities.**

**University response**

We agree with the recommendation.

- a. UMB has established procedures to ensure that the propriety of critical transactions posted to student accounts is now verified by someone who does not have the ability to process such transactions. Output reports are

**RESPONSE TO LEGISLATIVE AUDIT REPORT  
UNIVERSITY SYSTEM OF MARYLAND  
UNIVERSITY OF MARYLAND, BALTIMORE  
SEPTEMBER 7, 2011 TO JUNE 30, 2015**

being used where they are available. Where output reports are not already available, they are being created to aid in the independent verifications.

- b. UMB has removed the unnecessary employee system access capabilities via system enhancements to limit access points on certain critical screens.

## **Purchases and Disbursements**

### **Finding 4**

**Certain employees were assigned system access capabilities to process purchase orders and disbursement transactions without independent review and approval.**

### **Recommendation 4**

**We recommend that UMB ensure that all purchase orders in excess of the dollar amounts specified by UMB and all disbursement transactions are subject to independent review and approval.**

### **University response**

We agree with the recommendation. For the processing of purchase orders, we will evaluate the capabilities that exist within our automated financial system and determine if an output report can be generated and used to ensure that all purchase orders in excess of specified dollar thresholds are subject to independent review and approval. Additionally, for the processing of the specific types of disbursement transactions questioned, which represents less than one percent of the total disbursements processed by the two employees, we removed the employees' voucher release abilities before audit fieldwork was completed. Therefore, all voucher batches that they create are subject to an independent review and approval before submission for payment.

## **Interagency Agreement**

### **Finding 5**

**Through an interagency agreement, UMB acquired certain information technology services totaling \$539,000 on behalf of the Maryland Longitudinal Data System Center, which allowed the Center to avoid using a competitive procurement process for those services.**



**RESPONSE TO LEGISLATIVE AUDIT REPORT  
UNIVERSITY SYSTEM OF MARYLAND  
UNIVERSITY OF MARYLAND, BALTIMORE  
SEPTEMBER 7, 2011 TO JUNE 30, 2015**

**Recommendation 5**

**We recommend that UMB**

- a. discontinue using interagency agreements which enable another agency to avoid a competitive procurement process; and**
- b. notify the USM Office of all sole source procurements in excess of \$100,000, including the aforementioned contracts, as required.**

**University response**

- a. The interagency agreement with the Maryland Longitudinal Data System Center (MLDSC), which has been in place for several years, established UMB as the collaborative research and policy services branch of the MLDSC for the purpose of conducting research and analysis as required by a United States Department of Education grant to the Maryland State Department of Education (MSDE). At the core of the federal grant funded research, was a need to develop an information technology system to collect and organize the data that UMB was to analyze. The services to create that system were originally procured by MSDE on behalf of MLDSC, but were not completed. Since a complete system was needed for UMB to analyze the data, and since the sole source request from the UMB principal investigator was to procure the services of the contractors who had developed the system thus far, UMB evaluated the request and determined that it fit the criteria for a sole source procurement under the existing agreement. It was clear that the contractors had unique qualifications to complete a system that they themselves had developed and that a fully functioning system was necessary to carry out the requirements of the existing interagency agreement. UMB will continue to follow the instructions provided by the Department of Budget and Management regarding interagency agreements and USM Procurement Policies and Procedures when evaluating procurement requests under interagency agreements. MLDSC, as stated in response to the same finding taken in their audit report, stated that they would no longer procure vendor services under interagency agreements. The system is fully developed and operational and the contractors' services ended as of June 30, 2016.
- b. We agree to notify the Vice Chancellor for Administration and Finance, University System of Maryland, of sole source procurements in accordance with the USM Procurement Policies and Procedures.

**RESPONSE TO LEGISLATIVE AUDIT REPORT  
UNIVERSITY SYSTEM OF MARYLAND  
UNIVERSITY OF MARYLAND, BALTIMORE  
SEPTEMBER 7, 2011 TO JUNE 30, 2015**

**Payroll**

**Finding 6**

**UMB did not always use available output reports to ensure that only valid adjustments to its payroll were processed.**

**Recommendation 6**

**We recommend that UMB establish procedures requiring independent review and approval of the payroll output reports subsequent to CPB processing for all departments to ensure that only properly approved payroll adjustments were processed by UMB's payroll department.**

**University response**

We agree with the recommendation. Procedures have been revised to require all departments to compare the preliminary and final payroll report (i.e., cost center report/payroll register) to verify that only properly approved payroll adjustments were processed by UMB's payroll department.

**Information Systems Security and Control**

**Finding 7**

**The UMB network was not sufficiently secured in that properly configured firewall rules and effective intrusion detection prevention system coverage did not exist.**

**Recommendation 7**

**We recommend that UMB**

- a. perform periodic documented reviews of its firewall rules to ensure that only necessary rules remain active and delete/disable rules based on these reviews; and**
- b. perform a documented review and assessment of its network security risks, identify how IDPS and/or HIPS coverage should be best applied to its network, and implement this coverage for traffic (including encrypted traffic) from all untrusted parties.**

**RESPONSE TO LEGISLATIVE AUDIT REPORT  
UNIVERSITY SYSTEM OF MARYLAND  
UNIVERSITY OF MARYLAND, BALTIMORE  
SEPTEMBER 7, 2011 TO JUNE 30, 2015**

**University response**

We agree with the recommendation.

- a. UMB will perform periodic reviews of the firewall rules, evaluate the rules, and appropriately delete rules to ensure that only necessary and properly constructed rules remain active. These reviews are documented and retained for future reference in accordance with UMB's Firewall Review Procedure.
- b. UMB completed an assessment of network security risks relative to the UMB WAN's third party network traffic flowing to critical systems and has purchased and implemented a state-of-the-art next generation firewall. The new firewall provides an additional intrusion detection prevention system (IDPS) that expands network-based coverage and serves as another layer of network security, and will enable inspection of SSL traffic to critical systems.

**Finding 8**

**UMB procedures were not sufficient for maintaining and securing numerous workstations against malware.**

**Recommendation 8**

**We recommend that UMB**

- a. **ensure that administrator rights on workstations are restricted to only those individuals requiring such rights;**
- b. **promptly install all critical security-related software updates on its computers; and**
- c. **develop, implement, and enforce an application restriction software policy that properly protects CITS maintained workstations.**

**University response**

We agree with the recommendation.

- a. UMB policy restricts administrative rights on workstations for non-IT related employees. UMB will ensure that administrator rights on workstations are restricted to only those individuals requiring such rights.
- b. UMB will continue to apply the latest patches and updates to ensure that workstations are kept up-to-date, and investigate solutions when updates are incompatible with a critical business software application.
- c. UMB is in the process of implementing application restriction software to prevent unauthorized software from executing.

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