

Division of Local Government & School Accountability

Monroe 2-Orleans Board of Cooperative Educational Services

Software Management

Report of Examination

Period Covered:

July 1, 2013 – March 4, 2015

2015M-56



Thomas P. DiNapoli

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State of New York Office of the State Comptroller

Division of Local Government and School Accountability

September 2015

Dear Board of Cooperative Educational Services (BOCES) Officials:

A top priority of the Office of the State Comptroller is to help BOCES officials manage BOCES resources efficiently and effectively and, by so doing, provide accountability for tax dollars spent to support BOCES operations. The Comptroller oversees the fiscal affairs of BOCES statewide, as well as BOCES compliance with relevant statutes and observance of good business practices. This fiscal oversight is accomplished, in part, through our audits, which identify opportunities for improving BOCES operations and Board of Education governance. Audits also can identify strategies to reduce BOCES costs and to strengthen controls intended to safeguard BOCES assets.

Following is a report of our audit of the Monroe 2-Orleans Board of Cooperative Educational Services, entitled Software Management. This audit was conducted pursuant to Article V, Section 1 of the State Constitution and the State Comptroller's authority as set forth in Article 3 of the New York State General Municipal Law.

This audit's results and recommendations are resources for BOCES officials to use in effectively managing operations and in meeting the expectations of their constituents. If you have questions about this report, please feel free to contact the local regional office for your county, as listed at the end of this report.

Respectfully submitted,

Office of the State Comptroller Division of Local Government and School Accountability



State of New York Office of the State Comptroller

EXECUTIVE SUMMARY

The Monroe 2-Orleans Board of Cooperative Educational Services (BOCES) is governed by a Board of Education (Board) which comprises nine members who are elected by the boards of education of BOCES' component school districts. The Board is responsible for the general management and control of BOCES' financial and educational affairs. The District Superintendent (Superintendent) is the chief executive officer and is responsible, along with other administrative staff, for day-to-day management and for regional educational planning and coordination.

The Communication and Technology Services (CaTS) department manages BOCES' information technology (IT) infrastructure, which includes approximately 1,100 computers. It also provides services to local school districts, including technology, writing, design, printing and multimedia services. As part of BOCES' Special Education department, the Assistive Technology (AT) department provides a software loan service to participating districts and is responsible for installing and maintaining software for special education needs at BOCES and its participating districts. Budgeted appropriations for IT for the 2014-15 fiscal year, including services provided to districts, totaled \$8.56 million.

Scope and Objective

The objective of our audit was to assess BOCES' software management from July 1, 2013 through March 4, 2015. To evaluate cost savings, we expanded our scope period to include the 2008-09 through 2014-15 fiscal years to review prior year costs for software related to a major service agreement. Our audit addressed the following related question:

• Is BOCES effectively and efficiently managing its software licenses?

Audit Results

We found that BOCES can manage its software licenses more effectively and efficiently. The CaTS and AT departments maintained incomplete software inventory lists that did not contain all software programs installed by BOCES staff. In addition, the inventory lists did not include information on the number of licenses purchased for each installed software program.

The CaTS department did not have a formalized written plan to regularly review BOCES computers to ensure that installed software was appropriate and properly licensed. As a result, we identified 62 software applications with 139 installations among 4,762 applications¹ on BOCES computers that

These include upgrades, patches, components of larger software programs, installer and uninstaller applications and drivers.

were not business- or academic-related, including coupon applications and those related to gaming. The installation of inappropriate software may expose BOCES computers and networks to unnecessary risk, such as hacking or other malicious events.

Also, we found that for 264 installations of 21 programs installed on BOCES or participating district computers, BOCES either did not have an adequate number of licenses for these installations or did not have sufficient documentation to provide evidence that it had purchased licenses for these installations. As a result, BOCES is at risk for potential fines or penalties for installing software applications that are not properly licensed.

However, we commend BOCES officials for achieving cost savings by entering into an agreement with a software provider that has resulted in an estimated annual savings of \$22,000. The software provider charges BOCES an annual user fee for all software products and updates based on the number of full-time equivalent BOCES employees employed each year, instead of requiring BOCES to pay for individual licenses and updates for each software installation. As a result, BOCES receives the most current software available, eliminated separate costs for virus protection software, has the option to add other enhanced products at reduced costs or on a trial basis and can purchase new computers at discounted prices. CaTS staff can now remotely access users' computers to diagnose or correct problems which saves travel time and costs.

Comments of BOCES Officials

The results of our audit and recommendations have been discussed with BOCES officials, and their comments, which appear in Appendix A, have been considered in preparing this report. BOCES officials generally agreed with our recommendations and indicated they planned to take corrective action.

Introduction

Background

The Monroe 2-Orleans Board of Cooperative Educational Services (BOCES) is governed by a Board of Education (Board) that comprises nine members who are elected by the nine boards of education of BOCES' component school districts. The Board is responsible for the general management and control of BOCES' financial and educational affairs. The District Superintendent (Superintendent) is BOCES' chief executive officer and is responsible, along with other administrative staff, for its day-to-day management and for regional educational planning and coordination. According to statute, the Superintendent is an employee of both the appointing BOCES and the New York State Education Department. As such, the Superintendent works under the direction of both the Board and the New York State Commissioner of Education. BOCES houses its administrative offices and many of its instructional programs at its main campus in the Village of Spencerport in Monroe County and at satellite campuses located throughout Monroe County and Orleans County.

The Communication and Technology Services (CaTS) department manages BOCES' information technology (IT) infrastructure, which consists of approximately 1,100 computers. It also provides services to local school districts, including technology, writing, design, printing and multimedia services. As part of BOCES' Special Education department, the Assistive Technology (AT) department provides a software loan service to participating districts and is responsible for installing and maintaining software for special education needs at BOCES and participating districts. Budgeted appropriations for IT for the 2014-15 fiscal year, including services provided to districts, totaled \$8.56 million.

The CaTS department has an Executive Manager and Supervising Manager who are responsible for overseeing daily IT operations and functions, including supervising CaTS department staff. The CaTS department includes 11 shared technicians, three system administrators, five level-one technicians, two hardware technicians, one e-learning specialist, one programmer and a staff that provides media services. The AT department has a Chairperson who manages the department and performs administrative tasks, in addition to functioning as one of the department's service providers. Including the Chairperson, the department has six full-time service providers, one technician who performs software installations and one clerical staff member. Although BOCES has two departments that both address software needs, CaTS' Executive Manager is responsible for all of BOCES' IT functions.

Objective

The objective of our audit was to assess BOCES' software management. Our audit addressed the following related question:

 Is BOCES effectively and efficiently managing its software licenses?

Scope and Methodology

We examined BOCES' software management for the period July 1, 2013 through February 5, 2015. To evaluate cost savings, we expanded our scope period to include the 2008-09 through 2014-15 fiscal years to review prior year costs for software related to a major service agreement.

We conducted our audit in accordance with generally accepted government auditing standards (GAGAS). More information on such standards and the methodology used in performing this audit is included in Appendix B of this report.

Comments of BOCES Officials and Corrective Action

The results of our audit and recommendations have been discussed with BOCES officials, and their comments, which appear in Appendix A, have been considered in preparing this report. BOCES officials generally agreed with our recommendations and indicated they planned to take corrective action.

The Board has the responsibility to initiate corrective action. Pursuant to Section 35 of the General Municipal Law, Section 2116-a (3)(c) of the New York State Education Law and Section 170.12 of the Regulations of the Commissioner of Education, a written corrective action plan (CAP) that addresses the recommendations in this report must be prepared and provided to our office within 90 days, with a copy forwarded to the Commissioner of Education. To the extent practicable, implementation of the CAP must begin by the end of the next fiscal year. For more information on preparing and filing your CAP, please refer to our brochure, *Responding to an OSC Audit Report*, which you received with the draft audit report. The Board should make the CAP available for public review in the Monroe 2 Orleans BOCES Administration Office.

Software Management

The management of software and licenses is essential to safeguarding BOCES assets and data. Therefore, BOCES must have an understanding of the software they own, how it is used and how best to track user rights to ensure licensing compliance. The effective management of software also includes ensuring that only appropriate business or academic software is installed to reduce the risk of unwanted consequences and unnecessary costs that could result from unauthorized software. This can be done, in part, by regularly reviewing computers to identify installed software and taking action to remove any unauthorized software. When evaluating possible cost-saving opportunities for IT assets and services, BOCES should document its evaluation process and results to provide transparency to participating districts and taxpayers.

We found that BOCES can manage its software more effectively and efficiently. The CaTS and AT departments maintained incomplete software inventory lists that did not contain all software programs used by BOCES staff or identify the number of purchased licenses for each installed program. In addition, the CaTS department did not formalize a written plan to regularly review BOCES computers to ensure that installed software is appropriate and properly licensed. As a result, we identified 62 software applications with 139 installations on BOCES computers that were not business- or academic-related, including coupon applications and those related to gaming. Also, we found that for 264 installations of 21 programs installed on BOCES or participating district computers, BOCES either did not have an adequate number of licenses for these installations or did not have sufficient documentation to provide evidence that it had purchased licenses for these installations. However, we commend BOCES officials for achieving cost savings by entering into an agreement with a software provider that has resulted in an estimated annual savings of \$22,000.

Software Inventory

Software management is of particular importance to larger entities, such as BOCES, that have many different users who perform a variety of functions. Typically, these organizations will have several software applications and multiple licenses for each. The implementation of a complete and comprehensive software inventory list is crucial to safeguard IT assets from potential unauthorized and unlicensed software being installed on computers. As a best practice, the list should include all BOCES-owned software installed on computers and the number of copies currently in use. Furthermore, the list should be used while regularly reviewing all computers owned or serviced by BOCES and participating districts to ensure that all software installed is properly approved and licensed.

We found that the CaTS and AT departments did not maintain complete software inventories of BOCES-owned software programs and their applicable licenses. CaTS staff provided us with a software inventory list and a report of software programs installed on each BOCES computer. We found that the software inventory list was missing 45 licensed programs that were installed on BOCES computers. In addition, neither document included information on the number of licenses purchased for each installed software program.

The AT department maintained a spreadsheet that listed the software programs installed by AT staff on BOCES and participating districts' computers. However, the spreadsheet does not summarize the total number of installations and licenses for each installed software program. Furthermore, the AT department did not compare the number of programs installed on BOCES' and districts' computers with the number of software licenses purchased by BOCES. The AT Chairperson told us that the department was in the process of developing a complete list of software programs that included the number of licenses owned by BOCES for each installed program.

BOCES did not have a formalized written plan that required staff to regularly review installed software programs on BOCES computers to ensure that all installed software was properly approved and licensed. Although the CaTS department occasionally monitored and reviewed installed software programs on BOCES computers to ensure that installed software was appropriate and legally obtained, staff members did not effectively use available tools, such as software installation reports, to perform regular audits of software installed on BOCES computers. CaTS' Supervising Manager told us that the department generates software installation reports only when changes are requested for the licensed programs, such as when adding and deleting users from a program.

Because BOCES did not maintain a comprehensive software inventory list and the CaTS department did not perform regular, formal reviews of BOCES computers, BOCES had unauthorized and unlicensed software installed that went undetected.

Software Monitoring

BOCES' acceptable computer use policy provides employees with guidelines for IT asset use and security. Specifically, BOCES encourages staff to explore educational topics, conduct research and contact others in the educational world with the intent to expedite and enhance the performance of tasks associated with their positions and assignments. It requires employees to adhere to the laws, policies and rules governing computers, including copyright laws, rights of software publishers and license agreements. The administrative regulation developed to implement the policy defined general

prohibited use of IT assets, including using unauthorized software; engaging in practices that threaten the system, such as loading files that may introduce a virus; and using the system for non-business or non-academic purposes.

The list of software programs installed on BOCES' computers (installed software report) provided by the CaTS department contained 4,762 software applications, including upgrades, patches, components of larger software programs, installer and uninstaller applications and drivers. We reviewed the report to determine if the installed programs served a legitimate business or academic purpose and were in compliance with BOCES' acceptable use policy. We identified 62 software applications with 139 installations that were not business or academic related, including coupon applications² and those related to gaming.

Although the acceptable use policy prohibits computer use for non-business or non-academic purposes, BOCES officials told us they allow staff occasional use of computer games, such as solitaire, during lunch or break times. However, non-BOCES related programs may interfere with employees' work responsibilities and may expose the computers and BOCES' networks to unnecessary risks, such as computer viruses, malware, hacking or other malicious events. Because the CaTS department did not perform regular reviews of BOCES computers, CaTS staff did not identify installed software that was not appropriate for a business or academic purpose or that employees had violated BOCES' acceptable use policy.

The purpose of a software license is to grant an end user permission to use one or more copies of a software program in accordance with copyright law. When a software package is sold, it is generally accompanied by a license from the manufacturer that authorizes the purchaser to use a certain number of copies of the software. Organizations must obtain licenses commensurate with the number of copies in use.

To determine if installed software had valid licenses as required, we reviewed purchase orders,³ licenses and user agreements to determine whether BOCES had proper licensing to cover all copies of software installed. We found that for 264 installations of 21 programs installed

Software Licenses

The CaTS Supervising Manager told us that BOCES staff sometimes were able to install coupon applications because the system recognized them as a driver and not as an application, which allowed staff to bypass the regular restrictions requiring authorization for installation. He also told us that when CaTS staff identify these items on staff computers, they remove them.

An effective and efficient method for purchasing and accounting for software licenses is through a purchase order system. A purchase order serves as the source document for vendor payment claims for various licenses obtained by the BOCES and provides a record of licenses on hand to avoid duplicate purchases.

on BOCES or participating district computers, BOCES either did not have an adequate number of licenses for these installations or did not have sufficient documentation to provide evidence that it had purchased licenses for these installations.

BOCES Computers – Of the 4,762 software applications⁴ listed on CaTS' installed software report, we identified 202 that required BOCES to purchase a license when installing the programs. CaTS and AT staff had installed 25,225⁵ software installations of these programs on BOCES computers. For 50 installations of 13 programs,⁶ BOCES either did not have an adequate number of licenses for these installations or did not have sufficient documentation to provide evidence that it had purchased licenses for these installations. However, both departments were able to provide us with information to indicate that BOCES had purchased licenses for the other installations.

Participating District Computers – Of the 27 software programs listed on AT's spreadsheet, we identified 26 that required BOCES to purchase a license when installing the programs. AT staff had installed 703⁷ software installations of these programs on participating district computers. For 204 installations of four programs, we found that the AT department did not have an adequate number of licenses for these installations. Also, for 10 installations of four other programs, the AT department did not have sufficient documentation to provide evidence that it had purchased licenses for these installations. The AT Chairperson told us that, after our request for documentation, AT staff removed the additional installations for eight programs and purchased additional licenses for four other programs.⁸

Had BOCES officials required the CaTS and AT departments to maintain comprehensive software inventories, both departments would have had information regarding software licensing readily available. Without proper documentation, BOCES cannot ensure that its software programs are properly licensed and could have an increased risk that it may incur fines or penalties for installing software applications that are not properly licensed.

⁴ These include upgrades, patches, components of larger software programs, installer and uninstaller applications and drivers.

⁵ This number does not correspond directly to the number of licenses purchased by BOCES for these installations because some of the programs had site licenses that allowed BOCES staff to install the software package on several computers without purchasing separate licenses for each installation.

⁶ CaTS staff installed five software installations of four programs and AT staff installed 45 software installations of nine programs.

⁷ See supra note 5.

We did not verify the accuracy of this statement as it was made after our fieldwork ended. This includes seven removals and two purchases for programs on BOCES computers and one removal and two purchases for programs on participating district computers.

Cost Saving

BOCES officials must continually evaluate IT resources provided to staff and students to determine if they can provide the same level of equipment and services at a lower cost. As part of the evaluation process, it is essential that officials conduct and formally document a cost-benefit analysis.

During the 2012-13 fiscal year, BOCES entered into an agreement with a software provider whereby it is charged an annual user fee for all software products and updates based on the number of full-time equivalent BOCES employees employed each year, instead of paying for individual licenses and updates for each software installation on BOCES' computers. It also was able to eliminate separate costs for virus protection software because the agreement includes a virus protection program. As part of the agreement, BOCES also has the option to purchase other enhanced products at reduced costs, or on a trial basis. Further, as a participant in this agreement, BOCES receives a small discount on new computers purchased through specified vendors.

Because BOCES did not document their cost-benefit analysis, we calculated the average cost for the related software in the years prior to the agreement as compared to the average cost for the software since the agreement was in effect. Based on the differences from license fee costs per installation, additional costs for upgrades, separate virus protection costs and the new computer purchase discount,⁹ we calculated that BOCES is saving approximately \$22,000 annually.¹⁰

In addition to the direct monetary benefits of the agreement, BOCES also receives the most current software available without having to pay for software upgrades for each installed program. Also, before the agreement was in effect, CaTS staff could not remotely access a user's computer to diagnose or correct problems. As a result, CaTS employees would have to travel to the computer's location to provide technical support. With the additional software features provided in the agreement, CaTS staff can now access users' computers remotely to diagnose and correct most problems, which saves travel time and costs for CaTS staff.

We commend BOCES officials for implementing these cost-saving measures.

⁹ Based on BOCES' estimated replacement cycle of 300 computers per year

This calculation is based on an average of 1,000 computers, which BOCES officials told us was the typical number in use at BOCES during the past few years.

Recommendations

The Board should ensure that CaTS and AT staff:

- 1. Maintain a complete, comprehensive software inventory list of all BOCES-owned software programs and the total number of installations and licenses purchased for each program.
- 2. Formalize procedures to regularly review BOCES-installed programs on BOCES and participating district computers and compare the results to the BOCES' software inventory list.
- 3. Monitor user activity to ensure compliance with BOCES' acceptable use policy and ensure that all software installed on BOCES computers is related to an appropriate business and/ or academic purpose.
- 4. Ensure compliance with software licensing requirements.

APPENDIX A

RESPONSE FROM BOCES OFFICIALS

The BOCES officials' response to this audit can be found on the following pages.



Monroe 2-Orleans Board of Cooperative Educational Services

Jo Anne L. Antonacci, District Superintendent

Finance Office

Steve Roland
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August 20, 2015

Edward V. Grant Jr., Chief Examiner Office of the State Comptroller The Powers Building 16 West Main Street, Suite 522 Rochester, NY 14614-1608

Dear Mr. Grant:

The Monroe 2-Orleans BOCES is in receipt of the draft audit report "Software Management" for the period of July 1, 2013 through March 4, 2015, prepared by the Office of the State Comptroller. We have carefully reviewed the findings and recommendations presented and submit this response to the draft report. Please note that this audit response will also serve as our Corrective Action Plan.

Our BOCES welcomed this audit process and was generally pleased with the results. Your staff conducted a thorough investigation of our Information Technology services and although not entirely documented, often commended practices we currently have in place in addition to those items identified in the report that are recommended for improvement. We do appreciate that your staff formally recognized the cost savings and efficiencies achieved through an agreement with a software provider. Though significant at more than \$22,000 in annual savings, it pales in comparison to the cost savings we achieved negotiating this same agreement on behalf of our component districts as well.

This report outlined the need to improve our tracking and monitoring of software licensing and installations. For efficiency purposes, historically we have given certain programs, such as the Assistive Technology department, flexibility to utilize demo products or purchase and install specialized software designed to meet the unique needs of the populations they serve. As a result, our software management has become more decentralized leading to inconsistencies in how we track installations and licensing. While we were able to provide your staff with the majority of documentation needed to substantiate our software installations, we acknowledge the process should have been more efficient and complete.

We agree with your recommendations and have already taken steps to address the concerns that were identified. Please find below the Corrective Action Plan that we intend to follow in response to your recommendations.

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Unit Name: Monroe 2-Orleans Board of Cooperative Educational Services

Audit Report Title: Software Management **Audit Report Number:** 2015M-056

Recommendation No. 1

Maintain a complete, comprehensive software inventory list of all BOCES-owned software programs and the total number of licenses purchased for each program.

Corrective Action:

BOCES has already purchased additional modules for our existing library management system that will allow us to better track software purchases, licenses and installations to build on our current process.

Implementation Date:

library management system has already been purchased and maintenance of the software inventory database will be ongoing.

<u>Person(s) Responsible for Implementation:</u>

Supervising Manager, Communication and Technology Services (CaTS)

Recommendation No. 2

Formalize procedures to regularly review installed programs on BOCES computers and compare the results to the BOCES' software inventory list.

Corrective Action:

BOCES currently scans computers periodically to review installed applications and remove programs that are unauthorized. BOCES will implement a more formal written process to review installed programs and compare results against the database at regular intervals.

Implementation Date:

January 2016 and ongoing

Person(s) Responsible for Implementation:

Supervising Manager, CaTS

Recommendation No. 3

Monitor user activity to ensure compliance with BOCES' acceptable use policy and ensure that all software installed on BOCES computers is related to an appropriate business and/or academic purpose.

Corrective Action:

As BOCES feels certain gaming software can have instructional benefit, BOCES will modify current policy to include use of such resources for instructional purposes. BOCES currently reviews all software purchases to ensure compliance and compatibility. As part of the process to review installed programs in recommendation number 2 above, BOCES will also investigate and document any instances of software that does not appear to be in compliance with our policies.

Implementation Date:

January 2016 and ongoing

Person(s) Responsible for Implementation:

Supervising Manager, CaTS

Recommendation No. 4

Ensure compliance with software licensing requirements.

Corrective Action:

BOCES will actively monitor license use and ensure the number of licenses installed does not exceed the number of licenses purchased. License information will be maintained in the management system and updated as software is installed and uninstalled.

Implementation Date:

Immediately and ongoing

Person(s) Responsible for Implementation:

Supervising Manager, CaTS

It is important to note that our IT department does restrict the use of administrative privileges and has many protective layers in place to mitigate the risk of viruses and other threats to the infrastructure. Without administrative privileges staff and students are unable to install their own software, although many websites offer browser apps and plug-ins that are able to run despite these restrictions. We are limited by our ability to prevent this as it impacts the functionality of the web browser for instructional use.

In addition, some standard gaming software, such as solitaire, come preloaded on new computers. Several years ago we removed these games during our new computer imaging process but there are likely some older computers that still have these basic programs installed.

Finally, while many software applications appear on the surface to be non-business or non-academic, this does not mean they do not have educational value. For the population of students we serve, teachers often use creative means to engage students in the learning process and teach them valuable skills, often through gaming software or websites. For example, research suggests a computer game can improve classroom behavior and improve social interactions among children diagnosed with attention-deficit hyperactivity disorder (ADHD). While we can't attest to the legitimacy of all instances where your team identified such software, with further research and investigation I'm sure we would find many are being used in a productive manner.

We wish to thank you and your team once again for its efforts. We appreciate the working relationship we maintained with your staff and the professional manner in which they conducted this audit. Our goal is to serve as a model of efficiency and excellence in supporting the educational needs of the districts we serve and we appreciate the assistance your office provides in that regard.

Respectfully submitted,

Jo Anne L. Antonacci District Superintendent Dennis Laba
President, BOCES Board

APPENDIX B

AUDIT METHODOLOGY AND STANDARDS

The objective of our audit was to assess BOCES' software management from July 1, 2013 through March 4, 2015. To evaluate cost savings, we expanded our scope period to include the 2008-09 through 2014-15 fiscal years to review prior year costs for software related to a major service agreement.

To achieve our objective and obtain valid audit evidence, we performed the following audit procedures:

- We interviewed BOCES officials and employees and reviewed IT policies and procedures to gain an understanding of the CaTS and AT departments' internal controls and operations.
- We reviewed an inventory list of BOCES-owned software programs provided by the CaTS department on October 20, 2014 to determine if it was all-inclusive.
- We reviewed a report of software programs installed on each BOCES computer (installed software report) provided by the CaTS department as of November 24, 2014. We reviewed the installed software programs on this report to determine if each program served an appropriate academic or business purpose. We interviewed the CaTS Supervising Manager and AT Chairperson to determine the process for approving or installing gaming software.
- We reviewed the installed software report to determine which software programs required licensing. For the programs that required a license, we reviewed available license agreements and purchase orders to determine whether the CaTS and AT departments purchased licenses for each installation of the software programs installed on BOCES computers.
- We reviewed a spreadsheet that tracked software programs installed by AT staff on participating district computers as of December 12, 2014, which was provided by the AT department. From this spreadsheet, we summarized the AT department's software installations and compared the total number of installations for each application to available license agreements and purchase orders to determine if the department had purchased licenses for each installation.
- We performed a cost-benefit analysis to determine BOCES' estimated annual cost savings due to entering into a service agreement with a software service provider.

We conducted this performance audit in accordance with GAGAS. 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.

APPENDIX C

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Andrew A. SanFilippo, Executive Deputy Comptroller Gabriel F. Deyo, Deputy Comptroller

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