ST. CHARLES COUNTY
AUDITOR

To Honorable County Council Members November 14, 2017
Honorable Steve Ehlmann, County Executive

The Information Systems Department examination opened May 31, 2017, has been completed, and the final report is being issued today. The scope of the review covered January 1, 2015 – May 31, 2017. Fieldwork for the review was completed on September 6, 2017, and our report reflects the results of work performed through that date. Responses were requested for by November 3 and received on November 13, 2017.

The objectives of the review were to determine whether internal controls were adequate and effective, operations and records were in compliance with established standards, regulations, policies and procedures, and resources were being used efficiently.

The examination covered the divisions of Business Applications, GIS, and Technical Services. We reviewed the internal control environment surrounding those activities, as well as performed an evaluation of the effectiveness and efficiency with which department objectives are being achieved. In addition, reviews for compliance with the County Charter and Ordinances, Missouri Statutes, and internal policies and procedures were performed.

This audit was conducted in accordance with the *International Standards for the Professional Practice of Internal Auditing*, and consisted of examining, on a test basis, sufficient evidence to afford a reasonable basis, for our opinion.

In our opinion, except for the opportunities included in this report, internal controls were adequate and effective and operations and records were in compliance with established standards.

The issuance of this report completes the formal examination process. However, if you wish to discuss any aspects of the audit or report, please contact me.

Brent Statler

Brent R. Statler, CPA, CGAP
County Auditor

Attachment
Copy To Joann Leykam, Director of Administration
Jennifer George, Assistant Director of Administration
Simon Huang, Information Systems Director

ST. CHARLES COUNTY
AUDITOR

Information Systems Department
Examination Report
Opened May 31, 2017

Scope: January 1, 2015 – May 31, 2017
Business Applications, GIS, and Technical Services

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BACKGROUND AND INTRODUCTION

Authority and Activity:

The Information Systems (IS) Department supports County departments and offices with information technology over an enterprise wide-area network and is responsible for network administration, infrastructure design, data security, geographic information systems (GIS), and maintenance of the County's managed print service and voice-over-IP (VOIP) phone system.

The GIS Division provides mapping data for engineering design, emergency services, road projects, community planning, election information, tax assessment, the USGS national map project, and other County government functions.

All technology purchases (PCs, laptops, servers, printers, software, etc.) flow through the IS Department and primarily funded through the Capital Projects Fund (301) and/or a department/office's Special Revenue Fund.

The Information Systems Department's program mission as stated in the 2017 budget is as follows:

> Provide Information Systems Resources that support the goals and objectives of County departments and offices. Through quality practices and principals continue the development, maintenance, and improvement of the county information system. 2017 budget, pg. 37.

Funding:

The primary funding for the IS Department is provided by the general revenue fund. The historical funding for the IS Department is presented below.

Information Systems Department General Revenue Fund – Expenditures Fiscal Years 2012-2017								
Fiscal Year	**Salaries & Benefits**	**% Increase**	**Operating Expenditures**	**% Increase**	**Capital Expenditures†**	**% Increase**	**Total Expenditures**	**% Increase**
2012	$1,193,616	N/A	$401,596	N/A	$1,188,278	N/A	$2,783,490	N/A
2013	$1,435,374	20.1%	$391,335	-2.6%	$1,193,604	0.5%	$3,020,313	8.5%
2014	$1,923,867	34.0%	$424,217	8.4%	$1,423,782	19.3%	$3,771,862	24.9%
2015	$2,206,933	14.7%	$534,896	26.1%	$1,880,196	32.1%	$4,622,025	22.5%
2016	$2,324,847	5.3%	$618,484	15.6%	$957,632	-49.1%	$3,900,963	-15.6%
2017*	$2,309,493	-0.6%	$1,359,400	119.8%	$4,321,482	351.3%	$7,990,375	104.8%

Revenues generated by the IS Department are deposited in the general revenue fund. The historical funding is presented below:

Information Systems Department General Revenue Fund – Revenues Fiscal Years 2012-2017				
Fiscal Year	**IS Fees**	**Interfund Transfers**	**Total Revenue**	**IS Dept. Revenue as a Percentage of Expenditures**
2012	$9,250	$0	$9,250	0.3%
2013	$5,340	$0	$5,340	0.2%
2014	$3,183	$86,988	$90,171	2.4%
2015	$2,633	$229,495	$232,128	5.0%
2016	$1,119	$340,004	$341,123	8.7%
2017*	$0	$167,835	$167,835	2.1%

* These are the approved budget amounts from the 2017 budget.
† Includes amounts from the Capital Projects Fund (301).

Staffing:

The number of full-time equivalent authorized positions for the IS Department increased (71.4%) from 17.5 full-time positions in 2012 to a total of 30.0 full-time budgeted employees in 2017. **Note:** Five of the budgeted positions are unfunded in 2017 (equating to a 42.8% increase in funded positions).

II. STATUS BOARD

The status board provides a summary of the IS Department's functions and processes. Each cell located under a function represents an activity that is to be completed to ensure that the process is performed in an effective and efficient manner. The color of the cells represents the assessment regarding completion of the activity. The legend below gives a description of the definition of each color.

- Red indicates management's immediate attention is required.
- Yellow indicates an opportunity for improvement exists.
- Green indicates there is no action necessary at this time.
- Blue indicates a process that was not included in the scope of the review.
- Grey indicates a County issue that should be addressed by management, but is not necessarily a direct responsibility of the audited department/office.

Work Order Processing	Computer Hardware/ Software	Business Applications/ Project Management	Network/ Email/ Internet Access	GIS Services	Managed Print Services	County Phone System	Administration
Employees call, email, or send a work order request to the Technical Services Division Help Desk.	A replacement cycle is set for most equipment: desktops – 6yrs, laptops – 5 yrs, tablets – 4 yrs.	The Business Applications Division works with depts. to identify and assist with their IT needs/projects.	Network access, Email, Internet, and application access is requested by dept. heads via a Network Access Request Form.	The GIS Division provides mapping services combining geographic maps with layers of data.	The County contracts with NSC Diversified to provide toner and service all eligible printers.	The County uses ShoreTel hardware and software to operate a VOIP telephone system.	Payroll
All requests are received by a Technician and recorded in the Service Now program.	Some departments (e.g. Police) are on shorter schedules due to environmental factors.	Software is reviewed, purchased, and maintained to assist depts. in addressing identified needs.	Network Access forms are signed by the IS Director and user account activated upon HR confirmation that employee signed IT policy certification (A1).	Data is obtained through databases including County, other government, and public sources.	Printers are monitored remotely or manually, depending on the type as identified by IS.	The software is set-up on every PC using Active Directory log-in information, connected to a ShoreTel base unit.	Purchasing
Service Now documents all details/actions of the request.	Additional equipment (printers, monitors, etc.) is replaced as needed.	Business Cases are created for software costing more than $25,000 or 40+ hours of IS effort.	All internet access rights, portal control, and virus scanning are run through the County network (B3).	Maps are available to view at no charge through the County website.	Printers are added to the program as supplies and existing maintenance contracts expire.	Automatic updates and maintenance are completed by the Technical Services Division based on Firmware notifications.	IT Electronic Information policy

Work Order Processing	Computer Hardware/ Software	Business Applications/ Project Management	Network/ Email/ Internet Access	GIS Services	Managed Print Services	County Phone System	Administration
Requests resolved during the initial call are recorded as a "CALL".	Equipment purchases requested for and approved by IS and made from the Capital Projects Fund (301).	Cases are scored by the Project Management Office using a Project Scorecard.	Sonicwall blocks access to restricted website categories. Higher access levels can be requested.	Printed maps and/or CDs of map data are available for $25 and $10 for additional copies.	Any issues with printers first go to the Help Desk, and then to NSC if necessary.	Some outlying depts. do not have access to VOIP and use traditional land lines.	IT Security Policy/ Training
Requests requiring additional action are recorded as an INCIDENT, PROBLEM, or PROJECT depending on circumstances.	Equipment is purchased using Co-op bid contracts, updated annually and reviewed by IS.	The scorecards are presented to the Technology Working Group to rank for Dir. of Admin. approval based on funding availability.	All County PCs have real-time virus protection software installed.	Custom maps can be created for $38.19 per hour of IS work needed to create the map.	Billing for print charges is based on # of printed pages and is processed through IS, tracked on spreadsheets and submitted to the Finance Dept.	Billing for all phone charges is processed through IS and submitted to the Finance Dept. (B4 & C1)	Equipment/Access Security and Tracking (B1 & B2)
Work is assigned to Techs based on their workload.	Equipment is delivered to IS for set-up and then taken to depts. for installation.	Approved projects are assigned a Project Manager and standard project management procedures are followed.	Employees with email access are assigned a County email address and Outlook mailbox which can be assessed through County website.	Map sales are paid for in the IS Dept. with a receipt provided. The money is deposited with the Finance Department.			
Opened/closed requests are reviewed weekly to determine that user needs are being met.	A small inventory of equipment is kept in stock at all times.	This includes identifying a project scope, work breakdown structure, critical path, procurement, and risk management.	Non-employees (vendors, contractors, etc.) can receive network access normally through a Webex session by contacting a Business Analyst.				

Work Order Processing	Computer Hardware/ Software	Business Applications/ Project Management	Network/ Email/ Internet Access	GIS Services	Managed Print Services	County Phone System	Administration
Many issues can be resolved by a Tech remotely logging into an employee's PC.	IS maintains all software licenses and maintenance agreements.	Standard templates are used for the project charter, checklist, plan, risk register, and quality control.	The Webex session is monitored by an IS employee and a Mutual Non-Disclosure Agreement must be signed before access is granted.				
A minimal parts inventory is maintained to fix mechanical issues.	Software is loaded on equipment as needed, with some programs being part of a standard package.	Bi-weekly status meetings are held and quarterly project audits are performed to ensure that projects stay on time and budget.					
The Tech updates the Service Now records as work progresses and is completed.	Updates are installed by IS after testing compatibility, working with vendors to resolve compatibility issues, including patches.	BA projects are periodically reviewed independently for quality assurance.					

III. EXECUTIVE SUMMARY

Following is a summary of opportunities for improvement which were noted during our review of the IS Department:

A. Compliance Opportunities

1. *New User Access:* The following was noted in a review of Network Access forms: 1) The IS Department Director is not consistently approving and signing the Network Access and Application Request forms prior to the new employee's account being set up; and 2) six (35.3%) out of seventeen certifications reviewed had access authorized prior to the certification being signed.

B. Control Opportunities

1. *Data Center Access:* Forty-nine persons have key code access to the County's Data Center with server access.

2. *Asset Accountability:* During a review of equipment inventory, the following was noted: 1) two (18.2%) of eleven equipment purchases could not be located in the ServiceNow inventory; and 2) Obsolete hard drive records are not reconciled to the vendor's destruction list.

3. *User ID Reviews:* The IS Department does not routinely review active user IDs to determine if there are accounts that should disabled.

4. *Department/Office Phone Charges:* During a review of phone bills, the following was noted: Several differences were noted between the amounts entered into the cost allocation program and charged back to departments/offices and the amounts actually paid to the service providers; and the County is being charged Missouri and County Sales Tax on approximately twelve of the County telephone accounts.

C. Interdepartmental Opportunities

1. *Department/Office Phone Charges*: Phone service charges (operating expense) do not fall within the statutory allowable expenses through the Recorder's Technology Fund (224).

Compliance – New User Access

Discussion and Background	Cause	Risk/Effect	Recommendation	Management Response
The hiring department/office head requesting a new employee's access to the County's network must complete and a Network Access and Application Request form that indicates the type and level of access the new employee needs in their new position. This form is signed by the requesting department's Director and the IS Department Director for approval. The technician who sets up the new account with network access then initials the form to confirm that it has been completed. The completed forms are filed alphabetically by year in the IS Department. New employees are required to sign an Electronic Information Policy Certification stating that they have read and understand the Electronic Information Policy. Human Resources receives and maintains the signed certifications and sends a notification of the new hires' completion of the Policy Certification to the IS Department through MUNIS.	The following was noted in a review of Network Access forms: 1) The IS Department Director is not consistently approving and signing the Network Access and Application Request forms prior to the new employee's account being set up and granted access; and 2) User IDs are entered into the system and the ServiceNow ticket is closed prior to confirmation that the Electronic Information Policy is complete. <u>Note:</u> Six (35.3%) out of seventeen certifications reviewed had access authorized prior to the certification being signed.	Compliance with County departmental policy. Unauthorized users may receive network access.	The IS Department should ensure that the Network Access and Application Request form is approved and signed by the IS Department Director per policy or consider updating the policy to amend this condition based on the purpose of the control. Furthermore, the Department should keep the new employee account creation/access incident ticket open in ServiceNow until they receive confirmation that the Electronic Information Policy has been completed/signed by the new employee.	IS Dept. will update its policy to delegate the approval to the Technical Services Manager. (2018) Dept. will also change procedures to ensure ServiceNow ticket is open until EIP form has been signed. (immediate)

Control – Data Center Access

Discussion and Background	Cause	Risk/Effect	Recommendation	Management Response
The County's dedicated Data Center has several security measures to prevent unauthorized access, including requiring entry of a valid electronic key code to access the room. There are forty-nine individuals with an access code for the Data Center.	Individuals with access to the Data Center include five non-IS Department employees (plus all Facilities Maintenance Department Technicians have access), two former inactive IS Dept. employees, and potentially IS Dept. employees whose duties do not appear to require access to the Data Center.	Potential unauthorized or unnecessary access to Data Center.	The IS Department should limit Data Center access to only those individuals that have a genuine need to enter the area.	IS Department will review and cull the access list. Meeting scheduled for 11/9/17

Control – Asset Accountability

Discussion and Background	Cause	Risk/Effect	Recommendation	Management Response
County computer equipment purchases are tracked by the IS Department using ServiceNow, with the information also available in MUNIS. The IS Department maintains a computer equipment inventory for items over $500 and other valuable computer related item under that threshold (i.e. iPads). The department keeps a small number of computers on hand until needed for deployment. Once the life cycle for the computer equipment has come to an end, the IS Department creates a list of the equipment that will be disposed. Hard drives are removed from the PCs and laptops and then destroyed separately at a recycling facility. Hard drives are identified by their serial number and labeled with this information including a destruction date, projected out by three months. Once the recycling facility destroys the hard drives, a disposal certificate, which includes a list of the destroyed hard drive serial numbers, is provided via email to the Technical Services Manager.	During a review of equipment inventory, the following was noted: 1. Two (18.2%) of eleven equipment purchases could not be located in the ServiceNow inventory; and 2. Hard drive disposal records are not reconciled to the vendor's destruction list.	Opportunity for improved safeguarding and tracking of assets.	The IS Department should: 1. Ensure that all computer equipment activity is updated in ServiceNow inventory records; and 2. Reconcile hard drive destruction records to the vendor's destruction list.	Department has SOP for updating inventory records. Staff will be reminded of SOP and Tech Services Manager will randomly audit. (immediate) Department will procure AssetTrack software to allow bar-code reading of assets and update procedure for recording of hard-drives for destruction. (2018)

Control – User ID Reviews

Discussion and Background	Cause	Risk/Effect	Recommendation	Management Response
The level of network access provided to an employee is based on their current position and/or job duties, as requested by hiring department/office. The Technical Services Division creates a user ID and an initial password based on the approved Network Access and Application Request Form. New employees must read and sign the IT Acceptable Use Policy. Once the form is completed, the HR Department will notify the IS Department so that the Technical Services Division activates the new user's access. The IS Department also receives notifications for employee terminations when the MUNIS employee file is updated.	The IS Department does not routinely review active user IDs to determine if there are accounts without activity that should disabled. Note: A report can be created listing user IDs that have not accessed the network for a period of time (i.e. 90 days).	Reduced potential for unauthorized network access.	The IS Department should verify, on a periodic basis (i.e. quarterly), that user IDs are necessary and that the associated level of access granted is appropriate.	IS Dept. will institute a quarterly review of inactive Network IDs. (2018)

Control – Department/Office Phone Charges

Discussion and Background	Cause	Risk/Effect	Recommendation	Management Response
The County utilizes a Voice Over Internet Protocol (VOIP) phone system and ShoreTel software for phone service. The IS Department receives and pays the combined monthly phone bills, including Internet charges, and then charges departments/offices for their portion of the bill. The bill amounts are entered into a program to allocate the charges to all departments and offices based on % of usage by line/service. This amount is added to any dedicated lines (not through ShoreTel) for any applicable department/office. RSMO 144.030 and 660.149 define the tax-exempt status of political subdivisions within the State of Missouri. Based on statutes, utilities are exempt from state sales taxes, although not exempt from municipal sales tax, unless specifically exempted from such municipality.	During a review of phone bills, the following was noted: 1) Several differences were noted between the amounts entered into the cost allocation program and charged back to departments/offices and the amounts actually paid to the service providers; and 2) The County is being charged Missouri and County Sales Tax on at least twelve of the County telephone accounts.	Opportunity for improved accuracy of department phone billings. Unnecessary use of County resources.	The IS Department should: 1. Reconcile total phone charges to the calculated cost allocations to ensure that departments are accurately charged for phone and Internet service; and <u>Note:</u> The IS Department pays for all GR-funded departments/offices. 2. Ensure that all telephone vendors are not charging County and/or State sales taxes, and work with the Finance Department to seek refunds of any such sales tax paid as the law allows.	Because of a discrepancy in in-house software that identifies long-distance calls based on area-code and billing by Phone company that allows discounts based on destination also being a Phone company provider, there will also be minor differences in BILLS PAID and CHARGES ALLOCATED 1. Dept. will incorporate a new allocation model for the cost differences based on % of contribution to total of phone bill for each department. (2018) 2. Dept. has initiated request with Finance department to work with vendors on same. (in progress)

Interdepartmental – Department/Office Phone Charges

Discussion and Background	Cause	Risk/Effect	Recommendation	Management Response
RSMO 59.800.1 imposes a fee of five dollars on every recorded instrument. Of that five dollar fee, the statute requires that one dollar and twenty-five cents will be distributed to the recorder's fund established pursuant to subsection 1 of section 59.319 (Recorder's Technology Fund), and shall be used exclusively for the purchase, installation, upgrade and maintenance of modern technology necessary to operate the recorder's office in an efficient manner.	Phone service charges for the Recorder's Office are paid out of the Technology Fund (224). <u>Note:</u> Phone service charges (operating expense) do not fall within the statutorily-allowable expenses for the Recorder's Technology Fund.	Compliance with State statutes.	The County should ensure that phone charges paid out of special assessment funds comply with all applicable statutes.	Department has verified with Finance that on advice of County Counselors feel that the appropriate funds are being charged for phone charges. (Completed)