August 24, 2017

Supervisor S. Joseph Simitian, Chair
Supervisor Cindy Chavez, Vice Chair
Board of Supervisors Finance and Government Operations Committee
70 West Hedding Street
San Jose, CA 95110

Dear Supervisors Simitian and Chavez:

We have completed a management audit of the County of Santa Clara Information Services Department. This audit was conducted pursuant to the authority of the Board of Supervisors in accordance with the Board’s power of inquiry, as provided in Article III, Section 302(c) of the County Charter. This audit also conforms with audit standards of the United States Government Accountability Office.

The Information Services Department provides information technology services to all County agencies and departments. These services include project management for information technology projects, information security, business process analysis, networking installation and maintenance, application development and support, telephone and cellular telephone procurement and support, desktop and workstation equipment support, and printing services. Consequently, the scope of the audit was comprehensive and included a review of the operations, management practices and finances of the Information Services Department (ISD) to identify opportunities to increase the Department’s efficiency, effectiveness and economy. The scope of this audit did not include independent technical tests of the security or functionality of networks, systems, access control software, application controls, etc. However, auditors did seek documentation and/or demonstration of selected appropriate controls and measures in place, on a test basis, consistent with industry standards, County policies and applicable state and federal laws and regulations. The audit report contains six findings and 34 recommendations related to project management, information security, human resource management, service charges, customer service, and mobile devices.
We would like to thank the staff and management of the Information Services Department, the Employee Services Agency, the County Controller-Treasurer and County Counsel and for their assistance throughout the audit process. Their cooperation is greatly appreciated.

Respectfully submitted,

Cheryl Solov
Board of Supervisors Management Audit Manager

cc: Supervisor Cortese, Supervisor Wasserman, Supervisor Yeager
Project Staff: Fred Brousseau, Nicolas Menard
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Executive Summary

This Management Audit of the Information Services Department was authorized by the Board of Supervisors of the County of Santa Clara as part of the County’s Fiscal year 2015-16 Management Audit Program pursuant to the Board’s power of inquiry specified in Article III, Section 302(c) of the Charter of the County of Santa Clara.

1. ISD Project Management

One of the Information Services Department’s (ISD) major services is the tracking and management of large and often countywide information technology (IT) projects. However, since its inception in FY 2013-14, the Project Management Office, has focused on developing project management best practices rather than managing projects or validating information on the County’s IT project inventory. IT projects do not have a specific standardized definition. During Fiscal Years 2012-13 through most of 2015-16, ISD management did not track basic project information, such as project attributes and budgets. Further, ISD did not maintain a centralized inventory of all IT project work in the County. Lack of project information tracking makes it difficult to evaluate the success of project implementation or understand current resources available and needed for new projects. This results in delays in project implementation and unrealistic assumptions for completing ongoing and new projects. ISD management should develop a comprehensive project information system to track and report to management on status of projects, including timeliness, total spending, and staff time. In addition, the Department should formalize its project planning and reporting process. Implementing these recommendations will allow ISD to better understand the delivery status of its various projects and the department’s capacity to take on additional projects. These recommendations will also allow the County to fund IT projects at levels consistent with what ISD can accomplish, freeing up unneeded project funds, which totaled $53.6 million between FYs 2013-14 and 2015-16, for other purposes.

2. Information Security

The County has designated the Chief Information Security Officer (CISO) responsibility for maintaining and managing the programs that ensure the security of County data and systems. The CISO is supposed to develop and monitor compliance with County security policies and State and federal laws governing information security and privacy but is not doing so due to lack of staff and management direction. The CISO and his team are instead focused on remediating imminent security threats and vulnerabilities identified in testing-in FY 2014-15, as well as
reviewing large IT procurements for potential security vulnerabilities. Leaving many of the CISO’s key job duties unperformed leaves County data, including federally protected patient data and other confidential or sensitive information, and County information systems at risk of unauthorized access, tampering, and destruction. The CISO and County management should finalize the County’s information security policies and responsibilities for ensuring departmental compliance with such policies and codify the policies in Board Policy. In addition, the County should create additional information security positions. This will protect the County from cyber threats, including legal liability, disruption of County operations, and erosion of public trust that a successful cyber-attack could cause.

3. Human Resource Management
The County’s Information Services Department (ISD) and Employment Services Agency (ESA) share responsibility for recruitment of all employees at ISD. At an average rate of 20% for FY 2016-17, ISD’s vacancy rate was higher than the Countywide average vacancy rate of 12% and also higher than other county IT departments. ISD has so many vacancies because it has been difficult to hire external candidates given the County’s existing compensation and recruitment practices. The recruitment process fails to identify suitable candidates, takes too long, and loses applicants who receive and accept positions from other employers. Vacancies occur across all ISD divisions and therefore affect delivery of all ongoing services and projects. As detailed in Section 3, we recommend that the Chief Information Officer direct ISD staff to take certain steps to shorten recruitment timelines.

4. Internal Service Fund Charges
ISD recuperates non-project costs, including all personnel costs, by allocating charges to customer departments and agencies. Costs may be allocated to customers on either a fixed fee basis or variable basis. Though the charges established by ISD may be allocating budgeted costs to customers efficiently, cross-subsidization among customers may be occurring because of the treatment of funded vacant positions at ISD. In addition, staff costs embedded in service rates do not distinguish between project work and ongoing services and may therefore misallocate project costs to customers. Rates for ISD services have increased since the deployment of the Department’s current cost recovery model in FY 2013-14, but ISD’s customer departments reported in an audit survey that they generally do not understand the basis for their service charges. ISD’s current allocation model violates best practices for internal services funds set out by state and federal authorities and may violate industry best practices that require that rates for services have a cause and effect
relationship with services actually received. Potential cost misallocations, the lack of customer understanding regarding the basis of service rates, and the trend of increasing service rates may affect the County’s efforts towards further IT centralization, as discussed in Section 5 of this report. We recommend that ISD conduct an annual true-up analysis of its cost recovery in order to reconcile services charges against actual expenditures. In addition, the Department should revise written materials for customers that explain how service rates are developed. Implementing these recommendations will bring ISD’s internal service fund management into compliance with industry best practices and allocate costs more fairly to customers.

5. Customer Services and Performance Management

Both the County’s Three-Year IT Plan for FY 2016-18 and ISD’s budget allocations recommended by the County Executive emphasize ISD’s goal of being a customer service driven department. The primary contact customers have with ISD is through its TechLink Division. TechLink’s ticket system does not fully capture the Department’s workload or measure performance, including customer satisfaction. According to Department data, the ticket system only captures 39 percent of requests for service, and basic data about the request is not consistently tracked. ISD’s lack of monitoring service efforts make it impossible to determine whether all service requests are being fulfilled. In addition, improving ISD’s performance will be difficult until it starts measuring performance and customer satisfaction and establishes a process for incorporating that feedback into service and project delivery. Failing to do so could impair the County’s effort towards IT centralization. We recommend that ISD revise its ticket procedures so that the system measures all of the Department’s workload, can be used to track ISD’s performance on each ticket, solicit customer feedback, establish procedures to regularly analyze its performance and incorporate any findings into its service delivery. Performance goals should be made explicit in service level commitments with customers. Implementing these recommendations will result in better measurement of ISD’s workload and performance, which in turn will result in increased efficiency of ISD’s service work.


ISD is responsible for procuring cellular phones and other mobile IT devices for County employees, but neither ISD, nor the County Controller-Treasurer, nor receiving departments systematically track these devices after purchase, putting the equipment and County data at risk. Similarly, ISD and County departments maintain internal lists of their "low-value" assets such as workstations and servers, but in a review of a sample of the inventories of such items, they were found to be incomplete and not
compliant with County Controller-Treasurer policies. Without an accurate inventory, the County cannot secure its IT assets, many of which contain sensitive information and which may connect to the County’s network, enabling unauthorized transfers of malware or data. The Management Audit Division recommends changes to County policies and practices regarding the tracking of “low-value” assets, including cell phones. These include clarification of existing asset management policies and integration of those policies with County information security policies. In addition, we recommend immediate inventorying of data-plan or network-connected devices, and immediate shut off of data plans for devices that cannot be located. This would improve the motivation to follow policies to track these assets, and would ensure that lost devices can no longer be used by unauthorized individuals.
Introduction

This Management Audit of the Information Services Department was authorized by the Board of Supervisors of the County of Santa Clara as part of the County’s Fiscal Year 2015-16 Management Audit Program, pursuant to the Board’s power of inquiry specified in Article III, Section 302(c) of the Charter of the County of Santa Clara.

Purpose and Scope

The purpose of the management audit was to examine the operations, management practices and finances of the Information Services Department (ISD), and to identify opportunities to increase the Department’s efficiency, effectiveness and economy.

The scope of this audit did not include independent technical tests of the security or functionality of networks, systems, access control software, application controls, etc. However, auditors did seek documentation and/or demonstration of selected appropriate controls and measures in place, on a test basis, consistent with industry standards, County policies and applicable state and federal laws and regulations.

Work on this audit began with an Entrance Conference on March 21, 2016, and a draft report was issued to the Department on March 23, 2017.

Audit Methodology

This management audit was conducted under the requirements of Board of Supervisors Policy 3.35, adopted in 2001, and amended in both 2005 and 2010. That policy states that management audits are to be conducted under generally accepted government auditing standards issued by the United States Government Accountability Office. In accordance with these requirements, we performed the following management audit procedures:

Audit Planning: This management audit was selected by the Board of Supervisors using a risk assessment tool and estimate of audit work hours developed at the Board’s direction by the Management Audit Division. After audit selection by the Board, a detailed management audit work plan was developed and provided to the Department.

Entrance Conference: An entrance conference was held on March 21, 2016 with Department managers to introduce the management audit team, describe the management audit program and scope of review, and respond to questions. A letter of
introduction from the Board and a request for background information were provided prior to the entrance conference.

Interviews: As part of this management audit, the Management Audit staff conducted more than 30 survey and fieldwork interviews with managers, supervisors and line staff in all units of the Information Services Department.

Field Work: Field work activities were conducted after the entrance conference, and included: (a) additional interviews with management and line staff of the Department, including observations of staff on the job; (b) a further review of documentation and other materials provided by the Department and available from other sources, including procedures manuals maintained by the Department, other County departments and agencies, as well as selected other jurisdictions, used to identify best practices for comparison; (c) analyses of data conducted manually and electronically from systems maintained by the Department or elsewhere in the County; (d) surveys of other jurisdictions to measure performance and to determine organizational and operational alternatives that might warrant consideration by the County of Santa Clara, and; (e) a survey of County departments and agencies that used ISD services.

Draft Report: On March 23, 2017, a draft report was prepared and provided to the Interim Chief Information Officer, Information Services Department management, and other relevant parties to provide our tentative findings, conclusions and recommendations.

Exit Conference: Exit conferences were held with the Information Services Department on April 17, 2017 as well as with the Controller on April 17, 2017 and the Employment Services Agency on April 28, 2017 (two other departments to which recommendations were directed) to collect any additional information relevant to our report, to correct any errors, and to obtain their views on the report findings, conclusions and recommendations. Feedback from County agencies was received through August 18, 2017.

Final Report: A final report was prepared following the exit conferences and receipt of feedback. The Departments were requested to provide written responses to the report, which are attached.
We conducted this performance audit in accordance with generally accepted government auditing standards set forth in the 2011 revision of Government Auditing Standards promulgated by the U.S. Government Accountability Office (the “Yellow Book”). 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.

Overview of the Information Services Department

Although many County departments have their own information technology professionals, the Information Services Department is the primary provider of information technology services for the County. ISD provides the following services: project management for information technology projects, information security, business process analysis, networking installation and maintenance, application development and support, telephone and cellular telephone procurement and support, desktop and workstation equipment support, printing services, and others. A list of the Department’s accomplishments follows this Introduction as Attachment I.1.

Budget and Organizational Structure

The Department’s budget totaled $105.9 million in Fiscal Year 2015-16, including approximately $50.7 million for salary and benefit costs, and the remaining $50.4 for services and supplies. ISD relied on three funds for its financing in FY 2015-16: (1) $34.7 million from the General Fund, which funds supply and service costs for Countywide IT projects, (2) $70.9 million from an internal service fund to which all County departments and agencies pay prorated shares. The internal service fund contains nearly all salary costs for the Department as well as equipment and supply costs, and (3) a fund that captures the cost of ISD’s printing and mail services division. ISD charges customers to recuperate General Fund project costs as well as the service costs in its internal service fund.

ISD is organized into ten divisions to provide services:

1. Technology Resource Management
2. Core Infrastructure and Cloud-Based Services
3. Enterprise Infrastructure and Hosting Services
4. Enterprise Application Development and Management
5. Enterprise Public Safety and Justice Systems Management
6. Business Relationship Management
7. IT Project Portfolio Management
8. Client Computing Services
9. Printing, Mail, and Record Retention
10. Privacy and Information Security

To guide the allocation of ISD and County information technology resources and direction, County management and ISD prepare an Information Technology Three Year Plan every three years. The purpose of the plan to record and identify the benefits of the technology projects and initiatives planned for the reporting period.

**Recommendation Priorities**

The priority rankings shown for each recommendation in the audit report are consistent with the audit recommendation priority structure adopted by the Finance and Government Operations Committee of the Board of Supervisors, as follows:

Priority 1: Recommendations that address issues of non-compliance with federal, State and local laws, regulations, ordinances and the County Charter; would result in increases or decreases in expenditures or revenues of $250,000 or more; or, suggest significant changes in federal, State or local policy through amendments to existing laws, regulations and policies.

Priority 2: Recommendations that would result in increases or decreases in expenditures or revenues of less than $250,000; advocate changes in local policy through amendments to existing County ordinances and policies and procedures; or, would revise existing departmental or program policies and procedures for improved service delivery, increased operational efficiency, or greater program effectiveness.

Priority 3: Recommendations that address program-related policies and procedures that would not have a significant impact on revenues and expenditures, but would result in modest improvements in service delivery and operating efficiency.
Acknowledgements

We would like to thank the management and staff of the Information Services Department for their assistance and cooperation with this audit. In addition, we are grateful to staff at the Santa Clara County Employment Services Agency, Controller-Treasurer Department, and other customer departments and agencies that provided information for this audit.
The Enterprise Content Management (ECM) group manages common platforms for information sharing, workflow and collaboration. ECM provides web-related functionality, application development (including mobile apps), e-forms, document management solutions and maintenance of County portals. Among its accomplishments, the ECM group:

- Redesigned the County’s public web portal (sccgov.org), adding various enhancements so visitors can easily access it from any computer or mobile device, find the information they need more easily, and enjoy a more contemporary, and inviting, look and feel.
- Pioneered a new online landfill tracking and payment system (the first of its kind in the State of California) for the Recycling and Waste Reduction Division (RWRD) of the County’s Consumer and Environmental Protection Agency (CEPA), which has made this process far more efficient and convenient for customers and dramatically reduced RWRD staff administration time.
- Launched a Tuition Reimbursement App, which accommodates the specific employee tuition reimbursement requirements of each of the 27 bargaining units the County works with, speeds the reimbursement process for employees, and greatly reduces LED staff time spent administering the program.
- Implemented DocuSign eSignature platform, enabling both employees and outside constituents to sign documents requiring wet signatures electronically and streamlining various contract and other processes.
- Launched new Android version of the County’s SCCDineOut mobile app that provides residents with inspection results from all restaurants and public eating establishments in Santa Clara County.
- Launched COB Off-Agenda Reports, a tool that enables the public to access Off-Agenda Reports to the BOS.
- Launched ROV Track It, a tool to manage and track critical assets such as ballots, cartridges, and rosters sent out to precincts for election preparation on and after Election Day.
- Launched ROV Write-In Tally, a tool that records all write-in votes and provides essential reports, such as Statement of Vote, to the California Secretary of State.

Various application support teams provide technical and development support for enterprise solutions.

- The ASAP team
  - Implemented PeopleSoft 9.2 with new features and higher levels of security. By completing the work in-house, the project was completed ahead of schedule with an estimated savings of $500,000 in development costs.
  - Implemented the Supplier Light environment, which makes it easier for Ariba’s P2P system to collaborate with suppliers as well as the Spend Visibility module which provides integrated spend management dashboards from SAP, Ariba, and PMM systems.

- The Geographic Information Services (GIS) team
  - Developed data and map applications and performed GIS data processing/query to support Emergency Operation Center during October 2016 Loma fire.
  - Developed a map of State Historic Landmarks within Santa Clara County and created an easy-to-navigate mapping application.
Information Services Department Major Accomplishments
July 24, 2017

- The Public Safety and Justice Systems Program (PSJSP) group
  - Launched an advanced Business Intelligence (BI) solution that integrates data from previously separated agencies and allows PSJSP's Reentry Program's administrators to better identify and deliver client services.
  - Initiated Public Defender's Office Case Management System roll out. (Expected to be complete in late Fiscal Year 2017.)
  - Issued RFP for Jail Management System for the Office of the Sheriff Department of Correction.
  - Finalized business requirements for Adult and Juvenile Probation Case Management System. (An RFP will be issued in late Fiscal Year 2017.)
  - Made technical improvements to 9-1-1 communications dispatch and event-and-resource monitoring to implement disaster recovery elements and expand situational awareness technology.
  - Modified the Twilio Court Appearance Reminder Program to include text messages.
  - Procured and configured a new County Mass Notification System for Office of Emergency Services.

The Business Relationship Management team provides business strategy and analysis support for various County departments and agencies. Among its accomplishments, the BRM

- Implemented critical Archibus enhancements to enable accurate cost realization and allocation for both break-fix and preventive maintenance Facilities work orders.
- Took over primary support and created a knowledge base of Facilities and Fleet applications to meet the goals of continuous operations and eliminating single points of failure.
- Completed assessment and solution design for a bandwidth enhancement and Wi Fi project that will enhance network access across 15 parks for both employees and the public. (A pilot effort is currently underway in Ed Levin County Park.)
- Completed business assessment, requirements, and vendor evaluation for the new Planning and Development Integrated Platform, which will improve permit and code enforcement processing as well as stakeholder satisfaction.
- Brought Lobbyist Online Registration System online to enable lobbyists to register file, file reports, and pay fees online.
- Managed IT support for Special, Primary, and Presidential Elections that supported the smooth operation and successful completion of those elections.

The Core Applications and Licensing Support (CALS) team supports enterprise agreement administration and Microsoft product management, and provides resource planning and procurement support for large scale rollouts of office productivity tools. Among its accomplishments, the CALS team:

- Completed migration to O365 to DCSS and DA, continuing the transformation of the SCC users into a mobile and collaborative workforce.
- Implemented revised email retention policy across SCC including conducting 36 education meetings.
- Began the rollout of Windows 10.
Core Services includes the Core Application group and Customer Support. Among its major accomplishments, the team:

- Migrated HHS software distribution system to the central County distribution system and upgraded all clients to SCCM 2012.
- Completed the first phase of the FIM (Microsoft Forefront Identity Manager), which automates the maintenance of directories and provides secure user access to applications across SCC.
- Completed the AirWatch County application store and VPN tunnel services for mobile devices.
- Standardized the use of one type of desktop, laptop, and tablet for all future hardware requests. (This will simplify the imaging process and turnaround time for onboarding new personnel.)
- Have established zero-touch policy on workstation within ISD supported departments eliminating the need to have physical support at the workstations when installing applications or reimaging the system. This also has put better controls on inventory.

Technology Resource Management oversees a variety of IT administrative functions including finance/accounting, IT asset management, procurement and human resources. Among its accomplishments, the group:

- Completed Apptio IT Planning, which automates the ratemaking process, provides managers with tools to create line item budgets and lays the foundation for final Cost Transparency module which will provide deeper insight into technology cost drivers.
- Began rollout of Apptio Bill of IT, which provides significant cost transparency and empowers departments to be more knowledgeable consumers of IT.
- Revamped IT Asset Management function to provide better accountability of IT hardware, which ultimately reduces financial and security risks.
- Filled more than 75 vacant staff positions.

The CIO-Project Management Office (PMO) provides consulting services, tools, and other sources to help build a portfolio, program, and project management culture throughout County IT. Among its major accomplishments, the PMO:

- Rolled out the PM Toolkit, a rich repository of PM tools and templates.
- Implemented the Project Portfolio Management (PPM) Framework, which standardizes project management across County IT.
- Configured Planview, a powerful PPM tool to centralize oversight and control of project management activities.
- Initiated a monthly project and portfolio reporting process that gives governance groups valuable operational insight.
- Launched a dedicated website to serve as a “one-stop-shop” for County IT staff in search of resources and information related to IT governance as well as portfolio, program, and project management.

Network/Telecommunications Support maintains the County’s network and phone systems. Among its accomplishments, the group:
Information Services Department Major Accomplishments
July 24, 2017

- Upgraded the core network infrastructure components and completed significant upgrades to the data network fiber infrastructure cable plant at 70 West Hedding.
- Completed the HHS Call Center replacement project which provides hospital and clinic patient access to services including Pharmacy, appointment scheduling, Department of Drug and Alcohol Services, Dental Services, and Language Translation Services.
- Upgraded both hardware and software related to the County’s wireless network infrastructure.
- Upgraded hardware and software for several County network firewalls including the County Communications 911 center.
- With Telecommunications Unit, completed Mitel-to-Cisco phone system upgrade at Charcot Center and the Guadalupe Ave. Juvenile Probation department.
- Upgraded the backend infrastructure for remote VPN access.
- Completed migration from Mitel PBX to Cisco VoIP platform in North and South County Facilities, Charcot Center, and Juvenile Probation Complex.
- Provided Telecommunications Support for the Primary and General Elections.

Enterprise Infrastructure Support

- Completed infrastructure consolidation of FAF, ROV, and RDA.
- Completed server hardware refresh for the entire VMWare environment.
- Installed additional infrastructure at HHS (p850 servers and XIO storage to support EPIC 2015).
- Conducted multiple disaster recovery tests on SAP/ECC, SAP/PBF, Kronos, ERD and PeopleSoft.
- Upgraded all PeopleSoft 9.1 environments to 9.2.
- Upgraded the SAP financial application from ECC EPH4 to the latest release EPH7 and supportive SAP technologies.
- Completed upgrade to Oracle 12c.
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Section 1. ISD Project Management

Background
Of the 71 Information Technology (IT) projects that took place between FYs 2012-13 and 2015-16, only eight were managed by the Information Services Department’s Project Management Office. The remaining 63 projects were managed primarily by ISD division managers, for whom project management is often secondary to their production responsibilities.

Problem
Since its inception in FY 2013-14, the Project Management Office has focused on developing project management best practices rather than managing projects or validating information on the County’s IT project inventory. IT projects do not have a specific standardized definition. During Fiscal Years 2012-13 through most of 2015-16, ISD management did not track basic project information, including total estimated budget, start year and completion year, project type, project description, staff time, project owner or manager responsible for project execution, and budgeted and actual expenditures by fiscal year. Further, ISD did not maintain a centralized inventory of all project work.

Adverse Effect
Lack of project information tracking makes it difficult to evaluate the success of project implementation or understand current resources available and needed for new projects. This results in delays in project implementation and unrealistic assumptions for completing ongoing and new projects. The department’s General Fund project allocation, which is used to fund non-salary costs of Countywide IT projects, was underspent by $53.8 million, or 41 percent, between FYs 2013-14 and 2015-16.

Recommendations, Savings and Benefits
ISD management should develop a comprehensive project information system to track and report to management on status of projects, including timeliness, total spending, and staff time. In addition, the Department should formalize its project planning and reporting process. Implementing these recommendations will allow ISD to better understand the delivery status of its various projects and the department’s capacity to take on additional projects and will allow ISD to focus resources on mission critical projects. These recommendations will also allow the County to fund IT projects at levels consistent with what ISD can accomplish, freeing up unneeded project funds, which totaled $53.6 million between FYs 2013-14 and 2015-16, for other purposes.
BACKGROUND

Information technology (IT) projects originate and are funded from several different sources in the County of Santa Clara. Countywide IT projects are funded from the General Fund and require approval from the Business Information Technology Steering (BITS) Committee. BITS, which is composed of various departmental representatives and chaired by the Chief Information Officer (CIO) and County Executive Officer (CEO). The Committee reviews proposed IT projects and makes funding recommendations to the Board of Supervisors for their annual budget deliberation. The General Fund is supposed to fund the one-time costs of project planning and implementation. Once projects are completed any associated ongoing costs are supposed to be moved into the budget of the agency or department responsible for whatever services they created or enhanced, which may or may not be covered by the General Fund, depending on the department’s funding sources.

In addition, ISD resources are often required to support department-specific projects, which do not have a Countywide benefit but instead support the work of a specific department. Such projects may be managed and budgeted in either the requesting department budget or ISD’s budget, depending on the project.

ISD created a Project Management Office (PMO) in FY 2013-14 to track and ultimately manage Countywide IT projects. At the time of its creation, the PMO was not tasked with project management functions but was instead tasked with tracking project implementation and identifying and proposing future projects to BITS. Over the next two fiscal years, the role of the PMO (also referred to as IT Portfolio Management Services) expanded to provide additional coordination and communications for BITS, assembling an inventory of Countywide projects, establishing policies, procedures, and standards for IT projects, and managing certain vendor contracts and procurements. In FY 2015-16, the PMO had six full-time-equivalent (FTE) staff. During FYs 2014-15 and 2015-16, the PMO used 13 different contractors at a cost of $891,267 to supplement its project management efforts. The Social Service Agency, Health and Hospital System, and Assessor’s Office each have their own PMOs.
Section 1: ISD Project Management

At ISD, projects do not have a standard definition and information about their progress is not systematically tracked or monitored

The period of our audit review covered FYs 2012-13 through 2015-16. For all active ISD projects from that period¹ we requested the budget, start year and completion year, project type, project description, project owner, or manager responsible for project execution, as well as budgeted and actual expenditures by fiscal year. This review covered only projects “owned” by ISD; it did not include IT projects owned by Health and Hospital Services or the Social Services Agency (SSA) or other County departments (which may nonetheless require ISD support). In addition, we also requested more detailed project information on ten sample projects, including project scoping and planning documents, proposed and actual timelines, proposed and actual deliverables, project staffing levels, professional services utilized and contracts executed. The projects reviewed for our audit are summarized in Exhibit 1.1 below.

Exhibit 1.1: Summary of projects reviewed for audit

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<td>$14,266,652</td>
<td>$13,909,941</td>
<td>$14,300,112</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data

Gathering this information proved to be difficult for ISD and required a significant investment of ISD staff time. Such effort was required because ISD did not, until FY 2015-16, track standard project information nor regularly report on the progress of County projects. Because there are several sources (such as County departments, BITS, or ISD initiated projects) of IT projects under ISD’s control, projects appear in one or

¹ This includes all projects that had any type of expenditures in FYs 2012-13 through 2015-16, and is not limited to projects that were started during that period. This list therefore includes several projects started in FYs 2009-10, 2010-11, and 2011-12, for example.
more project lists, including: the Information Technology Three Year Plan, ISD’s annual budget requests, and internally maintained ISD project lists. All these project lists refer to funded projects that require ISD resources, yet none are fully consistent with one another, making it difficult for management to understand the entire department’s active or planned project work at any given time. The final project list provided by ISD was missing information for some projects.

Apparent from the compiled project list is that ISD lacks a standard definition and approach to project work. Project work is distinct from ongoing services in that projects have specific milestones and final deliverables as well as set amounts of time and funding in which to complete the effort. Because projects are temporary work efforts, in order to be successful they require detailed planning, which in turn requires detailed understanding of the capacity and resources that need to be activated within the organization undertaking the project.

However, ISD refers to “projects” in such a way as to encompass many different types of work efforts, some of which do not fit the basic definition of project work above. Sometimes projects on these lists are specific and concrete work efforts with clearly defined deliverables. Other times they are a general program or initiative that may be expected to go on for many years and have many different components or phases to it. In other instances, the “project” might be a vaguely defined functional area such as “Security”, or a general goal, such as “acquiring professional services to assist with upgrade” or “investigate self-service benefits systems option.” ISD has not effectively or clearly categorized or flagged projects according to whether they are one of the below types of observed project work efforts:

- Projects
- Programs
- Initiatives
- Tasks
- Assessments / Evaluations / Scoping
- Ongoing Work
- Fixed Asset Replacement
Section 1: ISD Project Management

All of the above efforts collectively appear in ISD’s various project lists. ISD’s project lists were not centrally compiled or categorized by project type at the outset of this audit. As noted above, per the request of the Management Audit Division, ISD compiled a master project list containing 71 projects from its various pre-existing project lists and categorized the various work efforts. Exhibit 1.2 below summarizes the various project types.

Exhibit 1.2: Original Budgets & FYs 2012-13 - 2015-16 Expenditures by Project Types

<table>
<thead>
<tr>
<th>Project Type (classified by ISD)</th>
<th>Original budgets a</th>
<th>Actual expenditures</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment/Investigatory</td>
<td>$4,940,054</td>
<td>$4,483,496</td>
<td>7</td>
</tr>
<tr>
<td>Fixed Asset</td>
<td>$17,406,512</td>
<td>$17,110,117</td>
<td>7</td>
</tr>
<tr>
<td>One Time Project</td>
<td>$15,871,396</td>
<td>$14,016,847</td>
<td>24</td>
</tr>
<tr>
<td>One time project with ongoing costs</td>
<td>$30,142,573</td>
<td>$14,126,859</td>
<td>19</td>
</tr>
<tr>
<td>(Unknown)</td>
<td>$5,430,727</td>
<td>$2,615,708</td>
<td>14</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>$73,791,262</strong></td>
<td><strong>$52,353,027</strong></td>
<td><strong>71</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data -

a Sum of each year’s original project budget, FY 2013-16

As shown above, 14 of the 71 projects active during FY 2012-13 through FY 2015-16 could not be categorized by ISD. In addition, a “One-Time Project” may encompass many different types of work efforts including projects that extend across multiple years. This type of classification schema needs additional definition in order to be useful for project planning and monitoring.

Of the 71 projects, 39 (or about 55 percent) were not linked to any initiatives in the County’s Three Year IT Plan, which seeks to be a “reference document intended to provide the reader with detailed information about the major technology projects underway in the County.”2 These 39 projects were budgeted at approximately $43.3 million (or about 59 percent of the total budgeted amount for projects during the audit review period).

Although ISD could likely figure this information out eventually and with much effort, the fact that it cannot be easily accessed or quickly compiled is telling. The Three Year Plan is the Department’s primary public-facing document outlining its goals, strategies, and vision as an IT service organization. It is essential that the links between individual

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2 Three Year IT Plan FY 2016-18
projects and their associated Three Year Plan business initiatives be clear and easy to evaluate, so that performance can be effectively measured, and County leadership can determine whether ISD is succeeding in accomplishing stated goals in identified business areas.

None of the projects on the compiled project list provided by ISD for the audit had an initial estimated completion date, suggesting lack of project timelines. After the exit conference, ISD provided new project information that had been compiled during the audit period but not previously provided to auditors. The new project data contained estimated project schedules though still did not include original schedules from the onset of the projects for comparison to revised schedules. Finally, as shown in Exhibit 1.2 above, actual expenditures of approximately $52.4 million were $21.4 million less than the $73.8 million budgeted for these projects, suggesting project delays.

**Current project management practices make it difficult to monitor project progress**

ISD lacks a standard methodology for planning, executing, and closing IT projects, including a standard reporting process for project progress. A project list the PMO was originally working on at inception of the Office completed but not maintained. As noted above, during the audit review, ISD did not maintain a centralized, actively managed project inventory that contains standardized information such as project budgets, spending or timelines. In April 2016, ISD updated its project reporting to include status and end date and updated those reports in September 2016 to include more detailed descriptions of each project’s status, however, total project cost information was still absent. This is because ISD’s project tracking methodology makes it difficult to track total project costs.

ISD often assigns separates components of large projects different project codes for different years, assigned in the fiscal year in which the subcomponent of the project is initiated. This makes it difficult to adequately or accurately track major ISD projects over time. There is no master list that rolls up project codes and therefore no easy way to ascertain total multi-year budgets or expenditures for initiatives or projects that may have received different funding slices in different years under different project codes or project titles within each of the fiscal years.

The Microsoft Office 365 project, for example, appeared as three distinct projects with three project codes and three individual project appropriations in ISD’s final project list
provided for this audit, even though it is all part of one project, as summarized in Exhibit 1.3 below. As with other projects, ISD had to manually reconcile and sort through underlying project documentation to ascertain total costs for the Office 365 project over time.

Exhibit 1.3: Microsoft Office 365 Project Budgets & Expenditures

<table>
<thead>
<tr>
<th>Project Start FY</th>
<th>Project Code</th>
<th>Project Name</th>
<th>Original Budget</th>
<th>Total Expenditures</th>
<th>Over / (Under) Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>T14513SWMS</td>
<td>SAAS/Office 365 Services</td>
<td>$1,221,054</td>
<td>$1,221,054</td>
<td>$0</td>
</tr>
<tr>
<td>2014</td>
<td>T14514MSAU</td>
<td>Augment Funding for Common Directory and Office 365 Project</td>
<td>$5,479,887</td>
<td>$6,587,774</td>
<td>$1,107,887</td>
</tr>
<tr>
<td>2015</td>
<td>T14515MSSW</td>
<td>O365 Continuation, MS Statements of Work</td>
<td>$1,595,000</td>
<td>$1,522,812</td>
<td>($72,188)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$8,295,941</td>
<td>$9,331,640</td>
<td>$1,035,699</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data

Nothing like the total expenditures provided in Exhibit 1.3 above, either for the original budget or total expenditures, exists in any primary ISD or County document listing total costs for the Office 365 project or any other project.

ISD did not track project budget information and expenditures while this audit was underway because, with the exception of a midyear report to the Finance and Government Operation Committee, it did not have to regularly report on project progress to any entity outside the Department. The absence of standardized project management reports and information can lead to resource mismanagement, as projects are delayed and/or exceed their budgets.3

As shown in Exhibit 1.3 above, the total spending for the Office 365 project exceeded the project’s total budget by approximately $1.03 million. A general list of over-budget projects is provided in Exhibit 1.4 below. However, as discussed above, over-spending compared to an original budget is difficult to evaluate because ISD does not estimate or report a project’s total cost over time but, instead, refreshes project budgets every fiscal year without reference to any previous years’ or original project appropriations. Therefore, it is only possible to compare actual project spending against annual budgets

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3 At the exit conference, ISD presented new information to auditors showing that the PMO began providing monthly project status reports of BITS approved projects in April 2016. The reports included estimated completion dates for projects and their estimated fiscal impact for the current fiscal year.
on a single year basis, even if the sum total annual budgets over the course of the project exceeds the initial cost estimate of the project. Given this limitation, we were still able to identify nine projects of the seventy-one reviewed for FY 2012-13 – FY 2015-16 that were over-budget by $4.6 million, or 18 percent more than their original budgets. At the exit conference, ISD stated it planned to track total lifetime project costs starting in the FY 2017-18.

Exhibit 1.4: Over budget projects, FY 2013 – 2016

<table>
<thead>
<tr>
<th>Three Year Plan Project Title</th>
<th>Original Budget a</th>
<th>Total Expenditures</th>
<th>Amount Over Budget</th>
<th>% Over Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Conferencing, Training &amp; Webinars</td>
<td>$60,000</td>
<td>$109,171</td>
<td>$49,171</td>
<td>82%</td>
</tr>
<tr>
<td>Sheriff’s Office Field-based Activity and Incident Reporting System</td>
<td>$500,000</td>
<td>$690,486</td>
<td>$190,486</td>
<td>38%</td>
</tr>
<tr>
<td>Law &amp; Justice System Roadmap-Program Mgmt.</td>
<td>$2,344,000</td>
<td>$2,965,027</td>
<td>$621,027</td>
<td>26%</td>
</tr>
<tr>
<td>Replacement of Hedding Network Core</td>
<td>$1,280,000</td>
<td>$1,547,684</td>
<td>$267,684</td>
<td>21%</td>
</tr>
<tr>
<td>Public Safety Dispatch Console and Radios</td>
<td>$9,360,000</td>
<td>$11,281,175</td>
<td>$1,921,175</td>
<td>21%</td>
</tr>
<tr>
<td>Augment Funding for Common Directory and Office 365 Project</td>
<td>$5,479,887</td>
<td>$6,587,774</td>
<td>$1,107,887</td>
<td>20%</td>
</tr>
<tr>
<td>CLARA.net Enterprise Network Infrastructure Projects</td>
<td>$2,606,602</td>
<td>$2,873,227</td>
<td>$266,625</td>
<td>10%</td>
</tr>
<tr>
<td>Telecommunications/Network VOIP Phase I Mitel PBX Replacement</td>
<td>$3,491,886</td>
<td>$3,667,478</td>
<td>$175,592</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$25,122,375</strong></td>
<td><strong>$29,722,021</strong></td>
<td><strong>$4,599,646</strong></td>
<td><strong>18%</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data

a Sum of each year’s original project budget, FY 2013-14 through FY 2015-16

Projects may also be delayed because of project management limitations. As noted above, current ISD project tracking practices make it impossible to evaluate whether projects are delayed because the Department does not systematically develop or track original or updated project timelines. A proxy for project delays is underspending in the department’s General Fund project budget, which is used to fund non-salary costs of Countywide IT projects. Although, as noted in Exhibit 1.4 above, while some projects had measurable over-spending between Fiscal Years 2012-13 and 2015-16, ISD underspent its total project budget by a total of $53.7 million over the three-year period. At the exit conference, ISD stated that its annual appropriations for project spending were intended to cover project costs for 3 – 5 years and, as a result, the Department did not spend all of its allocated funds during the fiscal year for which the funds were appropriated. However, this is inconsistent with the County’s Encumbrance Policy,
which states that “purchase orders] will not roll over to the next fiscal year for one-time funded projects for the General Fund. The Controller - Treasurer Department and OBA will subsequently seek the Board’s approval for re-appropriation of those encumbrances to the next fiscal year.”

The budget-to-actual-expenditures summary of ISD’s General Fund project allocations is shown in Exhibit 1.5 below.

**Exhibit 1.5: ISD General Fund Project Budget vs. Actual Expenditures, FYs 2013-14 – 2015-16**

<table>
<thead>
<tr>
<th>FY</th>
<th>Modified Budget</th>
<th>Actual Expenditures</th>
<th>Underspending</th>
<th>% Underspent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$47,313,285</td>
<td>$29,097,801</td>
<td>$18,215,484</td>
<td>38%</td>
</tr>
<tr>
<td>2015</td>
<td>$39,624,899</td>
<td>$27,477,890</td>
<td>$12,147,009</td>
<td>31%</td>
</tr>
<tr>
<td>2016</td>
<td>$43,539,811</td>
<td>$20,216,074</td>
<td>$23,323,737</td>
<td>54%</td>
</tr>
<tr>
<td>Total</td>
<td>$130,477,996</td>
<td>$76,791,766</td>
<td>$53,686,230</td>
<td>41%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of Information Service Division Fiscal Data

The underspending shown in Exhibit 1.5 above likely indicates that projects are delayed in their implementation and/or project budgets and/or timelines are unrealistic. According to the County Executive’s budget recommendations for FY 2016-17, the Office 365, DocuSign, and Ariba projects all experienced implementation delays because ISD did not have the sufficient staff resources available to roll out these projects. At the exit conference, ISD stated that lengthy procurement and hiring cycles have contributed to underspending and project delays.

**ISD does not track staff time spent on projects**

As discussed in Section 4 of this report, *ISD’s Internal Service Fund*, with the exception of three Public Safety and Justice projects, ISD staff work efforts and staff resources expended on ISD and non-ISD IT projects are not tracked and billed to individual project budgets. At present, staff time is recorded based only upon tasks and services tracked in the Department’s internal service fund. Currently, ISD does not track staff time in such a way so as to distinguish between project and non-project work. The same task and service codes are used by Department staff whether they are working on a project or ongoing services. Specifically, despite having 105 task codes in Kronos, the staff time keeping system, ISD does not have separate task codes for project versus ongoing work. This means it is impossible to historically review staff time spent on projects or to monitor staff hours expended by individual project.
Methods of tracking employee hours are highly variable by individual managers and cost centers. In preparing their budget requests, some ISD managers offer very detailed hours breakdowns of employees across many different task types, with clear methodologies for projecting staff hours across functional areas. Others managers, however, track all their employees productive hours within a single task (only a portion of which may contribute to a project), do not rely on historical staff time allocations, or do not provide much clarity with respect to past tracking or future projections. While there may be some logic for current tracking methods by individual managers, it has not ever been subjected to a department-wide evaluation or management direction and instead relies on ISD division managers’ discretion.

Project planning and implementation for Countywide projects is deficient

The inconsistent project information tracking and monitoring, including of project budgets, timelines, and staff time are symptomatic of, and contribute to, ISD’s lack of project planning internally and through BITS.

The BITS review process

BITS review and approval is required for Countywide IT projects funded by the General Fund. However, according to managers in ISD and other departments, BITS’ review of project requests has historically not taken into account what can realistically be accomplished over the next fiscal year given resources devoted to current projects. As noted in the County’s Three Year IT Plan for FY 2015-16 - FY 2017-18, “While BITS has primarily been an information provision body; the Committee was originally designed to set priorities related to the provision of IT solutions in the County.” At the exit conference, ISD stated that in FY 2016-17, BITS formed an “IT Project Request Review” subcommittee to determine priorities for projects for recommendation to the Board of Supervisors.

BITS has not been able to effectively prioritize project requests for several reasons. As noted above, ISD does not track project information, such as timelines and budgets, and therefore cannot accurately estimate its resources available to contribute to new projects. In addition, ISD management has not been tracking how much time staff has allocated to project-specific work, including for major, years-long Countywide initiatives such as the Common Directory or Office 365 project. This negatively affects...
Section 1: ISD Project Management

the Department’s ability to gauge resource needs or accurately allocate resources. Staffing requirements and capacity for projects are generally unknown by management and, as a consequence, by BITS.

Additionally, project requests to BITS have not historically contained sufficient information that would allow BITS members to prioritize projects. As a step in the right direction, according to a BITS update memo dated March 2016, FY 2016-17 project requests were required for the first time to submit “business cases” for funding consideration. The new business case request forms utilize ISD’s project planning software, PlanView, and include detailed information on business justification, execution risks, staff time, costs, and implementation timeline. While this is an improvement, it still requires BITS to effectively prioritize the many project requests it receives (there were 96 requests in FY 2016-17) and also would require accurate resource allocation information and resource availability from ISD so that BITS members may make reasonable assumptions of the Department’s capacity constraints when making project funding recommendations. At the exit conference, ISD stated that it planned to ask County departments to assess their capacity to undertake new projects in FY 2017-18.

ISD project planning

At present, there is no requirement for project planning to be performed by ISD staff for all projects. As noted above, we requested detailed information on ten sample projects, including life-of-project scoping and planning documentation, original, proposed and actual timelines, proposed and actual deliverables, project staffing levels, professional services utilized and contracts executed. There was a wide divergence in the quality of the documentation provided, ranging from no documents whatsoever to a disorganized set of documents to a meticulously organized and easily navigable folder structure. In our sample of ten projects reviewed for this audit:

- Four had no scoping or planning documents available
- Two Public Safety and Justice projects had fairly detailing scoping documents completed by the Department
- One had unofficial or difficult to discern documents, with unclear planning and document ownership
One of our sample projects was the Office 365 project, a sensitive, major, mission-critical long-term project for the County. However, it was impossible to determine whether the Office 365 implementation has been delayed based on the project documentation provided by ISD.

There should also be an internal ISD staff planning and scoping process and controls established for each project overall in order to avoid financial conflicts of interest that could occur with contractors assuming responsibility for project planning. Such departmental planning and scoping would, for example, state goals and deliverables, desired timelines, available funding, available staff resources and expectations of supporting staff, as well as define the division of labor between staff and contractors and expectations of the contractor, including consequences for non-performance. ISD should formalize a project planning system that includes defining projects and estimating costs and ISD staff hours needed for the life of projects in advance and a standardized staff project planning and scoping process outlining life-of-project milestones and deliverables.

It is not necessarily appropriate for every project to have a formal scoping or reporting process. As noted above, some ISD “projects” are just equipment purchases and installations, for instance, which are fairly straightforward work efforts to engage in. However, as noted above, ISD does not have a clear and consistent definition of an IT project, which in turn would inform needed levels of planning for work efforts, resources, and risks. Lack of clarity about project types can have many different negative effects. The County should know, for example, exactly what type of project is being embarked on before it begins. Every type of project classification will indicate different things regarding scopes of work, budget requirements, staffing requirements, oversight requirements, timelines, or project risk. Having the appropriate level of follow-up and oversight on these issues are basic principles of management and project management. It is not software or technical limitations that have been deficient at ISD but rather failures in the business process: specifically, correctly identifying and understanding the County’s project portfolio. This means that project planning resources may be misallocated among projects. At the exit conference, ISD stated that it implemented a new classification system to better capture different types of projects.
ISD project implementation

Over the four-year period reviewed from FY 2012-13 through FY 2015-16, project values ranged from $25,000 to $11,000,000, a difference in magnitude of 440 times. One of ISD’s projects lists covering only FY 2015-16 projects contained rough estimates of required staff time for recommended projects that ranged from 1 to over 10,000 hours. ISD management has indicated that, in the future, a $10 million project will only be allocated an initial amount of money for a discovery phase (or a process of assessing the project’s scope, requirements, feasibility, budget, and deliverables) after which funds will be allocated and disbursed as appropriate year over year. At present however, it does not appear that ISD is conducting a discovery process and appropriately phasing its large, complex projects with right-sized budgets. We recommend that the Board establish a General Fund project reserve and require annual appropriations for projects, rather than continue the practice of appropriating enough funds for several years of project spending in a single year’s budget.

Particularly during the early part of our four-year project review, it does not appear that ISD was subjecting projects to the appropriate level of vetting or clarification. A systematic method was not in place for following up on these projects or monitoring potential issues as they proceeded. Accountability for project progress was not explicitly assigned to project managers by ISD executive management. As noted above, there have been recent improvements with ISD and BITS processes, including more detailed business case justifications being prepared by ISD and submitted to BITS as well as expanding the number of PMO staff. However, these changes in process require additional formalization of project classification, staff project planning and scoping, and assigning accountability for project deliverables to professional project managers.

This lack of project prioritization and planning has led to allocating annual funding to projects that ISD cannot complete within the upcoming fiscal year. The information in Exhibit 1.5 above, shown again below as Exhibit 1.7, demonstrates that ISD was unable to spend $53.7 million, or 41 percent, of its General Fund allocation for Countywide projects. As noted above, at the exit conference ISD stated that its annual appropriations for project spending were intended to cover project costs for three to five years and as a result did not spend its allocated funds during the fiscal year for which the funds were appropriated.
Exhibit 1.7: ISD General Fund Project Budget to Actual Summary, FYs 2013-14 to 2015-16

<table>
<thead>
<tr>
<th>FY</th>
<th>Modified Budget</th>
<th>Actual Expenditures</th>
<th>Underspending</th>
<th>% Underspent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>$47,313,285</td>
<td>$29,097,801</td>
<td>$18,215,484</td>
<td>38%</td>
</tr>
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<td>31%</td>
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<td>$23,323,737</td>
<td>54%</td>
</tr>
<tr>
<td>Total</td>
<td>$130,477,996</td>
<td>$76,791,766</td>
<td>$53,686,230</td>
<td>41%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division of ISD data

Project “Owners” versus Project “Managers”

By virtue of their positions, ISD division managers have historically served as the “owners” of projects their division sponsors and assumed responsibility for carrying these projects through to conclusion. This is in contrast to the purpose of ISD’s relatively new Project Management Office (PMO),\(^4\) where dedicated project management staff assumes responsibility for discrete work efforts, including managing projects regardless of a project’s originating ISD division. However, as noted in the introduction to this section, the PMO has not been adequately resourced or relieved of other non-project management duties to carry-out project management functions for Countywide projects. Exhibit 1.8 summarizes project owners for FY 2012-13 through FY 2015-16 by ISD division. Of the 71 projects reviewed, the PMO was responsible for only eight of the 71 (or 11.3 percent of the total). At the exit conference, ISD stated that it had expanded the number of PMO staff by approximately 4 FTEs and assigned additional PMO staff to Public Safety and Justice, Security, Finance, and Office 365 projects.

\(^4\) Established in FY 2013-14
Exhibit 1.8: Project and Division Managers for FY 2012-13 – FY 2015-16 ISD Projects

<table>
<thead>
<tr>
<th>ISD Division Manager</th>
<th>Number of Active Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Safety and Justice Division Manager</td>
<td>17</td>
</tr>
<tr>
<td>Retired Division Manager</td>
<td>12</td>
</tr>
<tr>
<td>Networking Division Manager</td>
<td>9</td>
</tr>
<tr>
<td>Customer Service &amp; Core Applications Division Manager</td>
<td>8</td>
</tr>
<tr>
<td>Project Management Office</td>
<td>8</td>
</tr>
<tr>
<td>Enterprise Content Division Manager</td>
<td>4</td>
</tr>
<tr>
<td>Business Relationship Management</td>
<td>3</td>
</tr>
<tr>
<td>Finance &amp; Administration</td>
<td>2</td>
</tr>
<tr>
<td>Multiple Division Managers</td>
<td>3</td>
</tr>
<tr>
<td>Infrastructure Division Manager</td>
<td>2</td>
</tr>
<tr>
<td>Non-ISD</td>
<td>2</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>71</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of Information Service Department project data

In general, ISD division managers may not be the best suited to deliver final projects, as many of them already have extensive production responsibilities. In addition, ISD division managers are not well-positioned to coordinate across ISD divisions or County departments, which is required for completing complex projects that touch many aspects of the County’s operations and services. Current practices result in limited bandwidth for active, organized management and oversight of County IT projects and may lead to delays; projects that do not deliver expected or intended outcomes, and outcomes that cannot be easily evaluated because they were never concretely defined.

CONCLUSION

During FY 2012-13 to 2015-16, ISD did not track progress towards ultimate deliverables, total budget, timeliness, and staff time dedicated to IT projects. The Department lacked a standardized definition of what constitutes an IT project and, therefore, could measure project progress with precision. The Department does not maintain a centralized comprehensive project inventory with key information for all active project work. This lack of information is both a symptom and contributor to the County’s and the Department’s deficient project planning process, which did not have project tracking information available for making funding decisions. As a result, some projects have gone over budget and exceed expected completion dates. Overall, however, the
lack of management information and knowledge regarding project work has resulted in the allocation of project funds to ISD in excess of what can be spent. Over the course of FYs 2013-14 – 2015-16, ISD did not spend 41 percent of its General Fund allocation for Countywide IT projects, or $53,686,230.

RECOMMENDATIONS

The Board of Supervisors should:

1.1 Adopt an information technology project reserve and appropriations policy to establish a General Fund reserve for projects and appropriate from those reserves amounts needed for project work in each year, as opposed to appropriating in a single year funds intended to cover several years of costs. (Priority 1)

ISD should:

1.2 Update its staff time keeping practices and its internal service fund cost allocation model to track staff time spent on projects. (Priority 3)

1.3 Formalize a project planning system that includes defining projects and estimating costs and ISD staff hours needed for the life of projects in advance and a standardized staff project planning and scoping process outlining life-of-project milestones and deliverables. (Priority 2)

1.4 Institute a project information tracking and management monitoring practice that includes: (Priority 1)
   a. estimated and actual timelines of projects for the life of the project and by fiscal year,
   b. estimated and actual budgets and spending on projects, including in-house staff hours and costs, for the life of the project and by fiscal year,
   c. all projects and initiatives in a centralized list that represents all of ISD’s project work.

1.5 Institute a project progress reporting schedule to the CIO and to BITS that presents the following information for all new and ongoing projects: (Priority 1)
   a. original project timeline for life of the project and by fiscal year,
b. modified timeline, if any, with reference to original timeline continually reported for life of project for comparison,
c. actual timeline and milestone dates, with explanations of variances from original and/or modified timeline,
d. original project costs and ISD staff hours for life of project and by fiscal year,
e. modified project costs and ISD staff hours if any, with reference to original costs and staff hours continually reported for life of project for comparison,
f. actual project costs and staff hours expended, with explanations of variances from original and/or modified costs and staff hours estimated.

SAVINGS, BENEFITS AND COSTS
Implementing these recommendations will allow ISD to better understand the delivery status of its various projects and the department’s capacity to take on additional projects and will allow ISD to focus resources on mission critical projects. These recommendations will also allow the County to fund IT projects at levels consistent with what ISD can accomplish, freeing up appropriated but unexpended General Fund dollars, which totaled $53.6 million over the past three fiscal years, for other purposes. Given the staffing level of PMO and ISD overall, we estimate that implementation of these recommendations can be accomplished within the department’s existing budget allocation. At the exit conference, ISD stated its current financial plan included rollout of new project management software, Planview, which will facilitate implementation of the above recommendations.
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Section 2. Information Security

**Background**
The County has designated the Chief Information Security Officer (CISO) responsibility for maintaining and managing the programs that ensure the security of County data and systems. The CISO’s responsibility extends to all County departments, including ones that have their own IT functions such as the Santa Clara Valley Health and Hospital System and the Social Services Agency. The CISO is responsible for compliance with numerous state and federal laws and the County’s laws and policies regarding security and privacy of data.

**Problem**
The Chief Information Security Officer (CISO) is supposed to develop and monitor compliance with County security policies and State and federal laws governing information security and privacy but is not doing so due to lack of staff and management direction. The CISO and his team are instead focused on remediating imminent security threats and vulnerabilities identified in testing in FY 2014-15, as well as reviewing large IT procurements for potential security vulnerabilities. In addition, the CISO is supposed to but does not review purchases of fixed assets, low-value assets, or software for ISD-supported departments. This is to ensure that purchases of such items do not introduce or expand gaps in the County’s information security.

**Adverse Effect**
Leaving many of the CISO’s key job duties unperformed leaves County data, including federally protected patient data and other confidential or sensitive information, and County information systems at risk of unauthorized access, tampering, and destruction. This in turn could expose the County to legal liability, hamstring its operations, and erode public trust. The median cost of 963 nationwide cyber incidents, according to a 2016 report by the RAND Corporation, ranged from $150,000 to $1,340,000, depending on the classification of exposed data and type of security breach.

**Recommendations, Savings and Benefits**
The CISO and County management should finalize the County’s information security policies and responsibilities for ensuring departmental compliance with such policies and codify the policies in Board Policy. In addition, the County should create four additional information security positions: one Information Security Risk Analyst Manager, one Information Security Engineer Manager, and two IT Security Auditors. This will protect the County from cyber threats, including legal liability, disruption of County operations, and erosion of public trust that a successful cyber-attack could cause.
Background

According to an inventory maintained by ISD, the County has at least 53 information systems used by departments across the Countywide enterprise. As shown in Exhibit 2.1 below, many of these systems contain sensitive, confidential, and/or Health Insurance Portability and Accountability Act (HIPAA) protected data, which, if breached, could expose the County to legal liability and large fines. The County has designated the Chief Information Security Officer (CISO) to maintain and manage the programs that ensure the security of these data. The CISO’s responsibility extends to all County departments, including ones that have their own IT functions such as Santa Clara Valley Health and Hospital System and the Social Services Agency.

Exhibit 2.1: County information systems with sensitive and confidential data information

<table>
<thead>
<tr>
<th>Data contains</th>
<th>Client Addresses</th>
<th>Social Security Numbers</th>
<th>Driver’s License Number</th>
<th>Credit Card Number</th>
<th>Bank Account Number</th>
<th>Medical Records</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Count</td>
<td>35</td>
<td>8</td>
<td>10</td>
<td>2</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Percent of 53 systems*</td>
<td>67%</td>
<td>15%</td>
<td>19%</td>
<td>4%</td>
<td>17%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: ISD

* Percent of total sums to more than 100% because many systems have multiple data classifications. One system did not contain any data classification information in the system inventory.

The CISO, a full-time permanent position, sits and is budgeted in ISD and is responsible for managing the Security division. The current CISO has been in his role since December 2015. Prior to that, the CISO functions were vested in a contractor. As of April 2016, the Security division team consisted of nine budgeted positions: the CISO, two Information Security Engineers, one IT/Planner Architect dedicated to the CJIC upgrade, and five vacancies. A consultant position was also budgeted and filled at that time.

The CISO has a dotted line reporting relationship with the Chief Information Officer (CIO), or ISD Director, but reports directly to Office of the County Executive. The purpose of reporting directly to the Office of the County Executive is to elevate the

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1 The Management Audit Division believes this system count is an underestimate of the County’s total number of information systems, given that the inventory does not list certain applications we are aware of such as EPIC for electronic medical records.
CISO’s authority in developing and monitoring compliance with Countywide security policies and to separate management of IT operations, which is in ISD’s ambit, and IT security regulations, which are managed by the CISO.

The CISO’s nominal role

The CISO role has several functions according to its job description, including: developing and ensuring departmental compliance with County information security policies and remediation security risks and incidents as they occur. However, as discussed further below, the CISO and his staff are only fulfilling a portion of these obligations, specifically, remediating recently identified security vulnerabilities and reviewing the security aspects of large IT procurements (but not smaller purchases) for potential IT security vulnerabilities.

As noted above, the County has at least 53 information systems with varying levels of data confidentiality. In many cases, the County is legally obligated by laws such as the federal Health Insurance Portability and Accountability Act (HIPAA) to secure sensitive or confidential data contained within its information systems and is legally liable in the event of noncompliance.

According to a 2016 report by the RAND Corporation, the median cost of 963 reviewed cyber incidents nationwide, such as system intrusion by unauthorized parties, data theft and malware attacks, ranged from $150,000 to $1,340,000, depending on the classification of exposed data. The same report found that government had the highest cyber incident rate of any other industry, including education, information services, and finance.

Over the 2014-15 and 2015-16 fiscal years, at least 11 California public entities, including several County hospitals and several public university hospitals, reported major breaches of HIPAA-protected data affecting a total of nearly five million patients. The extent of penalties against these providers is not yet known but is likely many millions of dollars based on settlements in earlier breaches. For example, a Florida nonprofit hospital which improperly disclosed the information of 115,000 patients to affiliated physicians’ offices was fined $5.5 million in February 2017.

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Further, the risk and cost of cyber incidents may increase as the County continues to consolidate IT services. Centralization will bring more records under ISD control and standardize what are now variable security practices with ISD’s practices, magnifying any weakness in County policy across the enterprise. Therefore, it is critical that the County have a robust and effective information security program in place to protect its data and the integrity of its systems.

Santa Clara County faces ongoing cybersecurity threats. According to the CISO, his team fielded approximately 632 security related service requests and incidents between April 2016 and March 2017.

**The Chief Information Security Officer (CISO) is not developing and monitoring compliance with Countywide security policies**

In June 2002, the Board of Supervisors approved a resolution outlining a series of IT security principles and authorizing ISD’s CIO to develop policies to support these principles. These policies were developed by ISD in conjunction with other departmental County IT managers and have been revised over time, most recently in January 2015. The purpose of the security policies is “to define a common environment within the County that fosters system security; ensures data integrity and privacy; and prevents unauthorized access, misuse, damage to, or loss of County IT assets and/or data.” The policies apply to all County systems and data.

According to its job description, the CISO is supposed to serve all County entities and ensure the security of their systems. This includes: 1) responding to real-time security threats (such as viruses or unauthorized access of private information), 2) preventing security incidents by reviewing software, service, and hardware purchases and testing departmental security programs and systems for vulnerabilities, and 3) developing and enforcing countywide policies to ensure compliance with federal, state, and local regulations. Further, the CISO is identified as the business owner of all of the County’s information security policies, meaning that he or she is ultimately responsible for their implementation.

However, according to interviews with the CISO, he and his team mostly focus onremediating imminent security threats and vulnerabilities that were identified in the FY
2014-15 penetration test\(^3\) as well as reviewing large IT procurements for potential security vulnerabilities. This was further confirmed in ISD’s FY 2016-17’s budget request for an additional position, which stated: “This Information Systems Analyst will play a critical role in shifting routine work away from Information Security Engineers to free these technically-skilled resources to address higher level issues on a more timely basis.” Because the CISO and his team are focused on imminent security threats and high dollar value procurements, they do not review smaller purchases nor ensure departmental compliance with County security policies, as described more fully below.

Through interviews with the CISO, review and testing of ISD data, and surveying ISD customers, the Management Audit Division reviewed the CISO’s practices for ensuring Countywide compliance with the County’s IT policies. We examined these policies using methods set forth in the U.S. Government Accountability Office’s 2009 Federal Information System Controls Audit Manual (FISCAM). FISCAM provides methodologies for assessing the effectiveness of information security controls for performance audits that rely on “generally accepted government auditing standards” (GAGAS), as this audit does.

Exhibit 2.2 below identifies County information security policies for which the CISO is not playing the key role of ensuring that departments comply with the County’s information security policies, as called for in the CISO’s job description. Though the current CISO has been on the job since December 2015 and inherited the resources and practices of the office, ISD representatives report that the Department has never assumed responsibility for ensuring that all County departments and agencies are in compliance with the policies since their adoption by the Board of Supervisors in 2002. Cases in which the CISO is supposed to take additional action and for which our review revealed deficiencies in County practice are further described in the narrative following Exhibit 2.2. At the exit conference, the CISO stated that initiatives are underway to address many of the security deficiencies identified below.

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\(^3\) A penetration test assesses the County’s information security systems that are in place to prevent unauthorized access.
Exhibit 2.2: CISO’s role in ensuring County information security policies

<table>
<thead>
<tr>
<th>County Policy</th>
<th>CISO Role</th>
<th>Problems with current implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granting of Administrative Privileges to Staff</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether all departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD could not generate a list of users with administrative privileges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD could not detail process by which users were granted administrative privileges</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD could not detail process by which administrative accounts of departing employees were secured</td>
</tr>
<tr>
<td>Policy to Secure Business Applications</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Backup Policy to Ensure Continuous Operation of Critical Systems in Event of Failure</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments have backup systems in place in compliance with this policy, leaving business critical applications at risk of failure or delays in reestablishment of critical systems</td>
</tr>
<tr>
<td>Change Control Policy to Prevent Unauthorized Changes to Systems</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Cloud Service Providers Policy to Secure Cloud-based Applications</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD not reviewing all IT purchases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* No procedure in place for ISD to review all purchases</td>
</tr>
<tr>
<td>Data Classification Policy to Identify and Manage Sensitive Information</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Disaster Recovery and Business Continuity Policy</td>
<td>Ensure departmental compliance</td>
<td>* No criteria governing whether applications are deemed ‘business critical’</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* The County’s human resource management system, deemed business critical but does not have a disaster recovery plan in place</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Email Policy to Ensure Proper Use of County Email</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Encryption Policy</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
</tbody>
</table>
## Section 2: Information Security

<table>
<thead>
<tr>
<th>County Policy</th>
<th>CISO Role</th>
<th>Problems with current implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information Security Policy</td>
<td>Ensure departmental compliance</td>
<td>* ISD not does not monitor or assess existence or strength of departmental security plans</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Nearly half of Management Audit Division survey respondents did not prepare an Information Security Plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* A further quarter of respondents did not update their Information Security Plan annually, as required by the policy.</td>
</tr>
<tr>
<td>Incident Response Policy to Ensure Effective Responses to Security Incidents</td>
<td>Ensure departmental compliance</td>
<td>* No procedure in place for departments to notify ISD of incidents</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* No designated departmental incident response coordinators</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* No centralized Countywide incident response log to monitor whether incidents are remediated</td>
</tr>
<tr>
<td>Local User Logon and Authentication Policy to Prevent Unauthorized Access to County Systems</td>
<td>Ensure departmental compliance</td>
<td>* Variability in password strength among departments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Users may have multiple accounts unnecessarily</td>
</tr>
<tr>
<td>Physical Access Policy to Prevent Unauthorized Access to County IT Infrastructure Equipment</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Vulnerabilities identified in most recent penetration test are not being followed up on</td>
</tr>
<tr>
<td>Policy to Secure Remote Access Connections</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* Up until July 2016, there was no security review of remote access requests for non-County users and instead such requests were simply granted by departments when asked</td>
</tr>
<tr>
<td>Removable Storage Media Policy</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy that defines which storage media are acceptable , leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Policy to Define Standards for Wireless Technology Use</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not monitor or assess whether departments comply with this policy, leaving business critical applications at risk of failure and/or breach</td>
</tr>
<tr>
<td>Mobile Device Policy</td>
<td>Ensure departmental compliance</td>
<td>* ISD does not have a list of approved mobile devices that are compatible with the County’s systems and security standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD does not check to see if malware prevention software is installed on all devices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* ISD does not monitor data back-up or disposal for mobile devices</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis
Policies presented in Exhibit 2.2 in which the CISO should be playing a key role, according to the 2002 resolution establishing the County’s IT security policies and the CISO job description, are now discussed in more detail.

**Administrative Privileges Policy**

According to the County’s Administrative Privilege Management Policy, “Departments shall establish a procedure that ensures only authorized individuals (i.e., ‘Administrators’) are provided with enhanced system privileges for administrative and/or maintenance purposes.” Administrative privileges allow users greater access to files and allows them to install and make changes to programs and systems. As noted above, the CISO is not systematically reviewing the existence and adequacy of departmental security policies, including whether departments have a robust procedure for granting administrative privileges within their organizations. In addition to variable and potentially weak departmental procedures for allowing users to request administrative privileges, current ISD practice regarding granting user requests for such privileges may be deficient.

Currently, administrative privileges are granted by ISD’s Help Desk to County employees not only in ISD but in other County departments with their own IT staff. However, in response to a request from the Management Audit Division, ISD could not provide a list of users that had accounts with administrative privileges, nor detail the process by which privileges were granted and subsequently reviewed for business need or terminated for employees who separated from County service.

Widespread and unnecessary use of administrative accounts can increase the risk of unauthorized access and privacy breaches. In addition, they have the potential to greatly magnify malware attacks. Compromised administrative accounts can do much greater damage to County information because of their access and ability to make changes to programs and systems. According to a report on security incidents in the public sector in 2015 by Verizon, privilege misuse was the second leading cause of security incidents, accounting for 22% of cases. At the exit conference, the CISO stated that the County is updating its administrative privileges procedures to mitigate the risks identified in this audit and in a previous security audit. Disaster Recovery and

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4 2016 Data Breach Investigations Report, Verizon
Business Continuity Policy

According to the County’s Disaster Recovery and Business Continuity Policy, “Each Department shall develop a Disaster Recovery Plan (DRP), as well as a Business Continuity Plan.” Again, as noted above, though required to do so as part of its job description and County Information Security Policies, the CISO is not systematically reviewing the existence and adequacy of departmental security policies, including whether departments have a robust disaster recovery and business continuity plans.

Additionally, the CISO has a very limited role in ISD’s disaster recovery and business continuity plan. The purpose of disaster recovery (DR) is to ensure that the County’s business critical systems can survive a disaster and be restored as soon as possible in order to enable the County to continue delivering services. The ISD Infrastructure Group (the division that maintains the hardware and operating systems for County applications) has identified the County’s financial and budgeting system, human resource management system, and the time keeping system as top priority business critical systems to be restored within 24 hours of a disaster and has disaster recovery plans in place for these three programs that have been recently tested. However, ISD reports that it does not have a disaster recovery plan in place for the human resource management system. In addition, ISD could not produce disaster recovery plans for the additional 32 “priority” business critical applications on its list. Without tested disaster recovery plans in place and accessible, priority systems may not be recovered with the speed necessary to ensure continued delivery of County services other than the County’s financial and budget system, and personnel time-keeping for County employees after a disaster. These systems support critical County services such as criminal justice, medical examiner and welfare warrants services as well as providing storage and County email access.

General Security Policy

Per the County’s General Security Policy, every County department is supposed to prepare and annually update an Information Security Plan to detail how they will comply with the County’s information security policies adopted by the Board of Supervisors. The CISO stated in interviews with the Management Audit Division that he does not have the resources currently to review or confirm the existence of departmental security plans even though this is required in his job description and to the County’s General Security Policy.
The lack of monitoring of departmental compliance was confirmed by responses to our survey of ISD customer departments. Half of the County department and agency respondents to the Management Audit Division survey stated they did not have a departmental security plan that details how they comply with the County’s information security policies. A further 25 percent reported having a security plan but not did not update it annually as required by County policy. This means that department-specific programs, systems, and data may not have their security vulnerabilities assessed and remediated with regularity and that the strength of each department’s security plan is not tested against the expertise of the CISO. This therefore may expose the County to unnecessary risk of data breach, inappropriate use of County systems, and/or legal liability. At the exit conference, the CISO stated that until recently he did not have sufficient staff to review and provide recommendations to each County departments’ security plans.

**Incident Response Policy**

The County does not have an incident response procedure in place to let the CISO know of all security incidents that occur at County departments and agencies. Without knowledge of such incidents, the CISO is not able to remediate the problem(s) and the County is vulnerable to repeated exploitations of the same vulnerability. According to the County’s IT Security Incident Response Policy, each department is supposed to participate in the County’s Incident Response Program and identify a primary and backup incident response coordinator to serve as the primary point of contact with the CISO to implement security remediation strategies for their department and to notify all other security incident coordinators Countywide of security incidents, even if they appear to be effectively remediated. However, such a Countywide incident response system is not actually in place. Instead, if the CISO is notified of security incidents, it is in an ad-hoc fashion through a variety of mediums, including: ISD’s ticket system [Help Desk], phone calls and emails from affected parties directly to him or his colleagues, and conversations with other IT managers in the County. In other instances, the CISO might not even be notified of the incident as there is no enforcement of the security incident response policy to ensure that all incidents are so reported. Without Countywide knowledge of all security incidents, the CISO cannot ensure the vulnerabilities are remediated across the enterprise. Failure to report some types of incidents may increase County liability. For example, in January 2017, a health provider was fined $475,000 for failure to notify all required parties of a breach within 60 days as
required by HIPAA. At the exit conference, the CISO stated that efforts are underway to update the County’s incident response procedures.

**Physical Security Policy**

According to the County’s Physical Security Policy, the CISO is supposed to ensure the physical security of “computer/server rooms, communications closets, and other places where critical department and County computing infrastructure equipment resides.” In addition, according to its job description, the CISO is supposed to oversee “vulnerability assessments and penetration testing” to test the robustness of County information security systems.

To determine security vulnerabilities, the County’s penetration testing contractor attempts to gain access to County systems from both on and off of the County network and also attempts to gain physical access to areas that are supposed to be secured against public access, such as the Data Operations Center. After the penetration test, the contractor documents their findings in a report to the CISO. The Management Audit Division reviewed the reports and the documentation of remediation efforts undertaken by the CISO and County’s IT Security Working Group (interdepartmental, high-level forum to meet and confer regarding Countywide security issues and strategy). While these remediation efforts generally conform to best practices outlined in the U.S. Government Accountability Office’s Federal Information System Control Audit Manual physical vulnerabilities identified in the most recent annual penetration test have not been followed up on within the Security Working Group nor referred to others at ISD or the County for remediation, as required by GAO FISCAM. This means that County IT infrastructure, such as servers, mainframes, and the network operations center, is unnecessarily vulnerable to unauthorized access and tampering.

**Remote Access Policy**

According to the County’s remote access policy, the CIO’s designee must review and approve all non-County infrastructure used for remote access. This includes access to the County network from non-County organizations and employees’ homes. During audit testing, the Management Audit Division learned that departmental requests for non-County remote access were forwarded to ISD’s Help Desk, which were then granted, “solely on the receipt of the remote access forms” – assuming that the requesting department had vetted the request for security purposes. ISD did not
monitor whether remote access provisions were included in contracts with County professional service vendors.

After our audit inquiries regarding remote access, ISD changed its practice to include the CISO’s review for remote access requests from non-County employees. This included updating the remote access request form to distinguish County from non-County requests, indicating on the form that CISO approval is required for non-County requests, and requiring that the non-County requests included amendments to the contract with the non-County entity that specify the scope and rules of remote access to County networks. ISD could not locate such contract amendments for prior authorizations for non-County remote access.

**Potential causes for lack of CISO oversight of County information security policies**

The CISO is not exercising the existing authority of the Security division to enforce County security policies. This is because the CISO’s role and responsibilities regarding overseeing departmental compliance with County information security policies need better definition. The CISO’s job description describes the job as having a Countywide oversight role, but there are no procedures that address how to enforce these policies in instances of non-compliance. Although the CISO reports to the County Office of the County Executive, the CISO does not have audit authority and may be ignored by departments. Unlike other jurisdictions, such as Los Angeles County and the City and County of San Francisco, Santa Clara County does not have any positions devoted to auditing compliance with County information security policies and industry best practices. A 2015 peer review of the Santa Clara County Internal Audit division recommended that the County hire staff to “perform information technology audits and assess governance over the acquisition and use of information technology.”

The CISO is understaffed to perform Countywide oversight functions. As noted above, currently the CISO and his staff spend most of their time and effort on remediation of vulnerabilities as they become known and on reviewing large IT procurements for security vulnerabilities. Over the three year period between FY 2012-13 and FY 2015-16, the CISO office has had 1 – 3 FTEs at any given time to serve an enterprise of approximately 17,000 FTEs. As of April 2016, there were five FTEs in the CISO office serving 17,833 FTEs countywide. No other Santa Clara County departments have dedicated IT security positions.
According to a review of international IT security spending, organizations of ISD’s size were expected to spend 7% - 9% of their total IT budget on security. By contrast, the CISO’s division comprised 1.6% of the original $99,532,855 ISD budget in FY 2016. Similarly, our review of IT security staffing trends found security staffing varied in proportion to an enterprise’s total FTEs and/or total IT FTEs. Based on those studies and Santa Clara County’s staffing levels in FY 2015-16, the County as a whole should have between 16.5 to 51.5 total FTEs (average 28.5 FTEs) devoted to information security. However, as of March 2017, the CISO has 11 FTEs and 4 contractors, all of whom report to the CISO.

We surveyed other counties to understand their information security organizational structure but found limited generalizable insights due to the variation in IT centralization. We note that Los Angeles County incorporated the CISO’s job description and Los Angeles County’s information security policies in their county code of ordinances in order to facilitate their enforcement. In Los Angeles County, security governance is devolved from the CISO to departmental Security Officers who manage specific department security needs. Compliance with information security policies is ensured by the Los Angeles County Auditor-Controller. They audit three to four departments per year using IT auditors. A similar division of labor has been implemented in San Francisco during the 2016-17 fiscal year. This division of labor allows the CISO to focus on higher-level activities such as policy development while the County’s auditors ensure compliance with such policies.

Relatedly, Santa Clara County’s semi-decentralized IT organizational structure means that some departments have large IT staff while others have minimal IT staff, yet all departments are expected to be aware of their security needs and draft and annually update their security policies. For smaller departments, it may not be feasible for them to manage their own IT security. This may put additional pressure on the CISO and his staff to understanding departmental security needs, operationalizing policies, in addition to reviewing plans and ensuring compliance with County policy.

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6 The range of FTEs was based on five studies of IT security to total enterprise FTEs: (1) “Information Security and Data Privacy Staffing Survey 2011,” Information Shield, January 2012; (2) “2016 Deloitte-NASCIQ Cybersecurity Study,” Deloitte University Press 2016; (3) Information Security Management Handbook, CRC Press 2007; (4) summaries of West Virginia Office of Technology staffing as of 2010; and (5) summary of City of Sacramento IT staffing as of 2010.
After conferring with the CISO regarding staffing, we recommend four additional positions: one Information Security Risk Analyst Manager, one Information Security Engineer Manager, and two IT Security Auditors. The additional Information Security managers will allow the CISO to focus on higher level policy issues and the IT Auditors would ensure departmental compliance with the County’s information security policies. All positions should report to the CISO and the IT Auditors should have a dotted line reporting relationship with the County’s Internal Auditor to ensure such audits meet government auditing standards. As in Los Angeles County and the City and County of San Francisco, the IT Auditors would audit a selection of County departments and agencies each year. The total cost of these additional positions is unknown because the County does not currently have job classifications for the Information Security Risk Analyst Manager and Information Security Engineer Manager. The County does have job specifications for Management Information Systems Auditor and a Senior Management Information Systems Auditor, however those job specifications have not been updated since 1996 and neither of those classifications were funded positions in FY 2016-17.

**The CISO does not review purchases of fixed assets, low value assets, or software of ISD or supported departments**

Per the CISO’s job description, the CISO’s office is supposed to review purchases of IT assets and services for potential security vulnerabilities. During the audit review period, vacancies in the information security group prevented security review of all County IT purchases. However, as of March 2017, the CISO has two personnel and one vacant position that are qualified to do this work. The CISO stated that filling the remaining position will allow his team to review all of the County’s IT purchases. This would ensure that purchases of such items do not introduce or expand gaps in the County’s information security and to ensure compliance with the County’s information security policies and other regulations.

The Management Audit Division reviewed the inventories of IT assets for ISD and other County departments maintained by ISD. As discussed in Section 6 of this report, the inventories are incomplete. Though incomplete, we drew sample purchases from these inventories and reviewed them with the CISO to determine whether the purchases had undergone a security review. The inventories were drawn from three asset lists: fixed
assets, or those with a value of $5,000 or more, low value assets, or those with a value of less than $5,000, and software purchases.

**Fixed Assets.** Fixed assets are generally defined as equipment having a value greater than or equal to $5,000. None of the thirteen fixed assets in our sample had been reviewed by the CISO. The sample consisted of servers from various manufacturers, a router, a network switch,\(^7\) and a cargo van. The total purchase value of the sample assets was $252,330 and all were purchased between Fiscal Years 2013-14 and 2015-16. Some fixed assets, such as the van, pose a limited threat to security and could reasonably be free from CISO review. Other purchases, such as servers, could pose a substantial security threat without security review.

Most IT assets come with their own software, but are still vulnerable if they are not properly patched. Patches are software upgrades by system manufacturers that are released to users in order to remediate security vulnerabilities discovered after customers acquire and install their product. Hackers seek to exploit such security vulnerabilities. If such vulnerabilities are not remediated through patches (software updates), they may be exploited by hackers to gain access to sensitive or confidential information, or to tamper with business critical programs. A key ongoing role for the CISO’s office after procurement has taken place should be to ensure that the most recent version of the software has been procured, and that all patches are installed subsequent to its purchase.

**Low value assets (LVAs).** Low value assets are movable assets valued at less than $5,000. Our sample included twelve laptops and desktops and one printer from the inventory maintained by ISD. Of the eight items that had purchase dates in the master inventory list, one was purchased in FY 2011-12, three were purchased in FY 2013-14, two were purchased in FY 2014-15, and two were purchased in FY 2015-16. None of the 12 had been reviewed by the CISO’s office.

In our review, the CISO noted several Apple laptops in our sample and reported that there is no County “image” for Apple products, or a standardized and frequently patched set of programs, operating systems, and other software. Because no image exists for Apple products, they pose an ongoing threat to the County’s information security yet are purchased anyway without CISO review.

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\(^7\) A network switch is device that directs network traffic (data) to particular users on a network.
Software. We reviewed a sample of ten software purchases that consisted of licenses for programs made by Adobe, Attachmate, and others. The total purchase price of the software in the sample was $33,050 though three of the ten programs did not have purchase price information recorded in the master inventory. All software licenses in our sample were purchased within the past two fiscal years (FYs 2013-14 - 2015-16), though one of the ten items did not record purchase date information). New software may introduce and expand existing security gaps that could be exploited by hackers and expose the County to operational and legal liability.

None of the software purchases in our sample had been reviewed by the CISO’s office. However, all software in the sample was on a “safe” list provided by ISD’s Technology Resource Management Division. This “safe” list is maintained by ISD’s Technology Resource Management Division team and is based on software licenses in the County’s master contracts with software providers. When licenses are purchased for software on this “safe” list, they are not forwarded by the ISD Technology Resource Management Division to the CISO for review. This assumes that the CISO previously reviewed the original purchase or procurement, which, at least for the samples reviewed for this audit, did not in fact occur. The security reviews may have been conducted by prior CISOs; however ISD does not have any documentation of such reviews.

Our survey of ISD County department and agency customers, described in Section 5, showed similar results to our sample of IT purchases. As shown below in Exhibit 2.3, two thirds of respondents reported that the CISO reviews IT purchases only some or none of the time. According to the survey, the CISO reviewed all IT purchases for responding departments and agencies less than a quarter of the time.
Exhibit 2.3: Response to survey question asked of all County departments and agencies; “Does the CISO review the following types of purchases by your department/agency?”

<table>
<thead>
<tr>
<th></th>
<th>All Purchases</th>
<th>Most Purchases</th>
<th>Some Purchases</th>
<th>No Purchases</th>
</tr>
</thead>
<tbody>
<tr>
<td>IT equipment valued at $5,000 or more</td>
<td>33%</td>
<td>7%</td>
<td>13%</td>
<td>47%</td>
</tr>
<tr>
<td>IT equipment valued at less than $5,000</td>
<td>14%</td>
<td>7%</td>
<td>21%</td>
<td>57%</td>
</tr>
<tr>
<td>Software</td>
<td>21%</td>
<td>14%</td>
<td>21%</td>
<td>43%</td>
</tr>
<tr>
<td>Total</td>
<td>23%</td>
<td>9%</td>
<td>19%</td>
<td>49%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers

Based on our review, ISD needs policies and procedures to ensure that the CISO reviews or provides criteria by which to assess the security risk of purchases of fixed assets, low value assets, and software (including software not previously reviewed but on the “safe” list).\(^8\) Without such a review, equipment and software purchases may not have publicly known security vulnerabilities remediated. This poses a danger to the County’s information security and needlessly exposes it to data loss, privacy breaches, failure of business critical systems, and inappropriate use of County systems.

**Potential causes for lack of CISO review of IT purchases: the need for Countywide security training**

Per the County’s General Information Security Policy, departments are supposed to ensure that all users receive “appropriate” training in information security. Security awareness training can range from basic materials such as the need for regular password changes and how to avoid phishing attacks for all employees to more complex technical topics for IT staff. Per the CISO job description, the CISO’s office is supposed to oversee departmental compliance with this policy and “provide leadership” on “security awareness and training.” However, in interviews with the

\(^8\) Software may have been added to the safe list by ISD Technology Resource Management staff before the current CISO’s tenure and therefore never reviewed.
Management Audit Division, the CISO stated that he is unaware of any comprehensive information security training available for County employees but would like to develop such training in the future. This means that County employees may not be aware that IT purchases pose a potential information security threat. Additionally, because the CISO is not confirming the existence of nor reviewing departmental security plans, there is no established County procedure (except for the problematic software “safe” list) for evaluating and remediating the security risk of IT purchases.

CONCLUSION

The Chief Information Security Officer (CISO) function was brought in-house in ISD in 2015 and is growing but still not fulfilling all of the duties in its job description or needed to ensure Countywide compliance with its IT security policies and state and federal laws. This leaves County data, including HIPAA-protected data and other confidential or sensitive information, and County information systems at risk of unauthorized access and disruption. The CISO’s office is understaffed to perform all of its duties and should hire four additional positions: one Information Security Risk Analyst Manager, one Information Security Engineer Manager, and two Information Security Auditors.

RECOMMENDATIONS

The Board of Supervisors should direct the County Executive to:

2.1 Work with the Chief Information Security Officer (CISO) and ISD to finalize the County’s IT security policies and codify them in Board Policy to enhance the CISO’s ability to enforce these policies. (Priority 1)

2.2 Create additional cybersecurity positions: one Information Security Risk Analyst Manager, one Information Security Engineer Manager, and two IT Security Auditors, the latter two positions to report the CISO and have a dotted line reporting relationship to the Internal Auditor. (Priority 1)

2.3 Direct ISD and the CISO to strengthen procedures to enhance security review of new purchases. (Priority 2)
2.4 Direct ISD and the CISO to establish procedures for reviewing the necessity of new and previously approved administrative accounts. (Priority 2)

2.5 Direct the CISO to establish procedures directing all County departments and agencies to report security incidents to the CISO. (Priority 2)

SAVINGS, BENEFITS AND COSTS

Implementing these recommendations will help to protect the County from future cyber threats, including breach of sensitive and confidential data. Expansion of the County’s information security function would entail additional costs to train existing staff and hire specialized auditors and security analysts. However, these costs will be offset by avoiding the potential legal liability, disruption of County operations, and erosion of public trust that a successful cyber-attack could cause. The exact costs of the new positions cannot be determined at this time as the classifications recommended currently do not exist or are currently not up-to-date.
Section 3. Human Resource Management

Background
The County’s Information Services Department (ISD) and Employment Services Agency (ESA) share responsibility for recruitment of all employees at ISD. ESA is responsible for posting job announcements, collecting and reviewing applicant materials, administering exams, and ranking applicants onto an eligible list, off of which ISD may hire. ISD is responsible for initiating a requisition to ESA to fill a vacancy and for interviewing all candidates from the referred lists before making a job offer. In addition to normal civil service jobs, or classified positions, the County may hire “unclassified” positions, which typically may only be filled for a maximum of eighteen months and are exempt from certain portions of the civil service hiring process.

Problem
At an average rate of 20 percent for FY 2016-17, ISD’s vacancy rate is higher than the Countywide average vacancy rate of 12 percent and is also higher than other county IT departments. ISD has so many vacancies because it has been difficult to hire external candidates given the County’s existing compensation and recruitment practices. The recruitment process fails to identify suitable candidates, takes too long, and loses applicants who receive and accept positions from other employers.

Adverse Effect
Vacancies occur across all ISD divisions and therefore affect delivery of all ongoing services and projects. Vacancies are concentrated in the Departments’ Public Safety and Justice, Help Desk, Enterprise Content Management (ECM), and Enterprise IT Product Services divisions. This diminishes ISD’s ability to carry out routine services in two of its most customer-facing Divisions (Help Desk and ECM), which in turn may erode customer confidence in the Department’s overall effectiveness.

Recommendations, Savings and Benefits
The Chief Information Officer should direct ISD staff to take steps to shorten recruitment timelines. This will allow ISD to expeditiously fill its vacant positions, which amounted to 62 positions or 18% of its authorized workforce as of April 2017. Implementation of these recommendations may be done within the existing budget of ISD. While a portion of ISD’s vacant positions are back-filled by contractors, ISD is still behind on implementing Countywide IT projects due to understaffing. Filling vacancies will help ISD deliver high-quality, timely projects and services, allowing for efficient use of its salary and project funding allocations.
Background

The County’s Information Services Department (ISD) and Employment Services Agency (ESA) share responsibility for recruitment of all employees at ISD. In general, ESA is responsible for posting job announcements, collecting and reviewing applicant materials, administering exams, and ranking applicants onto an eligible list from which a hiring department may interview candidates and hire. According to ESA, for IT positions, ISD and ESA jointly screen and competitively rate applicants to create an eligible ranked list of candidates. ISD may then choose from the top ten\(^1\) ranked candidates on the eligible list or filter an existing eligible for specific, self-reported skills and choose the top ten candidates from that filtered eligible list.

ISD (or any County department seeking to hire) is responsible for ensuring sufficient funds are available to fund vacant positions, submitting a requisition to ESA to fill the vacancy, interviewing candidates determined by ESA (and sometimes jointly with ISD) to have met the employment standards specified in the job description, and selecting candidates to hire off of the referred eligible list. This process is mapped below in Exhibit 3.1.

\(^{1}\) Final eligible list contain the top ten ranked candidates plus tying scores, if any. If a requisition is for more than one position, the hiring department may review an additional four candidates for each additional position.
Exhibit 3.1: Santa Clara County Recruitment Process for Classified Positions

In addition to normal civil service jobs (classified positions), the County may hire “unclassified” positions. Unlike classified positions, unclassified positions are only filled for a maximum of eighteen months and are exempt from certain portions of the civil service hiring process. The County Charter allows for unclassified recruitment under certain conditions set forth in Section 700 of the County Charter. According to Section 701(a)(8) of the County Charter, the County may hire as unclassified “Persons employed to render professional, scientific, technical, or expert service of an occasional or exceptional character.”

The recruitment process for both classified and unclassified recruitments is governed by Section 700 of the County Charter and the County’s Merit System rules, which are encoded in the County Ordinance Code in Section A25 and can be changed only by approval of both the Board of Supervisors and the Personnel Board. Details of the process are further spelled out in ESA’s Human Resource Practices Manual which details the implementation of the Merit System Rules. Labor agreements with Service
Employees International Union (SEIU), the County Employees Management Association (CEMA) and other unions also affect ISD’s recruitment and human resource practices. Per these agreements, the County must give the opportunity for unions to meet and confer regarding any new labor practice not agreed to in the existing agreement but agreement between the County and unions on new practices is not necessary to the extent the new practice is not covered by the existing labor agreement.

**An ongoing concern**

In interviews conducted for this audit, recruitment of IT talent was identified as an ongoing concern for both ISD and ESA. ISD and ESA began meeting biweekly in 2016 to monitor and discuss the status of IT recruitments and ESA has consolidated responsibility for IT recruitments in one Human Resources Analyst staff member. In March 2016, County management was provided an analysis by the County Executive’s Office regarding IT recruitment and retention in the County. The analysis found that the Countywide vacancy rate for IT positions was 27 percent. While the memo did not cite the Countywide vacancy rate, the Management Audit Division found that the average vacancy rate for Fiscal Year 2015-16 was 15 percent or eleven percentage points lower than the IT vacancy rate discussed in the memo.

The turnover rate of 3.6 percent for IT positions identified in the County memo, however, was consistent with the County average for non-IT classifications. The analysis also found that all County departments had not submitted requisitions for 44% of IT vacancies. In April 2016, ISD and ESA began jointly reviewing all Countywide IT requisitions and add/delete requests in an effort to ensure that departments are best making use of County classifications. In addition, both ISD and ESA are contributing to the IT Career Compass, an analysis currently underway by a consultant to modernize IT job descriptions and career paths across the County.

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3 Add/delete refers to when departments replace an existing position with a new classification.
The state of recruitment at ISD

The number of authorized positions at ISD remained relatively stable between FY 2006-07 and FY 2012-13, with position reductions in the years after the 2008 financial crisis that were mostly restored by FY 2013-14. In addition to regaining lost positions, since FY 2012-13, the number of ISD’s authorized positions has increased by 65 percent, from 208 authorized positions in FY 2012-13 to 343 authorized positions in FY 2016-17. This growth in authorized positions is shown below in Exhibit 3.2.

Exhibit 3.2: Authorized positions at ISD FY 2006-07 – FY 2016-17

![Chart showing authorized positions at ISD FY 2006-07 – FY 2016-17]

Source: Management Audit Division of ESA data

However, ISD has not been able to hire quickly enough to fill new positions, resulting in a high vacancy rate. As shown below in Exhibit 3.3, vacancies accounted for 17 percent of ISD’s authorized positions in FY 2012-13 but increased to 31 percent of authorized positions in FY 2015-16. In FY 2016-17, ISD reduced its average vacancy rate to 20 percent of authorized position, or 70 vacant positions, on average over the year. As of April 2017, ISD had 62 vacant positions or 18 percent of its total authorized positions.
Exhibit 3.3: ISD authorized positions and vacancy rate*

Source: Management Audit Division analysis of ESA data.

* The annual vacancy rates were calculated by dividing the total vacancies in ISD in each pay period by the Department’s total authorized funded positions during the same pay period, and then taking the average rate over the entire fiscal year to determine the average annual vacancy rate. Rates for FY 2015-16 are the average for each pay period through April 25, 2016. Rates for FY 2016-17 were based on three vacancy reports in July 2016, December 2016, and April 2017.
ISD’s vacancy rate is exceptional. While the vacancy rate within the County has remained relatively stable over the past four fiscal years at 12 to 16 percent, ISD’s vacancy rate has remained consistently higher than the County’s, as shown below in Exhibit 3.4.

**Exhibit 3.4: ISD and Countywide vacancy rate, by fiscal year**

![Exhibit 3.4: ISD and Countywide vacancy rate, by fiscal year](image)

Source: Management Audit Division analysis of ESA data

While the high vacancy rate in FY 2015-16 appears to be at least partially related to the increased number of authorized positions in ISD, the Department’s vacancy rate was still eight percentage points higher than the County average in FY 2013-14, before the Department received funding for 132 new positions between FYs 2014-15 and 2016-17.

Compared to similar counties, ISD’s vacancy rate remains exceptional. The Management Audit Division was able to obtain vacancy rates for IT departments in seven other counties and found they ranged from five to 16 percent, below ISD’s 20 percent average rate for FY 2016-17. If Santa Clara County’s IT vacancy rate were...
comparable to the highest rates found in the surveyed counties, 16 percent, it would be comparable to Santa Clara County’s overall 15 percent vacancy rate in FY 2015-16. The table below in Exhibit 3.5 shows the vacancy rate of each benchmark county’s IT department in FY 2015-16 and ISD’s vacancy rate in FY 2016-17.

**Exhibit 3.5: Vacancy rates at IT departments in benchmark counties, and ISD vacancy rate, FY 2016-17**

<table>
<thead>
<tr>
<th>County</th>
<th>Vacancy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresno</td>
<td>5%</td>
</tr>
<tr>
<td>Sacramento</td>
<td>9%</td>
</tr>
<tr>
<td>Alameda</td>
<td>10%</td>
</tr>
<tr>
<td>San Mateo</td>
<td>13%</td>
</tr>
<tr>
<td>Los Angeles</td>
<td>15%</td>
</tr>
<tr>
<td>San Francisco</td>
<td>16%</td>
</tr>
<tr>
<td>Contra Costa</td>
<td>16%</td>
</tr>
<tr>
<td>Santa Clara</td>
<td>20%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of benchmark counties

Note: Vacancy rates for benchmark counties are point in time statistics (from approximately summer 2016) of department-wide vacancy rates for each county’s information technology departments.

Note: ISD’s average vacancy rate for FY 2015-16 was 31 percent but may have been higher than usual due to a large increase in positions that year.

Vacancies occur across all ISD divisions and therefore affect delivery of all ongoing services and projects. Exhibit 3.6 below shows the ISD service areas with the highest vacancies.
Exhibit 3.6: ISD Divisions with the highest average vacancy rates, FY 2015-16**

<table>
<thead>
<tr>
<th>ISD Service Area</th>
<th>Average FY16 Vacancies</th>
<th>Total FY16 Funded Positions</th>
<th>% Vacant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Criminal Justice Information Control (CJIC)</td>
<td>19</td>
<td>45</td>
<td>43%</td>
</tr>
<tr>
<td>Help Desk</td>
<td>11</td>
<td>51</td>
<td>23%</td>
</tr>
<tr>
<td>Enterprise Content Management (ECM)</td>
<td>11</td>
<td>41</td>
<td>28%</td>
</tr>
<tr>
<td>Enterprise IT Product Services</td>
<td>7</td>
<td>23</td>
<td>32%</td>
</tr>
<tr>
<td>Office of Chief Info. Officer</td>
<td>7</td>
<td>27</td>
<td>24%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ESA data

** The annual vacancy rates were calculated by taking the total vacancies in ISD in each pay period divided by the Department’s total authorized funded positions during the same pay period, and then taking the average rate over the entire fiscal year to determine the average annual vacancy rate. Rates for FY 2015-16 are the average for each pay period through April 25, 2016.

* Enterprise Content Management is primarily responsible for development of customized software for County customers.

* Enterprise IT Product Services is primarily responsible for maintaining and customizing Countywide systems, such as Kronos for time-keeping records and PeopleSoft for human resource data.

Vacancies in these divisions diminish ISD’s ability to carry out routine services in two of its most customer-facing divisions, Help Desk and Enterprise Content Management, which may erode customer confidence in the Department’s overall effectiveness. In the case of the Criminal Justice Information Control Division (CJIC), vacancies are frequently backfilled by contractors instead of civil service employees. ISD could not provide data on the cost of these contractors for the CJIC Division. However, as of April 2016 there were 17 contractors in the CJIC Division, at least some of whom were assumedly filling in for vacant positions.

Upon review of ISD’s and ESA’s recruitment practices, the Management Audit Division believes there are several factors contributing to ISD’s high vacancy rate:

1. Compensation for ISD’s most vacant positions is below private sector pay for similar jobs/skills and job descriptions are out of date
2. ISD’s and ESA’s recruitment process takes too long, leaving positions vacant for longer periods of time and losing applicants who receive and accept positions from other employers
3. ISD’s and ESA’s recruitment process fails to identify qualified candidates
These causes are discussed in more detail below.

**Compensation for ISD’s most frequently vacant positions is below private sector pay and ISD job descriptions are out of date.**

ISD division managers and other County officials stated in interviews with the Management Audit Division that one of the primary reasons they have trouble hiring qualified candidates is the compensation gap for IT positions between the County and private sector and current job classification specifications. Analysis of private sector compensation data in the San Jose area shows a large compensation gap between Santa Clara County job classifications and similar jobs in the private sector. This gap persists even when comparing against the most senior classifications within the County. The job classifications with the largest number of vacancies at ISD also have the largest compensation gaps with the private sector.

Exhibit 3.7 below compares midpoint salary ranges for technology jobs for private sector employers in the San Jose area against the most senior similar job classifications in Santa Clara County. It excludes other forms of compensation such as stock options and performance bonuses, which are offered in the private sector. In addition, there may be variation in the quality and cost of health care plans and other benefits that also contribute to total compensation and which are excluded from the figures in Exhibit 3.7. Similarly, defined benefit retirement plans, such as the County’s, are less common in the private sector and also excluded from Exhibit 3.7 below. Public sector workers may be required to work fewer hours than their counterparts in the private sector and therefore may be willing to accept lower compensation in exchange for more personal time. Nevertheless, the base salary provides a common point of comparison when measuring private vs. public sector pay.
### Exhibit 3.7: Base salaries for private sector and Santa Clara County IT workers

<table>
<thead>
<tr>
<th>Job Title</th>
<th>Midpoint Starting Salary, Private Sector, San Jose 2016</th>
<th>Midpoint pay for most senior SCC equivalent</th>
<th>Difference</th>
<th>Percent Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Developer</td>
<td>$159,469</td>
<td>$136,970</td>
<td>$22,499</td>
<td>16%</td>
</tr>
<tr>
<td>Database Administrator</td>
<td>$160,987</td>
<td>$118,161</td>
<td>$42,826</td>
<td>36%</td>
</tr>
<tr>
<td>Database Architect</td>
<td>$173,138</td>
<td>$118,161</td>
<td>$54,977</td>
<td>47%</td>
</tr>
<tr>
<td>Data Architect</td>
<td>$204,357</td>
<td>$141,066</td>
<td>$63,291</td>
<td>45%</td>
</tr>
<tr>
<td>Network Architect</td>
<td>$199,125</td>
<td>$136,970</td>
<td>$62,155</td>
<td>45%</td>
</tr>
<tr>
<td>Business Systems Analyst</td>
<td>$139,050</td>
<td>$141,765</td>
<td>$(2,715)</td>
<td>(2%)</td>
</tr>
<tr>
<td>CRM Business Analyst</td>
<td>$144,113</td>
<td>$141,765</td>
<td>$2,348</td>
<td>2%</td>
</tr>
<tr>
<td>Systems Analyst</td>
<td>$136,856</td>
<td>$93,813</td>
<td>$43,043</td>
<td>46%</td>
</tr>
</tbody>
</table>

Source: Robert Half 2016 Salary Guide for Technology Professionals; Management Audit Division analysis of Santa Clara County job classifications and ESA data

Part of the reason County base salaries for IT positions lag behind private sector base salaries is because ESA only benchmarks against other local government entities when establishing compensation ranges for most job classifications. These include other local government employers in Santa Clara County and other counties throughout California. Exceptions to this approach have been made for hospital classifications. In recognition of the high-demand and specialized skillset of hospital workers, ESA benchmarks against several local private employers (such as Stanford Hospital and Kaiser Permanente). When the Health & Hospital System sought to create new classifications to work on EPIC, a medical records system, ESA conducted salary surveys of classifications with EPIC skills in nearby jurisdictions and found Santa Clara’s compensation compared favorably but the County was still having trouble filling these specialized positions. After reviewing private sector salaries for jobs requiring EPIC skills, ESA ultimately settled on compensation 13 percent to 32 percent above the average results of their survey of public sector entities.

Most IT job descriptions at ISD have not been reviewed for their accuracy relative to actual duties or the adequacy of their compensation relative to public or private sector peers in over ten years. The Management Audit Division found that the ISD job descriptions were 13 years old, on average. Most of the high vacancy, high pay gap jobs...
noted above have not been revised since 2001. One exception is the Network Architect (SCC Senior Network Engineer equivalent), which was revised in December 2014 but still has a midpoint base pay $62,155 less, or 45 percent lower, than the private sector equivalent. This may be because ESA did not conduct a benchmark salary survey to establish appropriate compensation for Senior Network Engineers, but instead tied the classification’s compensation, through a formula, to Senior Software Developer, revised in May 2016 but based only on compensation for comparable classifications in other California counties. Prior to May 2016, the most recent revision of the Senior Software Developer was in April 2001, with a midpoint salary in FY 2015 of $117,275, or a $72,195 gap in base salary between the private sector and the County’s most senior software engineer classification available during the audit period. According to ISD and ESA, the County is currently reviewing its IT job specifications and will begin modernizing its job descriptions once that review is complete. In addition, at the exit conference, ESA stated that it had also recently revised the Systems Software Engineer and the Network Engineer job specifications.

Compared to other counties in the region, Santa Clara County generally has a higher compensation range for IT classifications. Exhibit 3.8 below shows the compensation ranges for the most senior classification in each job category.
### Exhibit 3.8: Base salaries of Santa Clara County and surrounding counties, 2016

<table>
<thead>
<tr>
<th>County</th>
<th>IT Dept. Vacancy Rate</th>
<th>Software Developer</th>
<th>Database Administrator</th>
<th>Network Architect</th>
<th>Systems Analyst</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Step 1</td>
<td>Final Step</td>
<td>Step 1</td>
<td>Final Step</td>
</tr>
<tr>
<td>San Mateo</td>
<td>13%</td>
<td>$108,076</td>
<td>$144,456</td>
<td>$108,076</td>
<td>$144,456</td>
</tr>
<tr>
<td>San Francisco</td>
<td>16%</td>
<td>$112,138</td>
<td>$140,998</td>
<td>$112,138</td>
<td>$140,998</td>
</tr>
<tr>
<td>Alameda</td>
<td>[unknown]</td>
<td>$89,717</td>
<td>$120,230</td>
<td>$85,380</td>
<td>$114,420</td>
</tr>
<tr>
<td>Santa Cruz</td>
<td>[unknown]</td>
<td>$83,340</td>
<td>$105,408</td>
<td>$90,744</td>
<td>$114,768</td>
</tr>
<tr>
<td>Santa Clara Median</td>
<td>31%</td>
<td>$123,558</td>
<td>$150,381</td>
<td>$106,785</td>
<td>$129,536</td>
</tr>
<tr>
<td>SCC vs. Median</td>
<td>17% 14% 1% (2%) 17% 14% (4%) (7%)</td>
<td>$123,558</td>
<td>$150,381</td>
<td>$106,785</td>
<td>$129,536</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of benchmark counties
Although other counties have a narrower compensation range than Santa Clara County and pay less than the private sector, their vacancy rate is approximately half of ISD’s vacancy rate. This may be because other counties compete less with the private sector and/or have more effective recruitment practices. Moreover, jobs in neighboring counties used for benchmarking by ESA may not be as substitutable with Santa Clara County jobs as private and other public sector jobs in the San Jose area are, given the commute time to get outside the County and lower pay. County staff stated in interview that many potential applicants with IT talent in the San Jose area are likely choosing between private sector and public sector employers in the San Jose area, trading off compensation, benefits, work-life balance, and other work attributes. The fact that other counties often compensate senior IT professionals less than Santa Clara County does not diminish the fact that the County is still competing with local private sector employers.

**Each recruitment process took an average of 280 days in FYs 2014-15 and 2015-16.**

ISD Division managers stated in interviews with the Management Audit Division that an additional reason why recruitment has been difficult is the length of the civil service hiring process. Recruitment data for ISD hiring in FY 2014-15 and FY 2015-16 show that it took an average of 280 days, or approximately nine months, between when a position was created or vacated to the end of a recruitment cycle. Exhibits 3.9 and 3.10 break down the time between each hiring step for classified recruitments.
Exhibit 3.9: Average number of days between each step in the recruitment process for classified jobs, Fiscal Years 2014-15 and 2015-16

<table>
<thead>
<tr>
<th>Responsible entity</th>
<th>ISD</th>
<th>ESA</th>
<th>ESA</th>
<th>ESA</th>
<th>ISD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY15</td>
<td>180</td>
<td>23</td>
<td>19</td>
<td>29</td>
<td>45</td>
<td>296</td>
</tr>
<tr>
<td>FY16</td>
<td>119</td>
<td>22</td>
<td>28</td>
<td>42</td>
<td>52</td>
<td>264</td>
</tr>
<tr>
<td>Average</td>
<td>149.5</td>
<td>22.5</td>
<td>23.5</td>
<td>35.5</td>
<td>48.5</td>
<td>280</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD recruitment data

Exhibit 3.10: Days between each step in the recruitment process for classified jobs

Source: Management Audit Division analysis of ISD recruitment data

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4 The time between when a position becomes vacant (either through separation or creation) and when ISD sent a requisition to ESA to fill the vacancy.
5 The time between when ESA received the requisition and posted the job announcement.
6 The time during which the job announcement was posted and applicant materials were being accepted.
7 The time it took for ESA to develop an eligible list, including screening interview and testing.
8 The time it took for ISD to interview all top candidates and either hire an applicant or exhaust the eligible list.
The largest portion of the recruitment process is the time it takes for ISD to initiate a requisition once a position is created or vacated. This is in part because responsibility for doing so is not defined in any ISD policy or procedure but nevertheless is divided between the ISD division manager where the vacancy occurs and ISD’s Technology and Resource Management Division. The lack of clarity about the formal division of labor has often meant that neither the ISD hiring division nor the Technology and Resource Management Division take initiative to fill a new vacancy. As a result, it took ISD an average of 149.5 days, or approximately five months, over the two fiscal years, to initiate a requisition once a vacancy was created. Initiating a requisition entails completing certain County forms indicating the classification and job duties being requested and, on its own, should not be a very time consuming task. At the exit conference, ISD stated that the long time it takes for it to initiate recruitments is partially a result of ESA’s practice to wait at least 90 days to retire an eligible list. As a result, if a recruitment for a vacancy fails, according to ISD, hiring managers must typically wait 90 days before initiating a new requisition.

An additional bottleneck in the County’s recruitment process is the interview process. As noted above, the recruitment process for civil service positions is governed by the County’s Merit System rules. Per these rules, hiring entities must usually interview the top ten candidates plus any candidates with tying scores determined by ESA and ISD to meet the employment standards. A hiring entity such as ISD must provide a reasonable explanation to ESA for rejecting these candidates before being referred additional candidates. This interview requirement, plus inefficiencies in ISD’s interview process, protracts the hiring process for all candidates. As a result, interviewing applicants took ISD 49 days, on average, during Fiscal Years 2014-15 and 2015-16 for every recruitment.

The County should eliminate the requirement that departments interview all candidates on an eligible list. Instead, departments should only interview candidates they believe are likely to be selected for a job offer. This will reduce the amount of staff time ISD needs to exhaust an eligible list. Changes to the Merit System rules require consideration and approval from the Board of Supervisors and the County’s Personnel Board. Changes would also trigger a meet and confer process with affected labor unions, though their consent would not be necessary to make changes to the interview requirement.
Of note also is the time it takes for ESA to review applicant qualifications and develop an eligible list. According to ISD HR data, this has taken 35 days for each recruitment, on average, for the two fiscal years. This likely is because ESA had only one dedicated Human Resources Analyst for ISD during the audit review period and the agency has responsibility for all County civil service recruitments and thus may be backlogged.

The lengthy recruitment process can discourage candidates and the passage of time means that they are more likely to find other jobs, especially in a labor market in which their skills are highly sought after.

As noted above, Section 701 of the County Charter allows for unclassified employment for technical positions. Unclassified positions are subject to a streamlined recruitment process. In particular, unclassified recruitments do not need to be posted online, ranked on an eligible list, or have all eligible candidates interviewed. Based on ISD’s HR data, if ISD expeditiously posted an unclassified job once a vacancy was created, but no other process changes occurred at ESA or ISD, the hiring process could be shortened from approximately 280 days to 100 (the time it typically take ESA to review employment standards and then for ISD to select a candidate). Unclassified positions still require approval from the County Executive, Board of Supervisors, and ESA in order to be added to a department’s allocation of funded positions. Unclassified positions typically may only be filled for a maximum of eighteen months. Extending the time-limit or creating an unclassified position without a time-limit requires approval of the three entities above.

The recruitment process fails to identify qualified candidates

The Management Audit Division reviewed a sample of 15 ISD recruitments that took place between Fiscal Years 2013-14 and 2015-16. Of the 15 requisitions, ESA referred 176 candidates to ISD to interview, or an average of 11.7 applicants per recruitment, all of whom had to be interviewed by ISD staff according to Merit System rules, even if ISD staff did not believe the applicant was qualified. This can happen, even though ISD and ESA jointly determine whether candidates meet employment standards and then rank them on an eligible list, because such lists may be filtered for particular skills or because ISD’s hiring needs have changed since the requisition was initiated. In addition, as noted above, ISD’s job specifications, which are used to assess applicants’ suitability to
fill a given position, are thirteen years old, on average, and therefore likely poor criteria for ISD’s current hiring needs.

As shown in Exhibit 3.11 below, for the 15 sample recruitments reviewed, ISD interviewed 76 applicants, or 43 percent of the 176 candidates on the referred lists, that they did not believe had the right skills for the vacant positions. In many of these instances, ISD staff could make that determination prior to calling the applicant in for an interview.

**Exhibit 3.11: Results from sample of 15 ISD recruitments, Fiscal Years 2013-14–2015-16**

<table>
<thead>
<tr>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total on eligible list</td>
<td>176</td>
</tr>
<tr>
<td>Total Hired</td>
<td>17</td>
</tr>
<tr>
<td>Candidates determined by ISD to have wrong tech skills</td>
<td>76</td>
</tr>
<tr>
<td>Other candidates had more relevant skills</td>
<td>20</td>
</tr>
<tr>
<td>Candidates no longer interested, did not respond or waived interview</td>
<td>38</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ESA sample data

Of the 176 applicants on the eligible lists, 76 of the candidates recommended to ISD by ESA, or 43%, were rejected by ISD after their required interviews for not having the needed technical skills. ISD division managers and other County officials noted in audit interviews that candidates on eligible lists frequently do not have the skills they are looking for. In many cases, ISD staff can make this determination without an interview, through review of resumes. Applications by unqualified candidates may be because job specifications are outdated and do not attract qualified candidates in accordance with

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9 Although the sample was comprised of fifteen recruitments, several requisitions for to fill multiple vacancies, therefore more than fifteen candidates were ultimately hired.
ISD’s needs, compensation is below market rate, and ESA’s or ISD’s instructions for screening of candidates in developing an eligible list is flawed. In spite of ISD’s conclusions about applicants’ qualifications, they must conduct interviews with all applicants that ESA has deemed meet employment standards. In just the 15 recruitment sample cases reviewed by the Management Audit Division, that means 138 interviews (plus an additional 38 attempted interviews for a total of 176) were conducted by ISD staff, or 9.2 interviews per recruitment on average. ISD practice is to have three staff form a panel to conduct hiring interviews from the eligible list. Assuming at least one hour for every hiring interview, the interview requirement costs ISD approximately 27.6 hours of staff time (3 person panel times 1 hour for each interview times 9.2 interviews) to go through an eligible list and identify a good candidate. In the sample of 15 requisitions, 138 interviews would amount to 414 hours of ISD staff time. At the exit conference, ESA noted that the Merit System interview requirement rule may be met by conducting short single person telephone interviews and that hiring departments are not required to convene panels for screening interviews. Short of the Board of Supervisors and Personnel Board rescinding the current interview requirement so only candidates deemed qualified by ISD are interviewed, the Department should adopt this more efficient approach and only conduct in-person panel interviews with the most qualified candidates.

**Marketing County IT Job Opportunities**

ESA conducts limited marketing to IT professionals. Job announcements are only viewable to external candidates on ESA’s website (listing all other County jobs), and in hard copy at the County Administration building on West Hedding Street and at the Health and Hospital System headquarters office. The hard copy job announcements are updated daily. According to ESA, job announcements have also appeared on Indeed.com, a job posting website, for over three years. Up until May 2016, departments would have to pay extra to post job announcements to additional job websites, such as Dice, Monster, and LinkedIn. Now, ESA posts job announcements on these additional platforms as part of their baseline service to County departments. The costs are now paid for by ESA.

Survey results of IT job seekers conducted by the City and County of San Francisco presented in Exhibit 3.12 show that IT professionals rely heavily on job post aggregation sites such as Indeed and LinkedIn. Thus, limiting online job announcements to the
County’s website may have contributed to the challenge of attracting qualified candidates to work for the County.

**Exhibit 3.12: Methods IT professionals use in searching for job opportunities**

![Bar chart showing methods IT professionals use in searching for job opportunities](chart.png)

Source: “Improving the Recruitment and Hiring Experiences of IT Applicants,” San Francisco Department of Human Resources

Santa Clara County ISD lacks a website for external candidates to better acquaint themselves with the Department’s operations and initiatives. This is in contrast to the ten California counties surveyed for this management audit, all of which have public websites for their IT departments. As a result, potential ISD applicants are left without information about the ISD organization and how the position for which they are applying fits into the larger mission of the organization.

ESA does not currently market the benefits of working in the public sector, such as having a socially purposeful job, better work-life balance, superior benefits such as a

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10 Alameda, Contra Costa, Los Angeles, Orange, Riverside, Sacramento, San Bernardino, San Diego, San Francisco, San Mateo
defined benefit retirement plan, or better job security. Other counties incorporate these points in their recruitment efforts. For example, the City and County of San Francisco has a video touting the benefits of working in IT, as shown in Exhibit 3.12 below. At the exit conferences, ISD and ESA each stated they plan to build a public website for ISD in the future to highlight these benefits.

**Exhibit 3.12: City and County of San Francisco marketing video to IT professionals**

![YouTube Video](YouTube Video)

Source: San Francisco Department of Human Resources

Similarly, the Los Angeles County Department of Human Resources has a dedicated, modern website for IT jobs that is free from bureaucratic jargon and touts the benefits of working for the county, including: flexible work schedules, benefits, and work-life balance.

**CONCLUSION**

ISD has an exceptionally high vacancy rate when compared to other agencies within Santa Clara County as well as for IT positions in neighboring counties. This is the result of a number of factors, including the County’s location in Silicon Valley where it has to compete with a strong private sector job market for IT positions, compensation below the local private sector market, unnecessarily long recruitment processes, ineffective screening of candidates, and poor marketing of IT job
opportunities and the benefits of working for the County. ISD’s high vacancy rate hamstrings its ability to deliver timely and high-quality services and projects. Both ISD and ESA are jointly responsible for ISD’s high vacancy rate.

RECOMMENDATIONS

The Chief Information Officer should:

3.1 Direct staff to create an external ISD website so potential applicants can better understand the Department’s business and the benefits of working for the County. (Priority 1)

3.2 Request that ESA conduct revisions of its IT classifications to modernize their job descriptions and compensation ranges, prioritizing review of classifications that have the highest vacancy rates. (Priority 1)

3.3 Direct staff to shorten recruitment timelines by taking the following actions (Priority 2):

   i. Develop policies, procedures, and trainings to set a clear division of labor and accountability between ISD division managers and the ISD Technology and Technology Resource Management Division to expeditiously prepare requisitions to fill a new or vacant position and to engage ESA in developing job announcements and filtering existing eligible lists to identify candidates with the desired skills.

   ii. Develop time-specific performance goals for each step of the recruitment process and regularly report to executive management actual time for recruitments compared to these goals.

   iii. Make more use of continuous examinations and create a live eligible list so that hiring managers can begin interviewing candidates immediately after a requisition is prepared rather than waiting for a job announcement to be posted, closed, and candidates ranked.
iv. Make more use of unclassified employees, with recruitments handled mostly by ISD.

v. As long as current Merit System rules regarding interviewing candidates are in place, direct staff to streamline the interview process by conducting initial telephone interviews of candidates and in-person interviews only of those that are determined to be more qualified through the initial telephone interviews.

The Board of Supervisors should:

3.4 In conjunction with requesting the Personnel Board to take corresponding action, amend the County’s Ordinance Code, Section A25-184, to eliminate the requirement that departments interview all candidates on an eligible list. Instead, departments should only interview candidates they believe are likely to be selected for a job offer. (Priority 2)

SAVINGS, BENEFITS AND COSTS

Implementing the above recommendations will allow ISD to expeditiously fill its vacant positions, which amounted to 99 positions or 31 percent of its authorized workforce as of April 2016 and 18 percent as of April 2017. Implementation of these recommendations may be done within the existing budgets of ISD and ESA. While a portion of ISD’s vacant positions are back-filled by contractors, ISD is still behind on implementing Countywide IT projects due to understaffing. Filling vacancies will help ISD deliver high-quality, timely projects and services, allowing for efficient use of its salary and project funding allocations.
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Section 4. Internal Service Fund Charges

Background
With the exception of its printing services division, which has its own fund, the Information Services Department (ISD) operates with two funding sources: the County’s General Fund and an internal service fund (ISF). The Department’s General Fund allocation is used to pay for non-salary costs of Countywide IT projects. ISD’s other costs, including all personnel costs, are allocated among customer departments and agencies. Costs may be allocated to customers on either a fixed fee basis or variable basis.

Problem
Though the ISF rates established by ISD may be allocating budgeted costs to customers efficiently, cross-subsidization among customers may be occurring because of the treatment of funded vacant positions at ISD. In addition, staff costs embedded in service rates do not distinguish between project work and ongoing services and may therefore misallocate project costs to customers. Rates for ISD services have increased since the deployment of the Department’s current cost recovery model in FY 2013-14, but ISD’s customer departments reported in an audit survey that they generally do not understand the basis for their service charges.

Adverse Effect
ISD’s current allocation model violates best practices for internal services funds set out by state and federal authorities and may violate industry best practices that require that rates for services have a cause and effect relationship with services actually received. Potential cost misallocations, the lack of customer understanding regarding the basis of service rates, and the trend of increasing service rates may together hamstring the County’s efforts towards further IT centralization, discussed in Section 5 of this report.

Recommendations, Savings and Benefits
ISD should conduct annual true-up analysis of its cost recovery. In addition, the Department should revise written materials for customers that explain how service rates are developed. Implementing these recommendations will bring ISD’s internal service fund management into compliance with industry best practices and allocate costs more fairly to customer departments and agencies.
Background
ISD’s printing division has its own small fund. The remainder of the department is funded from two sources: the County’s General Fund and an internal service fund (ISF). The Department’s General Fund allocation is used to pay for non-salary costs of Countywide IT projects. ISD’s General Fund costs are recovered through a cost recovery plan that charges benefitting departments based on their proportional share of the Countywide FTE count. The ISF captures the rest of ISD’s service and project costs, including virtually all of the department’s salary costs.

The ISF rate model recovers ISD’s costs from customer departments and agencies through 45 service unit categories which track the cost of each service it provides and allocates them among customer departments and agencies. ISD develops costs for each of its service units based on the estimated total cost of providing that service, including salary costs, supplies and equipment costs, depreciation, and overhead. Service unit costs are then allocated to customer departments and agencies based on forecasted and actual consumption.

Service unit costs may be allocated to customers through the ISF on either a fixed fee basis or variable basis. Departments and agencies are billed for fixed fee services at a constant rate throughout the year when actual consumption is assumed to be consistent over time. ISD’s estimated fixed fees for customers are allocated based on their proportional share of Countywide FTE count, number of software licenses, number of devices, or number of gigabits of storage, for example. Variable fees are allocated to customers based on the actual hours ISD staff bill to certain services. Exhibit 4.1 below summarizes the amounts collected for ISD’s 45 fixed and variable fee services, after removing the cost of ISD consumption of its own services.

Exhibit 4.1: Budgeted customer costs in ISD’s internal service fund rate model for fixed and variable fee services for FY 2015-16

<table>
<thead>
<tr>
<th></th>
<th>Count</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed fee services</td>
<td>18</td>
<td>$33,973,778</td>
</tr>
<tr>
<td>Variable fee services</td>
<td>27</td>
<td>$21,820,720</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
<td><strong>$55,794,498</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data
Exhibit 4.2 below shows ISD’s internal service fund balance over the past five years. In February 2011, the Management Audit Division determined that the ISF fund balance exceeded federal guidelines established by the Office of Management and Budget Circular A-87, Attachment C, Section G-2 which states that internal service fund balances should not exceed 60 days of working capital expenses. After this finding was presented, ISD refunded customers a portion of their rate charges in FY 2010-11 and restructured their internal service fund rate model. The revised rate model was deployed in FY 2013-14.

Exhibit 4.2 presents ISD’s net (or unrestricted) internal service fund balance from Fiscal Years 2010-11 through 2015-16. To establish the allowable fund balance amount for comparison to 60 days working capital, the County has determined a formula for calculating fund balance in excess of allowable working capital reserves, as stated in Section III of the Auditor-Controller’s draft Policy and Procedures for Internal Service Funds. Exhibit 4.2 presents those calculations and arrives at the unrestricted fund balance for comparison to 60 days working capital for each year presented. As shown below, ISD’s fund balance has remained within County guidelines since the deployment of the current cost model. Although ISD’s gross fund balance increased and fluctuated since FY 2011-12, the Department’s expenses increased as well, increasing the amount of allowable fund balance. In FY 2015-16 the Board of Supervisors approved use of fund balance to cover professional service costs that were not in ISD’s original budget resulting in a decrease of approximately $2.3 million in the fund’s net position.

**Exhibit 4.2: ISD’s internal service fund’s balance, FYs 2010-11 through 2015-16**

<table>
<thead>
<tr>
<th>ISF Income Statement (thousands)</th>
<th>Prior cost model</th>
<th>Current Cost model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY 10-11</td>
<td>FY 11-12</td>
</tr>
<tr>
<td>Unrestricted fund balance</td>
<td>7,373</td>
<td>5,427</td>
</tr>
<tr>
<td>60 days Working Capital</td>
<td>(4,698)</td>
<td>(4,574)</td>
</tr>
<tr>
<td>Excess fund balance</td>
<td>2,675</td>
<td>853</td>
</tr>
<tr>
<td>Fund Balance within OMB A-87 rec.?</td>
<td>NO</td>
<td>NO</td>
</tr>
</tbody>
</table>

Source: Management Audit Division review of Santa Clara County’s Comprehensive Annual Financial Statements
The annual ISD rate model includes charges for the salary and benefits costs of vacant positions. As shown in Exhibit 4.3, the ISF rate model aimed to recover $32 million in staff costs for services. The ISD rate model assumed that vacant positions are filled at the beginning of the year and therefore these costs were rolled into service charges charged by ISD to customer departments and agencies. Vacant positions are filled and created over time. If vacant positions remain unfilled, ISD still collects the salary costs from these service charges.

Exhibit 4.3: Staff costs in the ISF rate model for FY 2015-16

<table>
<thead>
<tr>
<th>Rate model</th>
<th>Permanent staff cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY16</td>
<td>$32,061,148</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data

As noted in Exhibit 4.1 above, twenty-seven of ISD’s forty-five services in FY 2015-16 were billed to customer departments and agencies based on the actual number of hours ISD staff spent on a given service while the remaining eighteen ISD services were billed on a “fixed fee” basis. When vacancies occur in service areas that charge customers based on the variable number of ISD staff hours worked in that service area, ISD salary savings are offset by a decrease in customer revenue, since the hours are not worked and not charged. On the other hand, when vacancies occur in fixed fee services, rates are not adjusted to reflect vacancies and customers fund ISD salary savings by paying ISD service charges as if the Department were fully staffed. Applying the Department’s FY 2015-16 31 percent average vacancy rate to staff costs in the ISF rate model, vacancies in fixed fee services caused approximately $4.7 million in salary surplus that was charged to customer departments and agencies.

ISD stated it uses surplus funds from vacant positions to pay for additional unclassified positions not already budgeted in the rate model and to pay the cost of contractors used to backfill vacant permanent positions. According to data provided by ISD, in FY 2015-16 the Department budgeted $1.2 million for contractors in the internal service fund and incurred an estimated cost of $4.1 million for unclassified positions, for a total cost of approximately $5.3 million. Salary surplus of $4.7 million accumulating in the ISF was
used to offset unclassified position costs. However, because these non-permanent staff costs may occur in different service areas than those in which the salary surpluses occur, customers may be subsidizing services they are not receiving and revenue from non-General Fund sources may be funding General Fund costs and vice-versa. Without true-ups, or rate adjustments based on the difference between actual costs and those assumed in the rates charged to customer departments, this would violate industry best practice requiring that rates for services have a cause and effect relationship with services actually received. Further, at least some of the $1.2 million in contractor costs may have been incurred anyway and may not be offsetting the work that was planned for the vacant staff positions.

At the exit conference, ISD stated that it monitors revenues and expenditures by cost center in an effort to minimize any potential cross-subsidization. The Management Audit Division reviewed ISD’s budget monitoring for FY 2015-16 and concluded that these efforts somewhat mitigate the risk of cross-subsidization and represent ISD’s best effort to do so short of an annual true-up, given ISD management’s decision about how to best use its staff resources. However, only an annual true-up that compares customer revenues by service to customer costs by service will fully mitigate the risk of cross-subsidization.

Although required by federal and state guidelines\(^1\) for internal services funds, and industry best practice\(^2\) regarding internal service funds, ISD does not perform annual “true-up” analyses of its rate recovery to ensure its forecast costs are fairly allocated to customers. ISD management has stated that such a true-up occurred at the end of FY 2014-15 but not for FYs 2013-14 and 2015-16 and, further, that the Department does not believe it is the best use of its staff resources to perform such an analysis annually until the deployment of its new rate model management system, Apptio, which was scheduled to be piloted in FY 2016-17 at the time of the audit fieldwork. Industry best practices recommend a midyear review of rates and adjustment during the year, when appropriate.

\(^1\) Federal Office of Management and Budget Circular A-87 and the California State Controller’s Handbook for Cost Plan Procedures for California Counties. These guidelines are incorporated into Santa Clara County’s draft Policy and Procedures for Internal Service Funds.

\(^2\) Government Finance Officers Association Best Practice: Pricing Internal Services.
Finally, contractor hourly rates are usually higher than County employee hourly rates because they include contractor overhead costs. Paying for contractors with ISF funds calculated based on employee costs may mean that County departments and agencies are getting less for their ISD contributions than originally assumed by ISD.

Staff costs embedded in service rates do not distinguish between project work and ongoing services, resulting in possible misallocation of project costs among customers

As noted above, ISD has two major cost recovery models for its two main funds: the General Fund cost recovery model and the Internal Service Fund cost recovery model. Object 2 costs (non-personnel costs) for Countywide projects are located in ISD’s General Fund budget that are recovered from all County departments, with a two-year lag, based on customer departments’ FTE count. There are virtually no Object 1 costs (personnel costs) in ISD’s General Fund cost recoveries. Instead, all staff costs are located in the ISF and recovered through the ISD cost recovery rate model.

ISD’s staff time incorporated in the ISF does not distinguish between project work and ongoing services. This is because ISD does not consistently track employees’ time spent on project work within its time management system. This means that the 45 service unit categories used to bill customers in the ISF rate recovery model blend staff costs associated with project work and ongoing service. Per ISD management, there is no way to separate historical project vs. ongoing staff costs of services within the ISF rate model. The only exception is Public Safety and Justice projects, whose manager has established separate time tracking codes in the time management system to track that division’s project work efforts. The time management system currently in place at ISD is able to accommodate additional time codes for employees to track project work; the system had 105 time tracking codes in FY 2015-16. Tracking time more precisely within the Department’s time tracking system would allow for the rate model to distinguish between project and ongoing service costs and then allocate them to customers. In addition, such tracking of staff time would allow ISD to better understand its capacity to deliver additional services and projects.

Because ISD does not track actual project staff costs, it is impossible to identify them in the internal service fund rates. However, the Management Audit Division reviewed
projects in which costs were incurred during FY 2015-16 and estimated the ISD cost centers affected by project activity based on the ISD project owner (usually a division manager responsible for a project primarily staffed by employees from his or her division). Of the $16.6 million in staff costs generated by these cost centers in the ISD rate model (out of the Department’s internal service fund model’s staff costs of $32.1 million) a portion was generated by project work that is being billed out as ongoing services to customers. Of these estimated project-related staff costs, approximately $8.9 million are billed out to customers on a fixed fee basis. To the extent staff costs from these divisions are recovered in fixed fee service categories for work on projects serving only a single department or a subset of all departments and agencies, all other departments and agencies are subsidizing the work done for other departments.

As with the staff vacancy issue discussed above, when project hours are blended with ongoing service hours to develop rates for services, such rates may misallocate the cost of services and projects to customers. This is true whether services are billed on a variable hourly basis or a fixed fee basis. It is possible that some ISD customers are subsidizing projects for which they are not benefitting and/or underpaying for projects for which they are benefitting. This would violate industry best practice that rates for services have a cause and effect relationship with services actually received.

### Rates for ISD services charged to customers from its internal service fund are not well understood

A number of ISD customer department representatives stated in interviews with the Management Audit Division that they do not understand the basis for ISD service charges. Similarly, in our survey of ISD customer departments, respondents reported dissatisfaction and lack of understanding with ISD’s service rates. Exhibit 4.4 below shows that while 43 percent of respondents stated that ISD service rates were fair and reasonable, 38 percent of respondents believed that charges were too high relative to services provided. In addition, 43 percent of respondents stated that ISD did not provide clear explanations for their service charges. Only 10 percent of respondents stated that ISD provided clear explanations of service rates.

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3 See Section 5: Customer Service and Performance Management, for detail regarding the Management Audit Division’s survey of ISD’s customers.
Exhibit 4.4: Number of respondents agreeing with the following statements regarding ISD’s service rates

21 Respondents (asked to respond to all that apply):

<table>
<thead>
<tr>
<th>Statement</th>
<th>Number of respondents agreeing</th>
<th>% of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, ISD rates charged through their Internal Service Fund are reasonable relative to the services provided</td>
<td>9</td>
<td>43%</td>
</tr>
<tr>
<td>ISD does not provide our department/agency with clear explanations for its Internal Service Fund rates</td>
<td>9</td>
<td>43%</td>
</tr>
<tr>
<td>ISD’s Internal Service Fund rates are too high relative to services provided</td>
<td>8</td>
<td>38%</td>
</tr>
<tr>
<td>Our contribution to the ISD Internal Service Fund is automatically appropriated in our budget so it does not matter what the rates are</td>
<td>5</td>
<td>24%</td>
</tr>
<tr>
<td>ISD’s Internal Service Fund rates are higher than those charged by the private sector for comparable services</td>
<td>4</td>
<td>19%</td>
</tr>
<tr>
<td>ISD provides our department/agency with clear explanations of the basis for its Internal Service Fund rates</td>
<td>2</td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customer departments and agencies

Part of the lack of understanding suggests that ISD’s written materials describing the basis for its service rates to customers need to be revised. Although provided to customers at the beginning of every fiscal year, as noted above, less than half of respondents to our survey stated that such explanations are clear. In addition, rates for ISD services have increased over the past three fiscal years without accompanying explanation to customers or clear additional service benefit. Exhibit 4.5 below shows the evolution in rates for a selection of ISD services.

Exhibit 4.5: Changes to ISD services rates, FYs 2014-15 through 2016-17

<table>
<thead>
<tr>
<th>Service</th>
<th>Basis of billing to customer departments &amp; agencies (FY 17)</th>
<th>Rate (FY15)</th>
<th>Rate (FY16)</th>
<th>Rate (FY17)</th>
<th>% Change FY15 - FY 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>ClaraNET</td>
<td>FTE</td>
<td>$248</td>
<td>$278</td>
<td>$365</td>
<td>47%</td>
</tr>
<tr>
<td>Help Desk</td>
<td>FTE</td>
<td>$157</td>
<td>$214</td>
<td>$309</td>
<td>97%</td>
</tr>
<tr>
<td>Enterprise Storage</td>
<td>GB (Hours in FY15)</td>
<td>$6</td>
<td>$8</td>
<td>$9</td>
<td>58%</td>
</tr>
<tr>
<td>End User Device Support</td>
<td>Device</td>
<td>$879</td>
<td>$650</td>
<td>$1,083</td>
<td>23%</td>
</tr>
<tr>
<td>EPS general consulting</td>
<td>Hours</td>
<td>$157</td>
<td>$178</td>
<td>$294</td>
<td>87%</td>
</tr>
<tr>
<td>ASAP</td>
<td>Hours (% in FY15)</td>
<td>$146</td>
<td>$308</td>
<td>$243</td>
<td>66%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of Information Service Department service rates
Rates have increased as ISD’s expenses have increased, not necessarily as the quantity or quality of service increased to each customer. As shown in Exhibit 4.5, rate increases for six ISD services ranged from 23 to 97 percent for the three year period between FYs 2014-15 and 2016-17. Customers are charged average costs for services, not marginal costs, so when ISD adds resources to serve additional customers, the rate for all customers billed for that service increases. Dissatisfaction with service rates may lead customer departments to resist further attempts at IT centralization with ISD (described in Section 5), especially if its benefits have not been fully explained by ISD.

CONCLUSION

ISD’s rate recovery approach for its internal service fund needs improvement. Service rates do not distinguish between project and ongoing service costs, which may lead to customer’s under- or over-paying for services they are receiving from ISD. Similarly, because nearly all budgeted staff costs are recovered through the internal service fund, regardless of staff vacancies, salary savings that occur as a result of vacancies may be used to pay for contractors and other temporary staff in other service areas, causing customers to possibly over- or under-pay for actual services received from the Department. Both of these conditions may violate industry best practice that rates for services have a cause and effect relationship with services actually received. Such misallocations go uncorrected because the Department has only conducted one annual “true-up” of budget to actual expenses since FY 2010-11, even though this is required by federal and state guidelines for and funds (state guidelines recommend a midyear review and adjustment, if needed, during the year). Finally, ISD customers wish to have greater understanding of how their rates are calculated. Less than half of customers who responded to our survey stated that ISD’s service rates were reasonable.
RECOMMENDATIONS

The Information Services Department should:

4.1 In advance of the acquisition and implementation of new software that will perform much of this function, establish a procedure and criteria for staff “truing-up” or adjusting its ISD charges every year as a routine task, after actual cost data is finalized for the prior year(s). (Priority 1)

4.2 Revise written materials for County departments and agencies that explain how rates are developed and update annually to explain changes to rates. (Priority 3)

SAVINGS, BENEFITS AND COSTS

Implementing these recommendations will bring ISD’s internal service fund management into compliance with Federal, State, and industry best practice. In addition, these changes will allow for ISD to allocate service and project costs more fairly to customer departments and agencies. More precise allocation methods and updated written explanations of such methods will in turn enhance the transparency and value of ISD services and charges for customers and other County stakeholders and are necessary to smooth additional efforts towards IT centralization. ISD is scheduled to pilot a new rate model management system, Apptio, for which funding has already been appropriated. Therefore, these recommendations may be implemented with minimal budget impact on ISD’s current financial plan.
Section 5. Customer Service & Performance Management

Background
Both the County’s Three Year IT Plan for FY 2016-18 and ISD’s budget allocations recommended by the County Executive emphasize ISD’s goal of being a customer service driven department. The primary contact customers have with ISD is through its TechLink Division. TechLink serves as the Countywide information technology Help Desk. TechLink records service requests in a “ticket system” in which 39 percent requests for service or help are logged.

Problem
TechLink’s ticket system does not fully capture the Department’s workload or measure performance, including customer satisfaction. According to Department data, the ticket system only captures 39 percent of requests for service, and basic data about the request is not consistently tracked. The Department does not monitor trends in tickets and ISD performance, problems and their underlying causes, and possible mitigation strategies.

Adverse Effect
ISD’s lack of monitoring service efforts make it impossible to determine whether all service requests are being fulfilled. In addition, improving ISD’s performance will be difficult until it starts measuring performance and customer satisfaction and establishes a process for incorporating that feedback into service and project delivery. Failing to do so could impair the County’s effort towards IT centralization.

Recommendations, Savings and Benefits
We recommend that ISD revise its ticket procedures so that the system measures all of the Department’s workload, can be used to track ISD’s performance on each ticket, solicit customer feedback, establish procedures to regularly analyze its performance and incorporate any findings into its service delivery. Performance goals should be made explicit in service level commitments with customers. Implementing these recommendations will result in better measurement of ISD’s workload and performance, which in turn will result in increased efficiency of ISD’s service work.
Background

Both the County’s Three Year IT Plan for FY 2016-18 as well as ISD’s budget allocations recommended by the County Executive, emphasize ISD’s goal of being a customer service driven department. “Customer Focus” is one of ISD’s three “focus areas” noted in the County’s Three Year IT Plan for FY 2016-18. In addition, “Customer Focus” is cited in the FY 2017 budget recommendation from the County Executive as a criterion for evaluating IT projects.

The primary contact customers have with ISD is through its TechLink Division. ISD’s TechLink Division serves as the Countywide information technology Help Desk and is responsible for providing technical support for County applications, systems, and hardware and managing requests for ISD services that are fulfilled by other ISD divisions (such as: repairing network outrages, installation of new desktop equipment in employee workspaces, installation of software on desktops, laptops, and cell phones, or changes to a County website). TechLink records these requests in a “ticket system” in which some requests for service or help are logged.

Tickets are usually created by TechLink staff upon receipt of a service request but may also be created by County staff by way of requesting service. They are opened at the time of the initial request and closed either when all tasks associated with fulfilling the request are complete or ISD judges the request to be impossible to fulfill. When the request exceeds the expertise of TechLink staff, it is referred to the ISD division that has primary responsibility for supporting the technology underlying the request. The Santa Clara Valley Health and Hospital System and the Social Service Agency each have their own help desk to support their department-specific IT products, though ISD TechLink shares its ticket system with the Santa Clara Valley Health and Hospital System information technology division.

To better understand and serve customer departments’ IT needs, ISD created the Business Relationship Management Division (BRM) in February 2016. The purpose of the BRM is to develop IT expertise in areas such as project management, software licensing, and application support and to station or assign these experts to one or more customer departments. The BRM currently supports the Employment Services Agency, Registrar of Voters, Planning, Fleet Management, Parks and Recreation, Clerk of the Board, County Executive Office, and the Medical Examiner.
ISD’s ticket system does not measure workload or performance

Though ISD’s ticket system has the capability to track all requests for ISD services, it is not being used to that end. Instead, ISD’s ticket system, or requests for service, only contains a fraction of the incoming service requests. In addition, the ticket system is not set up or used to measure performance or customer satisfaction. This means that the Department lacks a centralized, comprehensive inventory that tracks and measures its workload, task assignments, time between each customer contact, and customer satisfaction which could then be incorporated into the Department’s performance improvement process.

The Management Audit Division reviewed ticket and email data between March 2015 and March 2016 provided by ISD. According to those records, ISD ticketed 31,019 requests for service and, in addition, ISD TechLink received 49,545 emailed service requests, for a total of 80,564 service requests during the one year period.

Exhibit 5.1: Requests for ISD TechLink services, March 2015-March 2016

<table>
<thead>
<tr>
<th>Service Request Origin</th>
<th>Amount</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emails</td>
<td>49,545</td>
<td>61%</td>
</tr>
<tr>
<td>Tickets</td>
<td>31,019</td>
<td>39%</td>
</tr>
<tr>
<td><strong>Total known requests</strong></td>
<td><strong>80,564</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Information Services Department

During the audit, ISD staff stated that emailed requests are not recorded in the ticket system but instead are manually ticketed by staff, despite the fact that ticket systems usually have automatic email-to-ticket conversion as part of their basic functionality. Without all service requests in one electronic ticket system, ISD does not have an easily accessible comprehensive inventory of its workload. Requests that are not ticketed cannot be sorted and analyzed for workload trends. However, at the exit conference, ISD stated that some emails are converted to tickets and not all emails are service requests. However, ISD could not provide data on the amount of email in Exhibit 5.2 was ticketed nor verify that all emailed service requests were ticketed.

The service request data in Exhibit 5.1 show that approximately 61 percent of all TechLink service requests are not recorded in its ticket system. This figure may understate the total amount of work not ticketed since requests for technical support made directly to other ISD divisions are not routinely ticketed. This may be reasonable.
in certain cases, such as a criminal investigation, but, in general, ISD would benefit from having all of its service work recorded in its ticket system.

To the extent that service work is tracked in the ticket system, CA Service Desk, the system’s current configuration makes it extremely difficult to measure performance. Although the ticket system measures the total number of days to complete ticketed requests, it does not contain data to track key performance metrics, such as number of interactions between ISD and customers before the ticket was completed, time between each interaction or customer satisfaction. Other information that can be tracked, such as nature and severity of the ticket request, the requesting department, or ISD staff assigned are minimally and inconsistently tracked. For example, tickets are assigned a priority by ISD TechLink technicians without reference to any standard or definition, rendering the categorization meaningless. ISD TechLink staff have described the priority data in the ticket system as “inconsistently applied and not always a reliable indicator of a given ticket’s importance.” This could mean that ISD staff could be focusing their time on low priority tasks and leaving more critical tasks unaddressed. Absent standardized criteria, customers with similar problems could be receiving different treatment depending on which technician classified the request when it was first submitted.

Of the 37,378 tickets generated between January 2015 to June 2016, 14,402, or 38.5 percent, did not have requesting customer department information recorded in the Help Desk database. Similarly, our review of 115 security-related tickets found that 33 entries, or 29 percent, did not have a record of the ISD staff assigned.

As noted above, when a department submits a request for ISD service through TechLink, its staff will try to resolve the issue themselves. However, if the problem or request exceeds their knowledge or authority, TechLink will refer the request to another ISD division that has expertise about the technology in question. When this happens, ISD does not have a process to integrate and manage how TechLink and other ISD division respond. As a result, ownership of the ticket and its timely resolution may be lost. It is impossible to quantify how often this occurs given the limited data tracked within ISD’s ticket system. However, in interviews with the Management Audit Division, ISD customers stated that other divisions do not always follow up once TechLink transfers their service request to another ISD division for more specialized expertise.
Exhibit 5.2 below shows the amount of ISD TechLink tickets that were completed within a given time period between January 2015 and June 2016. As shown, two-thirds of ticketed requests were completed within 1 – 3 days and 4,367 tickets, or 11.7 percent of total tickets, took more than 30 days to resolve. Although recorded in the ticket system, ISD management is not tracking this metric as part of an effort to minimize ticket resolution time. At the exit conference, ISD stated that it is aware of the limitations of its existing ticket system and in the midst of procuring a new ticket system, which is expected to be launched in 2017.

**Exhibit 5.2: Number of ticketed requests and turn-around time, January 2015 – June 2016**

<table>
<thead>
<tr>
<th>Completion Period</th>
<th>1-3 Days</th>
<th>4-7 Days</th>
<th>8-30 Days</th>
<th>&gt; 30 Days</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of tickets</td>
<td>24,996</td>
<td>3,143</td>
<td>4,872</td>
<td>4,367</td>
<td>37,378</td>
</tr>
<tr>
<td>Percent</td>
<td>66.9%</td>
<td>8.4%</td>
<td>13.0%</td>
<td>11.7%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Information Services Department

Exhibit 5.3 on page 80 shows the top 20 request type count of the 4,367 tickets between January 2015 and June 2016 that took more than 30 days to resolve, by category of request. Although such requests comprised 3,215, or 11.7 percent of the total requests during that period, the table is notable for the number of requests that appear to be both routine and critical yet took more than 30 days to complete, such as hardware or software installation, network outages and connections, granting access privileges, and blocking or unblocking potentially malicious websites. Also of note, 248 tickets from this group had no request classification.
Exhibit 5.3: Number of Service Request that took more than 30 days to complete, by Type of Request, January 2015 - June 2016

<table>
<thead>
<tr>
<th>Request Type</th>
<th>Number of requests that took more than 30 days to complete (Top 20 by count)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Connection</td>
<td>546</td>
</tr>
<tr>
<td>Software Other</td>
<td>472</td>
</tr>
<tr>
<td>[No Request Type data]</td>
<td>248</td>
</tr>
<tr>
<td>Software / Applications Add/Grant Access</td>
<td>221</td>
</tr>
<tr>
<td>Hardware Install/Reinstall</td>
<td>209</td>
</tr>
<tr>
<td>Hardware Change/Upgrade</td>
<td>177</td>
</tr>
<tr>
<td>Security Troubleshoot Internet Site Blocking</td>
<td>171</td>
</tr>
<tr>
<td>Software/Applications Change/Upgrade System</td>
<td>171</td>
</tr>
<tr>
<td>ISD-Self Service</td>
<td>151</td>
</tr>
<tr>
<td>Remote Access / VPN Add/Grant</td>
<td>125</td>
</tr>
<tr>
<td>Software/Applications Install/Reinstall</td>
<td>112</td>
</tr>
<tr>
<td>Software/Applications Reconfigure/Reactivate</td>
<td>92</td>
</tr>
<tr>
<td>Network Add/Grant Access</td>
<td>80</td>
</tr>
<tr>
<td>Software/Applications Research &amp; Evaluation</td>
<td>70</td>
</tr>
<tr>
<td>Connectivity Network Outage</td>
<td>67</td>
</tr>
<tr>
<td>Network Change/Upgrade</td>
<td>67</td>
</tr>
<tr>
<td>Connectivity Other</td>
<td>63</td>
</tr>
<tr>
<td>Hardware Other</td>
<td>63</td>
</tr>
<tr>
<td>Software Email Client (Outlook)</td>
<td>55</td>
</tr>
<tr>
<td>Software/Applications Change/Upgrade Account</td>
<td>55</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,215</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division analysis of ISD data

The Department does not have a process in place that would identify the long turn-around times noted in Exhibit 5.3, their underlying causes, and possible mitigation strategies.
There are limited performance metrics established within ISD for the services it provides its customers

The Management Audit Division requested ISD provide performance metrics used to manage and improve the Department’s service delivery. Only one ISD division, Technology Resource Management, sets performance goals for itself, related to target vacancy rates, staff training, asset management, and claims processing. Though these are important measures for the Technology Resource Management Division, none of the customer-facing ISD divisions have comparable performance metrics to manage customer expectations or manage their workload.

ISD has in the past considered establishing performance metrics. ISD’s Three Year IT Plan for FY 2014-16 contained the following customer service goals and performance metrics, however there is still no system in place to monitor and measure actual performance compared to those proposed metrics. The proposed customer service performance metrics in the FY 2014-16 Three Year IT Plan were:

- Implementation of solutions within budget, on schedule, with required resources that meet identified outcomes.
- Support services meet or exceed the written document describing deliverables and outcomes.
- The identified and agreed upon deliverables and outcomes were documented and achieved.
- Identified self-service offerings and expected outcomes achieved, including savings in time, costs, value-added outcomes, and customer satisfaction levels.

These proposed performance measures were not included in the FY 2016-18 Three Year IT Plan and no metrics were proposed in their place. The Department does not have any processes to measure and incorporate the proposed performance metrics above from the prior Three Year IT Plan. In particular, it does not measure customer satisfaction, track project budget and deliverable information (discussed in Section 1: Project
Section 5: Customer Service & Performance Management

Management), or have service level commitments\(^1\) with its customers, as discussed further below.

ISD’s lack of performance measurement is in contrast to San Mateo County’s practice. That county has established performance dashboards for all its departments, including its Information Services Department, and publishes its actual performance against predetermined metrics on a public website. These measures include:

- Percent of Medium and Large Projects Completed 'On Time' and 'On Budget' with a Customer Satisfaction Rating of Good or Better
- Percent of Customers Survey Respondents Rating Services Good or Better
- Percent of Tickets Resolved at First Call
- Percent of Severity 1 (Critical) Tickets Responded to Within One Hour
- Percent of Customer Survey Respondents Rating Service Offered by this Program Good or Better
- Availability of Core Services (Datacenter, Network, Radio, and PBX)
- Percent of Customer Survey Respondents Rating Service Good or Better

ISD could not presently measure its performance against the above performance metrics nor publish its actual performance for the public because ISD does not track the information necessary to measure its performance and lacks a public website on which to publish its metrics. As noted above and discussed in Section 1: Project Management, ISD does not track project information such as total estimated budgets and timelines. Nor does it track customer satisfaction or number of calls for a given ticket, have a standard priority system for its tickets, nor track up-time of applications and systems. At the exit conference, ISD stated its new ticket system will solicit customer satisfaction ratings for each ticket.

**ISD only has one service level commitment with one of its customers**

ISD management reports that part of the reason ISD has not set up formal performance measures and metrics is because it has not agreed to provide a certain level of service to any of its customers except for the Social Services Agency (SSA). Currently, ISD provides customers with a list of services and rates for services but does not maintain

\(^1\) A service level commitment would be a written agreement between ISD and its customers outlining the expected service levels for its technology services.
any service level commitment with any of its County customers except for SSA. Such commitments typically include the following:

- A description of the services being provided and not provided
- Expected availability of staff and services
- Expected response times for requests and incidents
- Procedure for reporting problems, including specific points of contact
- Performance metrics and procedures for reporting to customers
- Consequences for not meeting service obligations

Absent competition for customers and agreed upon service levels, as measured in attributes such as those listed above, ISD, the sole provider for many County IT services, has less incentive to maximize the quality of its service delivery. Similarly, ISD and customers may have divergent expectations regarding service levels and resolution of problems in maintaining service levels. In interviews with the Management Audit Division, representatives of some customer departments reported that they had requested service level commitments but ISD was uninterested. At the exit conference, ISD stated that it is currently working with County Counsel to develop a service level commitment for all its customers.

More than half of ISD’s customers that responded to an audit survey rated the department’s performance as excellent or above average. Though only 60 percent of County departments and agencies responded to the survey, a third of the respondents want greater autonomy from ISD to pursue their own IT strategies.

In the fall of 2016, the Management Audit Division administered a survey of all County department and agency customers. Survey requests were sent to 40 department and agency directors and were completed by them or their designees such as their IT staff. Twenty-three of the 40 surveys distributed, or approximately 57.5 percent of all surveys, were returned. While this response rate leaves out many County departments and agencies, the results do reflect the opinions and experience of over half the organizations served by ISD.
Exhibit 5.4: Summary of survey respondents

<table>
<thead>
<tr>
<th>Survey Information</th>
<th>#</th>
<th>% of 23 respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total surveys distributed</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Number of completed surveys returned</td>
<td>23</td>
<td>100%</td>
</tr>
<tr>
<td>Max. number of respondents, per question</td>
<td>23</td>
<td>100%</td>
</tr>
<tr>
<td>Min. number of respondents, per question</td>
<td>9</td>
<td>39%</td>
</tr>
<tr>
<td>Average number of respondents, per question</td>
<td>19</td>
<td>82%</td>
</tr>
<tr>
<td>Number of Executives responding *</td>
<td>17</td>
<td>74%</td>
</tr>
<tr>
<td>Number of IT Managers responding</td>
<td>6</td>
<td>26%</td>
</tr>
<tr>
<td>Unknown identity of respondents</td>
<td>2</td>
<td>9%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers

* Executives refer to department heads and deputy directors

The survey asked customers to rate ISD performance in delivering ongoing services (such as Help Desk and network management) as well as on Countywide and departmental IT projects. In addition, the survey sought information about ISD’s and the responding department and agency’s own practices regarding information security, asset management, IT centralization, and internal service fund rates.

As shown in Exhibit 5.5 below, when asked generally about ISD services, half of the responding ISD customers reported being “very satisfied” with ISD’s services. About one-third reported being “somewhat satisfied” and 15% of respondents reported feeling neutral or negative regarding ISD’s services overall.

Exhibit 5.5: Overall, how satisfied or dissatisfied is your department/agency with ISD’s services?

20 Respondents reported:

<table>
<thead>
<tr>
<th>Answers</th>
<th>Portion of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>50%</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>35%</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied</td>
<td>5%</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>5%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers
We then asked respondents to rate particular aspects of ISD’s service delivery. As shown in Exhibit 5.6, more than half of the survey respondents rated ISD performance as excellent or above average.

Exhibit 5.6: Number of respondents rating specific aspects of ISD performance

22 Respondents reported for each performance rating category:

<table>
<thead>
<tr>
<th>Performance rating</th>
<th>Excellent</th>
<th>Above average</th>
<th>Average</th>
<th>Below average</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall level of customer service</td>
<td>3</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Timeliness in responding to requests for services</td>
<td>4</td>
<td>8</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Timeliness in resolving IT issues affecting your department/agency</td>
<td>4</td>
<td>12</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Thoroughness in addressing IT problems</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Sharing information about ISD services or projects that may impact your department/agency</td>
<td>5</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Understanding your department/agency's business needs and service requirements</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Soliciting your department/agency's preferences and input on ISD's services and strategic direction</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>60</strong></td>
<td><strong>41</strong></td>
<td><strong>12</strong></td>
<td><strong>10</strong></td>
</tr>
<tr>
<td><strong>Percent of responses</strong></td>
<td><strong>20%</strong></td>
<td><strong>39%</strong></td>
<td><strong>27%</strong></td>
<td><strong>8%</strong></td>
<td><strong>6%</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers

We then asked respondents to rate specific ISD services. As shown in Exhibit 5.7, about 45 percent of respondents rated ISD’s services as either excellent or above average.

Exhibit 5.7: Number of respondents to the question: Please rate ISD’s performance in the following service areas

Between 21 and 22 respondents reported for each service:

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Excellent</th>
<th>Above average</th>
<th>Average</th>
<th>Below average</th>
<th>Poor</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cell phone support services</td>
<td>5</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Countywide Help Desk</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Documentation of application capabilities and specifications</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Email support</td>
<td>5</td>
<td>8</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Employee Web Portals (e.g., CLARAnet) support</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Ensuring security of electronic data used by your department/agency</td>
<td>7</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Ensuring security of hardware used by your department/agency</td>
<td>7</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Geographic Information Systems (GIS) support</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Answer Options</td>
<td>Excellent</td>
<td>Above average</td>
<td>Average</td>
<td>Below average</td>
<td>Poor</td>
<td>N/A</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------</td>
<td>-----------</td>
<td>---------------</td>
<td>---------</td>
<td>---------------</td>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>Installation of Workplace Devices such as laptops, desktops, and tablets</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Internal and External Mail Delivery services</td>
<td>3</td>
<td>9</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>IT Bid Proposal support services</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>IT Project Management</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Management of County Network</td>
<td>9</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Microsoft Office (Word, Excel, etc.) support</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Printing and Design services</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Security Incident Response service</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Support for applications unique to your department/agency</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Support for PeopleSoft, Kronos and SAP Countywide applications</td>
<td>3</td>
<td>7</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Support for Workplace Devices such as laptops, desktops, and tablets</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Understanding customer department/agency requirements for IT projects</td>
<td>6</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Voice &amp; telecommunications equipment support services (excluding cell phones)</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Website design and management</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td><strong>Percent of responses</strong></td>
<td><strong>21%</strong></td>
<td><strong>24%</strong></td>
<td><strong>27%</strong></td>
<td><strong>5%</strong></td>
<td><strong>3%</strong></td>
<td><strong>21%</strong></td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers

As shown in Exhibit 5.7, the three ISD services rated most often as excellent were: (a) Management of the County network, (b) Ensuring security of electronic data used by your department/agency, and (c) Ensuring security of hardware used by your department/agency.

We asked respondents to rate ISD’s project management. As shown in Exhibit 5.8, 41 percent of ISD customers who responded to this survey were very satisfied with ISD Countywide project performance, while 46 percent reported being somewhat satisfied, and 14 percent reported being somewhat dissatisfied.
Exhibit 5.8: Overall, how satisfied or dissatisfied are you with ISD's execution of County-wide IT projects?

22 Respondents reported:

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Portion of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very satisfied</td>
<td>41%</td>
</tr>
<tr>
<td>Somewhat satisfied</td>
<td>46%</td>
</tr>
<tr>
<td>Neither satisfied nor dissatisfied</td>
<td>0%</td>
</tr>
<tr>
<td>Somewhat dissatisfied</td>
<td>14%</td>
</tr>
<tr>
<td>Very dissatisfied</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers

Five departments reported that ISD service or project delivery had negative impacts on the respondents’ compliance with their mandates. Fifteen departments, or 68% of respondents, reported that ISD services had no impact on their mandate compliance.

Implications of survey results

While the survey respondent ratings for services and projects are mostly average or above, ISD should be regularly obtaining customer assessments with measures such as those discussed above from our customer survey and reviewing areas with relatively lower rankings in the interest of improving services.

ISD customers rated the Department lowest in soliciting their input for ISD service development and strategic direction. Similarly, customers rated ISD relatively poorly in understanding departmental requirements for IT projects (even though most departments were very or somewhat satisfied with project delivery). These sentiments were also expressed in interviews with a random sample of ISD customer departments and agencies. Perhaps for this reason, approximately a third of respondents wanted greater autonomy from ISD to pursue their IT needs and/or wish to purchase ISD services and projects a la carte. Exhibit 5.9 shows how ISD performance has translated to customer demands of ISD.
Exhibit 5.9: Number of respondents out of 22 responding “Yes” to the following statements (checking all that applied)

22 Respondents reported:

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Count</th>
<th>% of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall, we are satisfied with ISD’s current performance of its services</td>
<td>10</td>
<td>45.5%</td>
</tr>
<tr>
<td>We want a higher level of support from ISD in certain areas</td>
<td>8</td>
<td>36.4%</td>
</tr>
<tr>
<td>We want greater autonomy to pursue our own IT needs and requirements</td>
<td>7</td>
<td>31.8%</td>
</tr>
<tr>
<td>We want ISD to document its types and levels of service offered in a Service Catalog from which we can select our services to be provided</td>
<td>7</td>
<td>31.8%</td>
</tr>
<tr>
<td>We want ISD to improve its performance in providing existing services</td>
<td>6</td>
<td>27.3%</td>
</tr>
<tr>
<td>We want a higher level of support from ISD overall</td>
<td>4</td>
<td>18.2%</td>
</tr>
<tr>
<td>We want ISD to offer more services</td>
<td>4</td>
<td>18.2%</td>
</tr>
<tr>
<td>We want ISD to provide more resources, technical assistance, and/or monitoring to ensure we are compliant with County IT policies</td>
<td>3</td>
<td>13.6%</td>
</tr>
</tbody>
</table>

Source: Management Audit Division survey of ISD customers

Although the survey did not reveal widespread discontent with ISD’s performance, consistent with the Department and County goal of ISD having a customer-driven focus, the Department should aim to achieve excellent ratings from all its customers in its delivery of services and projects. Improving ISD’s performance will be difficult until it starts measuring performance and customer satisfaction and establishes a process for incorporating that feedback into service and project delivery. Failing to do so could impair the County’s effort towards IT centralization.

**IT Centralization**

The Three Year IT Plan for FY 2016-18 notes “the trend toward centrally-driven enterprise services” yet the County lacks a conceptual framework to guide its IT centralization effort. Similarly, ISD lacks a strategic plan to organize and prioritize its workload, while ISD’s budget has doubled in the past four fiscal years. The Department’s budget increased from $74.4 million in FY 2013-14 to $148.9 million in FY 2016-17. Although many departments have their own IT staffs, the IT reporting structure and authority is being centralized at ISD. In 2011, the Health and Hospital System Chief Healthcare Technology Officer began reporting to the ISD CIO and in 2016, so did the Social Services Agency Chief Information Officer. In addition, as of May 1, 2016, authorization for new IT positions or add/deletes in any County department or agency now requires approval from ISD.
As the County centralizes its IT, it needs an explicit framework to guide its strategy, operations, and resource allocation that clearly delineates the role of ISD and its customer departments. ISD should communicate the benefits of centralization to all County stakeholders including the benefits of greater uniformity of systems and reduced risks of system degradation and/or unauthorized access to County data. However, ISD should also endeavor to structure centralization in the County to avoid drawbacks such as slower decision making and a less nimble IT function with stalled innovation and reduced service levels.

There are three major models for IT centralization: 1) fully centralized IT services, 2) decentralized IT service, and 3) federated IT, or a combination of centralization with some independence maintained by County departments and agencies. In a centralized model, all IT service provision is carried out by a single entity, such as ISD. All County IT personnel and resources would be consolidated in ISD to serve its customer departments. Conversely, in a decentralized model, each department would have its own IT staff and resources and pursue IT solutions independently.

The centralized model has the benefit of economies of scale and it is easier to establish and maintain technical standards and policies but the inherent uniformity of standards and services may not conform to departments’ requirements. The decentralized model allows customers to more easily define and meet their IT needs without reference to a higher authority but may be more expensive (as IT resources would likely need to be duplicated within each department across the County) and standards for such things as system architecture and policies for such things as security would be more difficult to establish and maintain enterprise wide.

In a federated IT model, there would be a central IT authority (in this case, ISD) that would deliver common services such as network connectivity and would also establish standards for security and architecture but customer departments would retain autonomy to implement and maintain department-specific applications. Departmental IT staff would report to and coordinate with their department directors and to ISD. To be successful, interagency coordination would rely on clear boundaries and decision-making authority between ISD and its customer departments and is thus difficult to execute without an explicit model for doing so. These relationships could be outlined in the County’s Three Year IT Plan as well as in a future strategic plan for ISD. For the
federated or centralized model to work for all stakeholders, ISD would need to excel in service delivery and in being responsive to its customer needs.

The graphic in Exhibit 5.10 below shows the trade-offs among the three IT models discussed above. All three models are considered effective and can be best practice if properly implemented; selection among them requires policy makers to establish principles for risk tolerance, funding levels, and departmental autonomy. Risk in these models derives from the level of heterogeneity in systems and standards among the models. Note that the graphical representation below assumes the central IT service provider is functioning optimally. If that is not the case, the relationship among cost, risk and departmental autonomy would break down. In that case, for example, even a centralized IT provider could end up being high cost and high risk.

**Exhibit 5.10: Cost, risk, and autonomy trade-offs among IT centralization models**

![Exhibit 5.10: Cost, risk, and autonomy trade-offs among IT centralization models](image)

Source: Management Audit Division analysis
CONCLUSION

ISD underutilizes its Help Desk ticket system. The Department only tracks 39 percent of the Department’s service requests through this system and it is not set up to measure service performance. Further, the Department does not regularly measure customer satisfaction or any aspects of its service or project performance. This is at least partially because ISD does not have any service level commitments with its customer departments and agencies except for the Social Services Agency.

Although our survey of customer departments did not reveal widespread discontent with ISD’s performance, consistent with the Department and County goal of ISD having a customer-driven focus, the Department should aim to achieve excellent ratings from all its customers in its delivery of services and projects. Improving ISD’s performance will be difficult until Department management starts measuring and monitoring performance and customer satisfaction and establishes a process for incorporating that feedback into service and project delivery. Failing to do so could impair the County’s effort towards IT centralization. Even though the County is in the process of centralizing IT at ISD, it lacks an explicit framework to guide this strategy.

RECOMMENDATIONS

The Information Services Department should:

5.1 Prior to acquisition of a new ticketing system, revise current and ongoing ticketing practices to integrate email and other requests for ISD service into a single, consolidated database to allow for ISD management tracking of staff performance on all customer requests. (Priority 2)

5.2 Prior to acquisition of a new ticketing system, revise current and ongoing its ticketing practices to track and report to management on additional ticket and other customer request data necessary to measure and constantly improve performance, including (Priority 2):

   i. Number of customer contacts and requests for service
ii. Assignment of ISD staff, including staff outside the Help Desk division, to ensure that tickets not completed by the Help Desk are completed in a timely manner.

iii. Customer satisfaction

5.3 Develop written procedures and required fields for ticket and other customer service request data entry, including standardized definitions for priority. (Priority 2)

5.4 Establish a method of obtaining customer feedback, such as after each service request is fulfilled or project completed, to be used by management to assess and continually improve ISD service levels. (Priority 2)

5.5 Develop procedures to ensure that all non-project workload is tracked in the ticket system. (Priority 2)

5.6 Establish service level commitments with all of its customer departments and agencies detailing that have clear points of contact at ISD detailing expected service levels. Such commitments would provide customers with details of ISD services and their expected service levels. (Priority 3)

5.7 Prepare a draft model for the Countywide approach to IT centralization review and approval by the Board of Supervisors detailing IT functions and responsibilities to be centralized and those to be decentralized to departments and agencies and the costs and benefits of each element. (Priority 3)

SAVINGS, BENEFITS AND COSTS

Implementing these recommendations will result in better measurement of ISD’s workload and performance, which in turn will result in increased efficiency of ISD’s service work. This efficiency will allow the Department to deliver additional services at lower costs to customers. The Department stated at the exit conference that its current financial plan includes procurement of a new ticket system and development of an enterprise-wide service level commitment which will facilitate implementation of these recommendations.
Section 6. Mobile Device Security Weaknesses

Background
County ISD has issued and pays for 6,229 cell phones. Although the County has developed specific issuance and information security policies, these internal controls are weak. The County spent over $11 million on other "low-value" assets between 2010 and 2016 but has weak inventory system controls on all these devices.

Problem
About one-third of County employees have been issued cell phones, but neither ISD, nor the County Controller-Treasurer, nor receiving departments systematically track these devices after purchase, putting the equipment and County data at risk. Similarly, ISD and County departments maintain internal lists of their low-value assets such as workstations and servers, but in a review of a sample of the inventories of such items, they were found to be incomplete and not compliant with County Controller-Treasurer policies.

Adverse Effect
Without an accurate inventory, the County cannot secure its IT assets, many of which contain sensitive information and which may connect to the County’s network, enabling unauthorized transfers of malware or data. This increases the legal and financial risks of the County and increases the financial risks to the public that it serves.

Recommendations, Savings, and Benefits
The Management Audit Divisions recommends changes to County policies and practices regarding the tracking of “low-value” assets, including cell phones. These include clarification of existing ISD policies and integration of those policies with County information security policies. ISD should also immediately inventory data-plan or network-connected devices, and immediately shut off data plans for devices that cannot be located. This would improve the motivation to follow policies to track these assets, and would ensure that lost devices can no longer be used by unauthorized individuals.
There are weak internal controls for County-issued cell phones, putting County equipment and data at risk. Over one-third of County employees have been issued cell phones, but the County does not systematically track these devices after purchase.

ISD’s Telecommunications Division (ISD Telecomm) is responsible for purchasing and billing for County-issued cell phones. ISD Telecomm supports 6,229 cell phones. The County budgeted $1.6 million in FY 2015-16 on cell phone service alone (not counting the cost of equipment and accessory purchases). In addition, ISD Telecomm manages the County’s contracts with its three cell phone service providers.

The County divides responsibility for cell phone procurement and management between ISD Telecomm and County departments. During the audit, cell phone use was governed by two County policies – one from the Controller-Treasurer and another from ISD. The County’s Controller-Treasurer’s Policies and Procedures Manual, Procedure Number 20.1000.17, governs cell phone use and was last updated in April 2011. In October 2011, the Management Audit Division completed an audit of the Countywide Cell Phone Authorization, Use, and Oversight functions and made recommendations regarding the County’s cell phone management practices. These recommendations are not reflected in the County’s cell phone policy, but certain practices have changed per the audit’s recommendations, particularly centralization of certain cell phone procurement and management functions at ISD.

As of this writing, the Telecommunications Unit is scheduled to be dissolved, and current staff reassigned, pending negotiations with the unions representing Telecommunications employees. Although the ultimate status of the current Telecommunications staff and their responsibilities has not been finalized, the draft proposal currently under negotiation envisions responsibility for cellular phone asset management to be carried out by the Information Technology Asset Management group within ISD.

Per the Controller-Treasurer policy, departments have three responsibilities with respect to cell phones:

1. Conducting periodic review, at least annually, of the business necessity for assigning designated employees a County cell/smart phones
2. Maintaining an updated inventory of County-owned cell/smart phone devices and furnishing the annual updated list to the Controller-Treasurer’s Office annually

3. Completing and updating the Cell Phone and Wireless Personal Digital Assistance Device Assignment Form for all users as needed

The Controller-Treasurer’s policy also establishes criteria, discussed below, for departments to evaluate the need for employees to obtain and keep a County-issued cell phone.

In addition to the Controller-Treasurer’s cell phone policy, the County has an information security policy for mobile devices. This policy requires that County issued phones be devices that have been approved by the Chief Information Security Officer (CISO). This policy also has several other requirements discussed in Section 2: Information Security.

Although not described in either County policy, in practice ISD Telecomm is responsible for purchasing all cell phones and accessories and fielding requests for support, including device activation and setup, plan changes, and billing questions. In addition, Telecomm is responsible for reviewing monthly bills to ensure cell phone plans align with usage and for paying the monthly bills for all the County’s cell phones.

**Departments do not consistently evaluate the issuance and ongoing need of County-issued cell phones**

As noted above, the Controller-Treasurer establishes criteria for issuing and reviewing the ongoing business case for employees having County cell phones. Those criteria are for the employees to:

a) Need wide mobility and simultaneous access to the communications network;

b) Need timely, business critical two-way communication for which there is no reasonable alternative technology;

c) Spend a significant amount of time out of the office and required to be contactable during and/or outside of working hours;

d) Use the County email and calendar software while out of the office;

f) Require emergency support and back up from a mobile environment; and/or
Section 6: Mobile Device Security Weaknesses

**g) Have special circumstances necessary for the efficient and effective operation of County business**

Departments do not evaluate the issuance and ongoing need of employees to have County-issued cell phones, even though this is required by the Controller-Treasurer’s cell phone policy. In fact, in interviews and our survey of County departments and agencies conducted for this audit, departments seemed for the most part unaware of the criteria for issuing cell phones.

To evaluate departmental compliance with the Controller-Treasurer’s cell phone review policy, we interviewed ISD managers and surveyed County departments and agencies to understand current cell phone review practices. Of the 18 departments that responded to our survey question, “What eligibility criteria does your department/agency use to determine whether an employee needs a County-issued cell phone?” none referred to the Controller-Treasurer cell phone policy. Eleven departments referred vaguely to “business need” or “job duty requirements” or “supervisor”, suggesting that cell phones are automatically given to employees in certain classifications. Seven respondents had more detailed criteria, such as jobs that require extensive field work or 24/7 availability. In the current division of labor between ISD Telecomm and departments, ISD Telecomm does not evaluate cell phone purchase requests for business need but instead relies on departmental discretion. However, because departments are not applying standard criteria to determining employee cell phone needs, the County may be purchasing and paying for unnecessary cell phones and service.

**The County’s Cell Phone Inventory is Not Consistently Tracked**

ISD Telecomm maintains an inventory of cell phone assignments, but relies on customer departments to audit their own inventories. As noted above, once a cell phone is purchased by ISD Telecomm and provided to an employee, departments are supposed to maintain an inventory that is updated at least annually and provide the updated version to the Controller-Treasurer at least annually. However, the Controller-Treasurer does not track cell phones nor are departments systematically maintaining an inventory of cell phones in their departments.

According to our survey of County departments, six respondents (or 29%) stated they did not maintain an inventory of their cell phones. Seven departments reported that their inventory was updated or is in the process of being updated this calendar year.
However one department reported that their most recent audit of their inventory was 2014 and another department reported it thought it was ISD’s responsibility to maintain and update their cell phone inventory. Two departments reported being unsure about their cell phone inventory or not having access “to a report like that.” Further, departments are not reporting their cell phone assets to the Controller-Treasurer as required by County policy. In fact, cell phones are not tracked at all on the Controller-Treasurer’s low value asset list, even though the Controller’s policy requires an annual inventory of these items.

Without an updated and audited inventory of its cell phone assets, County property is at risk for theft or unauthorized access. Because email, text messages, and other County data may be stored on cell phones, including sensitive or HIPAA protected data, untracked cell phones expose the County to legal liability. More importantly, these devices may connect to the County network, potentially facilitating the transfer of malware onto the network or data off of the network. Cell phones may connect to “cloud” data storage services or have removable storage which could enable unauthorized copying of large amounts of information. At the exit conference, ISD noted it had deployed mobile device management software that ensures standardized security settings for all County-issued cell phones, including password protection and encryption.

Further, the County’s mobile device information security policy states that “all Mobile Devices...shall be selected from the list of devices approved for use within the County environment.” No such list existed during our fieldwork. The County has no policy that details standards or approved mobile device specifications. ISD Telecomm has limited authority to question departmental specifications for mobile devices, which range from default smart phone design (e.g. 16gb black iPhone) to ones with much more memory and/or accessories. The lack of criteria for approving device specifications may lead the County to purchase unnecessary equipment and accessories. It also results in different capabilities – and thus more variety of risk – across the devices. Greater variety of risk makes it more difficult to secure devices.

The Controller-Treasurer’s current cell phone policy is deficient, needs to be enforced, and needs to be integrated with the County’s information security mobile device policy. As noted above, departments are out of compliance with the current Controller-Treasurer’s inventory, issuance, and review requirements. In addition, the current
policy does not capture the division of labor between ISD Telecomm and customer departments. In a February 2016 memo to the ISD Chief Financial Officer, the Telecomm manager and Internal Auditor pointed out that the current cell phone policy does not address the following questions:

1. Who should decide the need for the equipment?
2. Who should decide the type of equipment?
3. What is appropriate use, and who should decide?
4. Who can suspend or cancel service?
5. What to do about over- and underuse?
6. Who does inventory observation/count of equipment? How often?

In addition to the questions posed by Telecomm, an updated County policy should establish a cell phone retirement policy to secure County data and prevent unauthorized transfer of County property when employees change jobs or separate from County service.

At the exit conference, ISD and the Controller presented auditors with an updated draft cell phone policy. The draft addresses items 1 – 6 noted above.

**How Low-Value Assets are Supposed to be Tracked**

Asset management in Santa Clara County is overseen by the Controller-Treasurer. The Fixed Assets Administrative Guide describes the policies and procedures that govern the tracking and monitoring of fixed and low-value assets (LVAs). Low-value assets, also known as low-value expense items (LVEIs), are defined by the Controller-Treasurer as items that cost less than $5,000 at the time of purchase, while fixed, or capitalized, assets are those that cost $5,000 or more at the time of purchase.

While individually of relatively low-value, the total spent on low-value assets by all of the County’s departments combined, including ISD and ISD-supported departments, since 2010 is $11,713,008.

The Controller-Treasurer’s policies state that low-value assets are tracked in the SAP fixed asset sub-ledger for control purposes due to their sensitive and theft-prone nature. Information about each asset purchased must also be entered into SAP by the procuring department.
Extensive Exemptions

If a department believes that the requirement of tracking its assets in SAP is not feasible and if it possesses an alternate tracking mechanism, it can request an exemption from the Controller-Treasurer from recording and tracking its assets in SAP. According to the Controller’s office, one of the reasons that a department may find it difficult to use SAP is if it regularly purchases and receives a large volume of assets that would require extensive additional data entry to fulfill all SAP asset information requirements. The Information Services Department (ISD) requested and was granted an exemption from recording its low value assets in SAP because of the high volume of purchases it makes and would need to record to meet the Controller’s requirements.

An exempt department’s alternate tracking system must capture certain information, including the asset tag number, asset location, asset description, capitalization or entry date, original asset value, asset class, and responsible cost center. Once a department receives an exemption from the Controller-Treasurer from using SAP as their primary asset inventory system, only the identification of the asset is posted in SAP. This occurs through the asset purchase process as the County’s procurement system, Ariba, continues to create an expense line item for all assets in SAP, but the asset is not classified as a low-value expense item and stored in the asset sub-ledger with all the required information detailed above. Instead, the exempt departments become responsible for recording and tracking the required information about the assets in their own inventories.

ISD and its supported departments\(^1\) have received an exemption from tracking their low-value assets in SAP. Instead, ISD captures the following information on its own inventory for itself and its supported departments: Manufacturer, Device Type, Model, Serial number, Status of the Item, Location, Department, Funding Source, Ticket Number, Cost Center, Original Cost, Purchase Date, Deployment Date, and Disposal Date. It does not capture the Asset Tag Number, as required by the Controller-Treasurer, since ISD has not been assigning asset tags to low-value assets since 2013, which is an issue that will be addressed in more detail below in this section.

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\(^1\) ISD provides all IT services to twenty County departments in lieu of those departments having their own IT divisions. For the complete list of ISD supported departments, see Appendix A.
Section 6: Mobile Device Security Weaknesses

The Social Services Agency and the Emergency Medical Services Agency, neither of which is supported by ISD, have also received an exemption from tracking their assets in SAP. Like ISD, they each maintain their own internal tracking systems.

Once a department receives a low-value asset, the Controller-Treasurer requires that it maintain adequate physical control over the asset to minimize risk of loss or misuse of County assets. Departments are required to affix a pre-numbered “Santa Clara County Property” tag to low-value items. The tag should be attached where it can be readily seen, preferably on the left front corner of the asset, when practical. The department can obtain pre-numbered and un-numbered “Santa Clara County Property,” ID tags from the General Accounting Unit at the Controller-Treasurer’s Department.

It is the responsibility of procuring departments to: 1) obtain identification labels from the Controller-Treasurer Department; 2) properly attach tags to items immediately upon receipt of the assets, and 3) enter the tag numbers into SAP (in the Inventory Note field) to update the fixed asset records. Departments may also use their own identification labels upon obtaining approval from the Controller-Treasurer Department.

**Inventorying low-value assets**

Unlike for fixed assets, or those with a value of $5,000 or more, the Controller-Treasurer does not require that departments periodically inventory and reconcile their low-value expense items with the list in SAP or, with their own uniquely generated lists if they have received an exemption from using SAP. Instead, the Administrative Guide recommends that departments implement a cycle count system to track the existence of low-value assets, especially firearms. A cycle count system consists of regularly counting a portion of a department’s assets, instead of attempting to inventory the entire collection of assets at one time. However, the Controller-Treasurer does require an annual inventory of cell phones.

Departments have the discretion to choose how their cycle count will be conducted. For example, a department might decide to count one-quarter of its assets four times per year, so that the entirety of the asset collection is counted over the course of the year.

When departments dispose of their low-value assets, they are supposed to submit a Fixed Asset Retirement Form to the Controller-Treasurer and indicate whether the asset is being retired or recycled and if it is being replaced by another asset. Until the Controller-Treasurer receives this documentation, the asset remains active in SAP.
Exhibit 6.1, below, illustrates how low-value assets were managed during the period under audit, depending on the type of department: 1) departments not supported by ISD that are exempt from the Controller’s reporting requirements, 2) departments not supported by ISD that have not been granted a reporting exemption by the Controller, and 3) departments supported by ISD (all of which are exempt from the Controller-Treasurer reporting requirements through ISD’s exemption).
Exhibit 6.1: Low-Value Asset Management by Department Type

**Non-Supported and Non-Exempt**
- New equipment purchase requests are entered into Ariba, Procure-To-Pay (P2P) a web-based procurement and payment system. Ariba integrates with SAP and an entry is developed in SAP as well.
- Department receives purchased equipment.
- Equipment is logged in Ariba as received and payment is sent to vendor.
- Assets are tracked and monitored in SAP.
- Departments are required to tag all LVAs/LVEIs with labels obtained from the Controller-Treasurer’s Office. They enter the tag numbers into SAP.
- Departments are not required to do an Annual Physical Inventory Certification for LVAs or LVEIs. County policy recommends that they adopt a cycle count system to track all LVEIs.

**Non-Supported and Exempt**
- New equipment purchase requests are entered in Ariba, Procure-To-Pay (P2P) a web-based procurement and payment system. Ariba integrates with SAP and an entry is developed in SAP as well.
- Department receives purchased equipment.
- Equipment is logged in Ariba as received and payment is sent.
- Department requested exemption from Controller-Treasurer’s office and tracks LVAs and LVEIs using independent system without SAP. The Social Services Agency and Department of Environmental Health are in this category.
- Departments are not required to do an Annual Physical Inventory Certification for LVAs or LVEIs. County policy recommends that they adopt a cycle count system to track all LVEIs.

**ISD-Supported and Exempt**
- New equipment purchase requests are entered in Ariba, Procure-To-Pay (P2P) a web-based procurement and payment system. Ariba integrates with SAP and an entry is developed in SAP as well.
- ISD receives purchased equipment and logs it in Ariba as received; payment is sent to vendor.
- Asset is tracked by ISD’s Asset Tracking Log spreadsheet on Sharepoint. ISD and ISD-supported departments received an exemption from Controller-Treasurer to track these assets in SAP. The only ISD supported department that this does not apply to is Procurement.
- When equipment is decommissioned or replaced, the entry on ISD’s spreadsheet is updated or reconciled.
There is no accurate, countywide master list of low-value assets that can be used to conduct verification of a department’s assets

The Management Audit Division reviewed SAP’s low-value asset lists for a sample of departments and found that it included assets that could not be located by the departments or were known to have been disposed of in some cases and excluded assets still in use by departments in other cases.

ISD is exempt from the Controller-Treasurer’s requirement to maintain its asset inventory in SAP; since 2010, it has maintained its own inventory of assets for itself and for its supported departments. ISD did not record low-value assets in its inventory until 2013. As a result, some low value IT assets purchased by ISD for itself and its supported departments between 2010 and 2013 are not recorded in either SAP or the ISD inventory.

Methodology

The Management Audit Division sampled 20 to 30 low-value assets each in six departments for this audit using the assets listed in SAP by the Controller-Treasurer. For the three departments that are supported by ISD, we also compared selected items in ISD’s asset inventory against actual assets in the supported departments since they are all exempt from the Controller-Treasurer’s requirement to maintain a detailed inventory of their low-value assets in SAP. For those three departments, low-value assets should be at least recorded in SAP when they are purchased, but the details about them such as the manufacturer, device type, model, serial number, and status of the item, should be recorded in ISD’s inventory. Our intent was to assess both the accuracy of the SAP list for supported and non-supported departments, as well as the accuracy of the ISD list for supported departments.

Exhibit 6.2: Departments Reviewed for Low-Value Asset Inventory Accuracy

<table>
<thead>
<tr>
<th>Departments Supported by ISD</th>
<th>Departments Not Supported by ISD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee Services Agency (ESA)</td>
<td>Assessor</td>
</tr>
<tr>
<td>Pretrial Services</td>
<td>County Communications</td>
</tr>
<tr>
<td>Procurement</td>
<td>Public Defender</td>
</tr>
</tbody>
</table>

Board of Supervisors Management Audit Division
Accuracy of the SAP List for Departments not Supported by ISD

For the three non-supported departments, the Assessor, County Communications, and the Public Defender’s Office, using the inventory of low-value assets in SAP, it was discovered that the list contains numerous items that were purchased prior to 2010, some of which were purchased as far back as the 1980s and 1990s. None of these low-value assets purchased prior to 2010 could be found in the departments. All of the three departments also stated that they do not have a paper trail that documents when assets purchased prior to 2010 were disposed.

As for items purchased since 2010, the SAP list was found mostly accurate for the sample items reviewed. Only County Communications had a discrepancy between the two lists with 18 of the 20 randomly selected items located by the department and two items not found. For the Public Defender’s and the Assessor’s offices, all of the randomly selected items from the SAP list that were purchased after 2010 were located by the departments. However, as detailed below in Exhibit 6.3, inventory discrepancies were found for all three of the supported departments, indicating that the differences were largely attributable to items purchased in 2010 or prior.

Another issue raised is that some departments are duplicating work that should be performed by Controller’s staff. Although the majority of the randomly selected items from the SAP list could be found in County Communications and the Public Defender’s office, both of those departments, as well as the Assessor’s Office, maintain their own internal inventories that contain additional low value expense items that are not recorded in SAP.

For example, the Assessor’s Office maintains an internal inventory of low value expense items that has hundreds of items that are not found in the Controller-Treasurer’s SAP inventory, when searched for by their serial numbers. The Assessor’s Office indicated that it has developed its own system, despite the fact that it is not formally exempt from maintaining entries in SAP by the Controller-Treasurer. The Assessor’s Office’s system consists of Excel spreadsheets, which it plans to migrate to an Access database. They also use software to verify the location of items in service on the network. The Assessor’s Office was planning to formally request an exemption from the Controller-Treasurer’s requirement to use SAP as this report was being prepared.
Accuracy of the SAP Inventory for Departments Supported by ISD

As reported above, ISD has been granted an exemption by the Controller-Treasurer from maintaining their low value asset inventory in SAP and instead maintains its own inventory for assets procured and used by ISD and its supported departments. For ISD and ISD-supported departments, the SAP inventory does not contain all of the low-value assets in use in the departments and it includes assets that have been disposed of but for which there is no paper trail. Similar to non-supported departments, the items contained in SAP for supported departments that were purchased prior to 2010 can no longer be located.

For items purchased by ISD for itself or for its supported departments since 2013, SAP only records an entry for the asset to indicate whether it was expensed or not. SAP does not maintain detailed records about the assets in its low-value asset sub-ledger as it does for other County departments and agencies that have not been granted an exemption from maintaining the inventory in SAP.

Accuracy of the ISD inventory for Supported Departments

ISD maintains its own inventory of assets purchased since 2013 for itself and for its supported departments. However, the list does not contain all of the low-value assets in ISD and its supported departments, as reported by ISD and evidenced by comparing the ISD list to the internal inventories of two ISD supported departments: Employee Services Agency and Procurement. The Office of Pretrial Services does not maintain its own internal list and relies on ISD for low-value expense item tracking, meaning that ISD’s list, whether accurate or not, is the only source of asset information for that department. ISD indicated that updating the list to include all assets for the other departments could require the use of extra help over the course of a few weeks.

Disposition of Low-Value Expense Items

All six of the departments interviewed indicated that they were aware of the Controller-Treasurer’s requirement to complete and file disposition paperwork upon the retirement of an asset, but reported that this requirement has been inconsistently followed until recently. In the recent past, departments were supposed to send disposition paperwork to the Procurement Department to be reviewed and signed, and then the Procurement Department would send the paperwork to the Controller-Treasurer for processing. Email documentation showed there was a bottleneck at Procurement that resulted in a several months'
delay of paperwork when forwarded to the Controller-Treasurer. However, according to ISD, retirement forms are no longer sent to Procurement but are now sent directly to the Controller-Treasurer, per the Procurement Department’s request. The Controller-Treasurer’s Office stated that they do not have a backlog for items that need to be removed from ISD. However, our review of the six departments showed that there had been lapses in recording disposition of assets in past years as the departments indicated that there are a number of assets still listed on SAP inventory that they haven’t had for many years.

Exhibit 6.3 below summarizes the audit findings regarding departmental inventories of low-value assets. It indicates which of the six sampled departments had its own inventory, whether the items in the inventories were also found in SAP, and whether the items found on the department’s inventory were also found in the ISD inventory, in the case of the three ISD-supported departments. Finally, it indicates the number of assets from our sample list that each of the six departments was asked to locate.

Exhibit 6.3: Results from Departmental Low Value Asset Sampling

<table>
<thead>
<tr>
<th>Department Name</th>
<th>Department maintains own inventory of low-value assets?</th>
<th>Items on internal department inventory also found in SAP?</th>
<th>All items found on departments’ internal inventories also on the ISD list (for 3 supported departments)</th>
<th>Number of sample items from SAP list that department was asked to locate</th>
<th>Number of items department was able to locate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessor</td>
<td>Yes</td>
<td>No</td>
<td>n/a</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>County Communications</td>
<td>Yes</td>
<td>No</td>
<td>n/a</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td>Employee Services Agency</td>
<td>List managed by TechLink Center</td>
<td>No</td>
<td>No</td>
<td>30</td>
<td>19</td>
</tr>
<tr>
<td>Pretrial Services*</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>41</td>
<td>4</td>
</tr>
<tr>
<td>Procurement</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Public Defender</td>
<td>Yes</td>
<td>No</td>
<td>n/a</td>
<td>23</td>
<td>15</td>
</tr>
</tbody>
</table>

*Prior to 2009, Pretrial Services kept a detailed inventory of low value IT assets. From 2009-2014 there was limited information kept and from 2014 to the present, Pretrial Services stopped keeping its own list since purchases are going through ISD.

Source: Management Audit Division review and comparison of various IT low value asset inventories
Low value assets are not regularly inventoried and are not being tracked by County departments or the Controller-Treasurer

Despite the Controller-Treasurer’s recommendation that departments conduct a cycle count annually for low-value assets, the Controller-Treasurer does not verify if this is being done. Departments do not submit any documentation of the results of their efforts to inventory their low-value expense items to the Controller-Treasurer, thus the Controller-Treasurer does not know if and when low-value assets are found to be missing by a department.

Four of the six departments sampled did not conduct an annual inventory or a cycle count. The remaining two departments, Procurement and the Assessor’s Office, indicated that they did conduct an annual inventory of their low-value assets.

Pretrial Services and the Employee Services Agency did not conduct an annual inventory or periodic cycle count for their low-value assets. Staff of the County Communications Department stated that they used to conduct an annual inventory but that the employee responsible for this task left the department and that the function had not been reassigned at that time. Finally, the Public Defender’s Office said that they had not conducted any type of low-value asset inventory review since 2011, but that they do use Lansweeper to periodically inventory computers and laptops that are situated on their network.

In conclusion, only two of the six sampled departments were conducting a cycle count inventory or annual physical inventory of their assets at the time of our fieldwork. The other four departments did not have processes in place to confirm and verify the assets under their control. This result is summarized in Exhibit 6.4.
Exhibit 6.4: Summary of Sample Department Compliance with Controller-Treasurer’s Annual Inventory Requirement for Low-Value Assets

<table>
<thead>
<tr>
<th>Department Name</th>
<th>Summary of Low-Value Asset Inventory Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessor</td>
<td>Annual physical inventory conducted; software used to track LVAs connected to network.</td>
</tr>
<tr>
<td>County Communications</td>
<td>No annual physical inventory or cycle count conducted currently (this function was formerly performed by an individual who left)</td>
</tr>
<tr>
<td>Employee Services Agency</td>
<td>No annual inventory or cycle count conducted.</td>
</tr>
<tr>
<td>Pretrial Services</td>
<td>No annual inventory or cycle count conducted.</td>
</tr>
<tr>
<td>Procurement</td>
<td>Annual physical inventory conducted.</td>
</tr>
<tr>
<td>Public Defender</td>
<td>No annual inventory or cycle count conducted since 2011; software used to track LVAs connected to network.</td>
</tr>
</tbody>
</table>

Source: Management Audit Division review

The County’s current practices can be evaluated in relation to the Government Finance Officers Association “Best Practices Guide for Maintaining Control over Items that are Not Capitalized.” The Guide recommends that control for non-capitalized assets occur at the departmental level, rather than as a centralized finance function, which is already the case in Santa Clara County. However, the guide states that the centralized accounting or finance department should periodically verify that the non-capitalized assets data that is maintained in individual departments is correct, which was not occurring at the time of our fieldwork.

The Guide also recommends that control for non-capitalized assets be assigned within each department, and that the individuals responsible for control should prepare and maintain a complete list of all items within the department. At the close of the fiscal year, each individual assigned responsibility for controlled capital-type items should prepare a report that provides a complete list of the items and an explanation of any changes from the previous year. The responsible manager in the department should then certify to the central accounting function that those lists are 1) on file and available for inspection and 2) there is a reliable and complete framework of internal control in place. In Santa Clara County, such practices are not in place, in at least the six sample departments whose low value asset inventory practices were reviewed and evaluated for this audit. The recommendations at the end of this section are informed by these Best Practices.

As part of the audit customer survey conducted of County departments, we asked departments whether they maintain and update regularly an inventory of low-value assets, not including cell phones. Of the 18 departments that responded to the question, 13 said ‘yes’ and five (28 percent) said ‘no.’ The survey results
were self-reported and unverified, and several of the County departments did not respond to the survey.

**IT Hardware and Software Asset Management**

*Purchase of hardware and software asset management system*

In part to address the lack of a Countywide master list for low-value IT assets, ISD was planning to implement a new hardware and software IT asset management system that will primarily be for tracking the low-value assets of ISD and ISD-supported departments, but which ISD hopes to expand and use to eventually track all of the low-value assets Countywide. While such a system would be an improvement compared to current practices, ISD lacked plans, policies, and procedures to effectively utilize this proposed new system at the time this report was prepared. The asset system was described in the Fiscal Year 2016-17 budget document.

From the Fiscal Year 2016-17 budget document:

- ISD is in the process of implementing an IT asset management program that governs the lifecycle of IT assets from an inventory, contractual and financial point of view. Current asset data is disparate, incomplete and spreadsheet-driven. A mature ITAM function produces reliable hardware replacement schedules, as well as tools and processes to monitor licensing compliance, prepare for software audits and optimize software investments.

ISD posted a Request for Proposals (RFP) in 2016 to accept bids for a new IT asset management (ITAM) system that will track hardware and software assets and assist with lifecycle planning and asset replacement. Implementation of both the hardware and software components of the new system is anticipated in late 2017.

While ISD maintains an inventory of low value assets for itself and its 20 supported County departments and agencies, ISD does not currently conduct any regular inventorying of its own assets or for any of its supported departments. ISD employees interviewed about this question indicated that although they use Lansweeper, a network inventory and asset management software system, to identify the location of hardware assets on the network, there is no process or cycle count system in place to physically inventory assets annually or periodically, and ISD is unaware to what extent its customer departments conduct such an inventory themselves, or what the outcomes of such an inventory process might be.
ISD hopes to use the new software asset management system as a centralized system for data, including: 1) licenses, 2) associated purchase information like underlying enterprise agreements, and 3) license to user assignments and 4) discovery data that shows what software is installed where. According to ISD, currently deployed software systems only provide discovery information that reports what software is installed on devices found on the network. The software does not integrate discovered data with the license and user data mentioned above, requiring a manual, subject-to-error matching of installation information against licenses.

The other goal for the software asset management system is to provide “license intelligence” that spells out the specific license rules and metrics associated with certain licenses. Currently, ISD must manually determine whether the County is in compliance with license agreements that indicate the number of installations allowed per license. There is a risk that the County is allowing too many users per license, and would thus be in violation of license agreements which would subject the County to fines and penalties from the software maker.

ISD does not have plans in place indicating how it will collect and enter the inventory of low-value assets in departments Countywide once it does have an asset management system in place. ISD could extract information from SAP, but staff would have to validate the accuracy of the SAP master lists, which have been shown to be problematic in this audit. Another option, which is recommended in this audit, is that ISD collect the internal lists that are maintained by at least some departments and then enter the data into its newly purchased hardware asset management system.

**Asset Tagging**

While non-supported departments continue to tag their assets with labels provided by the Controller-Treasurer’s office, ISD indicated that it is not currently tagging low-value assets that it purchases for its own use or for use by its supported departments. A review of purchased assets in the ISD-supported Employee Services Agency (ESA) indicated that this is the case. ISD staff stated that they plan to implement an asset tagging mechanism, as well as scanning equipment, once the new ITAM system is in place, but there were no plans at the time of our fieldwork for how this system will be utilized or when it will be completed.

Without asset tags, it is more difficult for ISD or an ISD-supported department to quickly verify whether it is in possession of a particular asset. As stated in the Fixed
Assets Administrative Guide, asset tags help a department to maintain physical control of an asset and to prevent theft.

**Revising the Asset Management Policies**

The Controller-Treasurer’s policies on low-value assets lack clarity regarding which assets with values of less than $5,000 should be tracked by departments.

The Fixed Assets Administrative Guide states that an asset must have a minimum value of $1,000 and a maximum of $4,999 to be considered a “Low Value Expense Item,” also known as low-value assets. In addition, the following items must be tracked as either capitalized equipment or as LVEIs, regardless of costs: firearms, weapons, monitors, computer workstations, and servers.

The policy does not specify whether laptop computers should be tracked, and since many of them cost less than $1,000, this would be a relevant addition to include in the Guide. The policy also states that the category Low Value Expense Items (LVEIs) typically includes general office equipment, although the policy fails to specify what is included in this category.

**CONCLUSION**

The County has issued 6,229 cell phones to employees, or approximately 35 percent of all County employees, at a budgeted annual service cost of $1.6 million. Like other low value assets, cell phones are not tracked after purchase. A portion of the County’s cell phone costs may be unnecessary but it is difficult to evaluate at this time because, though a policy is in place, the County lacks a robust practice for evaluating the need for County-issued cell phones. Additionally, the County has not addressed long-standing questions regarding responsibility for cell phone issuance, approved equipment, analysis of service use, inventory tracking, equipment disposal, and information security for mobile devices.

Santa Clara County lacks an accurate, master list of all low value expense items, despite the fact that the County has spent approximately $11.7 million on this category of assets since 2010. The inventory maintained in SAP contains numerous outdated, incorrect entries that have yet to be removed by the Controller-Treasurer at the direction of the departments. It does not contain the entire universe of low value expense items...
purchased by the departments. ISD and the departments also maintain internal lists of their low value assets, but in a review of sample of these, they were found to be incomplete.

Without an accurate inventory, the County cannot ensure that its low value assets and the information stored on them are secure. Of six sampled departments, the Management Audit Division found that only two are regularly inventorying their assets, and none are conducting periodic cycle counts as recommended by the Controller-Treasurer. The Controller-Treasurer is unaware to what extent the other departments not sampled for this audit are inventorying their low-value expense items on a regular basis. Departments are not currently required to submit any documentation of their inventory efforts to the Controller-Treasurer to verify that all items are accounted for. ISD is also no longer tagging its low-value assets, despite the Controller-Treasurer’s recommendation to do so.

ISD in particular could strengthen its practices with regards to low-value expense items. The Department is planning to implement a hardware and software IT asset management system to track low-value items, as described in the Department’s FY 2016-17 budget documents. However, the Department does not currently have a plan for how it will populate the management system or for how it will use the system moving forward.

RECOMMENDATIONS

The Information Services Department should:

6.1 Develop an accurate, up-to-date inventory of low-value assets in ISD and ISD-supported departments, including cell phones and laptops. For any asset not located, ISD should immediately shut off and cease payment for the data plan for these devices. A list of the devices for which service has been terminated should be reported to ISD’s Chief Information Security Officer, the director of the responsible department, the Controller, and the Management Audit Division. All data-connected assets should be managed in a single asset tracking system. (Priority 1)
6.2 Require that supported departments implement and conduct future inventories at least annually for low-value assets and report the results to ISD and to the Controller. For any asset with a data plan or that connects to the network that is not located in this process, ISD should immediately shut off the data plan or logon credentials. (Priority 1)

6.3 Develop procedures for the timely submittal of disposition paperwork for assets contained in ISD and customer-supported departments to the Controller-Treasurer. (Priority 2)

6.4 Develop a temporary method for assigning asset numbers and tags to low-value assets that are being newly purchased by ISD for customer departments; determine how this system will be continued once the department switches to the new asset management system. (Priority 2)

6.5 Develop policies and plans indicating how the new asset management system will be used to plan for lifecycle replacements of hardware and software assets. (Priority 3)

6.6 Require an inventory of all low-value assets that use a data plan or that connect to the County network on at least an annual basis and submit documentation of the results to the Chief Information Security Officer. (Priority 1).

6.7 Update its cell phone policy to clarify responsibilities of ISD and County departments regarding cell phone issuance, ongoing use, and disposal and integrate this with the information security policy regarding mobile devices. (Priority 2)

6.8 Develop an approved mobile device and accessory list that is cost-effective and compatible with County systems and security standards. (Priority 2)

The Controller-Treasurer should:

6.9 Work with departments and the Controller to “clean” the SAP list: remove low-value IT assets that are no longer in the possession of the department; assign tag and serial numbers to all assets that are currently in the possession of the
department; add assets to the list that are under departmental control but that are not currently in SAP; and report completion of this effort to the Board of Supervisors by June 30, 2018. (Priority 1)

6.10 Clarify the policy related to the disposition of low-value assets and require that appropriate paperwork is submitted to the Controller for assets when they are retired so that they can be removed from the SAP system. (Priority 3)

6.11 Clarify policies as to what is considered a low value expense item, or low-value asset, and develop instructions that carefully detail which of such items departments should track and how they should attach asset tags to low value expense items. (Priority 3)

SAVINGS, BENEFITS AND COSTS

To accomplish these recommendations, both the Controller-Treasurer’s Office and ISD must allocate staff to one-time and ongoing tasks. The Management Audit Division estimates minimum one-time work hours required for ISD and the Controller-Treasurer of 760 hours to carry out all of the recommendations. This equates to $40,200, but we are not proposing additional budget for this work. We also estimate that asset tagging and enforcement will require ongoing work estimated at 160 hours each year (with an estimated value of $18,800). We also propose that the Departments absorb these hours with existing staff or extra help.

Benefits to implementing these recommendations include greater internal controls over all low-value expense items countywide and enhanced security of County data and network security.

At the exit conference, ISD stated that starting in April 2017, all IT procurement for Santa Clara County, including low value IT assets, would be routed through ISD. In addition, ISD stated that it was planning to implement a new asset management system and procurement procedures that would track low value assets after purchase consistent with the Controller’s policy on such assets.
Appendix A

Below is the complete list of ISD-supported departments. All of the ISD-supported departments except for Procurement are exempt from using SAP to track their low-value expense items.

AEM – Department of Agriculture and Environmental Management
BOS – Board of Supervisors
CCO – County Counsel
CEO – County Exec
COB – Clerk of the Board
COR – Coroner’s Office
DOR – Department of Revenue
ESA – Employee Services Agency
FAF – Fleets and Facilities
FIN – Finance
OAH – Office of Affordable Housing
OES – Office of Emergency Services
OHR – Office of Human Relations
PLN – Planning Department
PRC – Procurement (Non-exempt)
PTS – Pre-Trial Services
ROV – Registrar of Voters
VET – Veteran’s Services
PRK – Parks
TCO – Tax
DATE: July 24, 2017

TO: Board of Supervisors’ Management Audit Division

FROM: Ann Dunkin, Chief Information Officer

SUBJECT: Management Audit of the Information Services Department

The Information Services Department appreciates the opportunity to provide response on the management audit report. We commend the thorough and thoughtful manner in which the Board of Supervisors’ Management Audit Division has performed their work and the care taken to understand our various systems and processes. We look forward to implementing the many meaningful improvements contained within these recommendations. Attached for your information is a list of the Information Services Department major accomplishments.

Section 1: ISD Project Management

The Board of Supervisors should:

1.1 Adopt an information technology project reserve and appropriations policy to establish a General Fund reserve for projects and appropriate from those reserves amounts needed for project work in each year, as opposed to appropriating in a single year funds intended to cover several years of costs. (Priority 1)

RESPONSE: Alternative Action

We will work with CEO and OBA to establish ways to deal with multi-year projects.

The Information Services Department should:

1.2 Update its staff time keeping practices and its internal service fund cost allocation model to track staff time spent on projects. (Priority 3)

RESPONSE: Agree

Our PPM solution (Planview) allows us to record time spent on projects and this information can be exported to our Finance Management tool (Apptio) to establish total cost of the project including labor, material and other costs as appropriate. Business
Relationship Management team has already started tracking their hours against projects within Planview and we are in the process expanding to all projects and resources.

1.3 Formalize a project planning system that includes defining projects and estimating costs and ISD staff hours needed for the life of projects in advance and a standardized staff project planning and scoping process outlining life-of-project milestones and deliverables. (Priority 2)

**RESPONSE:** Agree

The ISD PPM Framework defined and implemented by the PMO standardizes and defines the project management activities, deliverables and milestones for each project lifecycle phase, enabling timely and accurate estimation of the project scope and effort. With Planview, IT projects, project costs, resource allocation and commitments and timelines will be managed centrally through the life of the project (from project request through closure).

In addition, the PPM framework defines a “Discovery” process by which a proposal for IT investment can be evaluated for feasibility, alignment with County’s strategic goals and technology standards, before significant investment is made. The process is designed to invest in projects that align with the strategy, are achievable and deliver significant value to the County.

1.4 Institute a project information tracking and management monitoring practice that includes: (Priority 1)

a. Estimated and actual timelines of projects for the life of the project and by fiscal-year,

b. Estimated and actual budgets and spending on projects, including in-house staff hours and costs, for the life of the project and by fiscal year,

c. All projects and initiatives in a centralized list that represents all of ISD’s project work.

**RESPONSE:** Agree

In 2016, the PMO established a more rigorous project performance monitoring process encompassing all approved capital ISD projects per fiscal year. This process involves PMs submitting monthly status reports on a status report site which functions as a centralized list representing all approved capital IT projects. The project status reports document project performance metrics spanning the life of the project including attributes such as original and actual project timelines, project phase timelines and staff hours/allocations by project phase among other critical factors. The PMO analyzes, tracks and monitors these status reports monthly along with project financials (approved budget vs YTD spend vs available budget) to validate project progress/performance.

With the implementation of Planview, new projects will be initiated, managed and tracked centrally. Existing projects will continue to report the monthly project status outside of Planview until finished, unless the projects are continuing into next fiscal year and would require funding in the upcoming years.

An important factor in successful project delivery is achieving business outcomes set forth at the beginning of the project approval. While project tracking and reporting activities
will continue for our portfolio reporting, the methodology used to deliver the project may vary across projects. Some project might be linear (waterfall) in their approach while others might require more iterative or agile delivery of capabilities or functions, which is becoming more of a standard in the industry and the County.

a. Planview allows to create detailed Project Schedules associated with a project to define planned tasks and milestones. Time reporting against these planned activities helps in tracking the actual effort in completion of these milestones and tasks. Planview can generate reports that shows variations by fiscal year and other variables if needed.

b. Estimated and Actual budget spending is tracked in Apptio. Planview can provide labor data against projects and Apptio can aggregate it with other budget information to derive actual cost of any project.

c. Planview can generate portfolio reports to show all projects managed within the tool, across fiscal year and departments in a comprehensive list. If the PPM framework is followed across all departments, a standardized portfolio report can be generated for all Countywide IT projects.

1.5 Institute a project progress reporting schedule to the CIO and to BITS that presents the following information for all new and ongoing projects: (Priority 1)

a. Original project timeline for life of the project and by fiscal year,

b. Modified timeline, if any, with reference to original timeline continually reported for life of project for comparison,

c. Actual timeline and milestone dates, with explanation of variance from original and/or modified timeline,

d. Original project costs and ISD staff hours for life of project and by fiscal year,

e. Modified project costs and ISD staff hours if any, with reference to original costs and staff hours continually reported for life of project for comparison,

f. Actual project costs and staff hours expended, with explanations of variance from original and/or modified costs and staff hours estimated.

RESPONSE: Agree

The PMO started submitting monthly portfolio report to the CIO and BITS in April 2016. The report was improved in September to include summary dashboards of the projects, and has been publishing these reports on BITS connect site.

Utilizing the monthly project status reports submitted by the PMs, the PMO generates a monthly portfolio report and dashboard that reports on all new and ongoing ISD capital projects by the fiscal year. The portfolio report and dashboard showcase the actual project timelines spanning the life of the project with explanations for the modified timeline and the project financials (approved budget vs YTD spend vs available budget) among other critical project performance attributes.

In addition, the PMO is working with Health and Hospital-PMO and Social Services Agency to collect and streamline their respective IT project portfolio reports. This in turn will help in one complete and comprehensive list of all IT projects across three major agencies representing the majority of County’s IT investment portfolio. The PMO is
continuously working on improving the portfolio report and dashboard to enhance the type and value of the information provided to the CIO and the BITS committee.

Section 2: Information Security

The Board of Supervisors should direct the County Executive to:

2.1 Work with the Chief Information Security Officer (CISO) and ISD to finalize the County’s IT security policies and codify them in Board Policy to enhance the CISO’s ability to enforce these policies. (Priority 1)

RESPONSE: Agree

The County's IT Security policies cover everything from remote access to mobile devices and they need to be reviewed, updated, and finalized. Codifying these documents in the Board Policy is a key step to enhancing the CISO’s ability to enforce these policies and would be the logical next step.

2.2 Create additional cybersecurity positions: 1 Information Security Risk Analyst Manager, 1 Information Security Engineer Manager, 2 IT Security Auditors, the latter two positions to report the CISO and have a dotted line reporting relationship to the Internal Auditor. (Priority 1)

RESPONSE: Partially Agree

The CISO team has been growing since the team’s inception approximately three years ago and the work load has only increased. The CISO team still has several unfilled positions and would recommend those positions be filled before specifying which additional positions would be needed and how many. Either way, creating four additional positions for the security team is highly valued and integral to our success.

2.3 Direct ISD to strengthen procedures to enhance security review of new purchases. (Priority 2)

RESPONSE: Agree

Processes, procedures, and training need to be strengthened so all staff know that a security review is required when introducing an IT product into the County’s environment. The CISO team will need to conduct outreach to various teams to help them understand what steps they need to take to have this review completed and ensure our security posture is not compromised.

2.4 Direct ISD to establish procedures for reviewing the necessity of new and previously approved administrative accounts. (Priority 2)

RESPONSE: Agree

The CISO team and ISD have worked together to bolster and scrutinize the approval process for administrative accounts. Each request now flows through the CISO team for
approval and is not approved unless all requirements are met. And the CISO team is also working with ISD to review and limit existing administrative accounts throughout the County.

2.5 Direct ISD to establish procedures for implementation by the County Chief Operating Office directing all County departments and agencies to report security incidents to the CISO. (Priority 2)

**RESPONSE:** Partially Agree

The CISO team will work with ISD to establish this directive and the CISO is empowered to direct departments to report all security incidents to the CISO team. This is an institutional change and the biggest hurdle will be outreach, communications, and training for all departments. However, the CISO team doesn’t foresee any opposition now that we are more adequately staffed to handle this task.

**Section 3: Human Resource Management**

The Chief Information Officer should:

3.1 Direct staff to create an external ISD website so potential applicants can better understand the Department’s business and the benefits of working for the County. (Priority 1)

**RESPONSE:** Agree

The FY 2018 - 2020 Information Technology Three-Year Plan includes an objective to “attract a skilled workforce by analyzing and evaluating current and future technology skillset needs and implement outreach, recruitment and knowledge transfer strategies.” Among the outreach strategies planned, an external website is expected to roll out by December 2017. The test home page went live in July 2017 and work is underway to populate the site with meaningful content, including current job openings.

3.2 Request that ESA conduct revisions of its IT classifications to modernize their job descriptions and compensation ranges, prioritizing review of classifications that have the highest vacancy rates. (Priority 1)

**RESPONSE:** Agree

In 2015, the County IT launched the IT Career Compass (ITCC) program. ITCC has three main goals:

- Help develop a more customer-focused, efficient and effective IT service delivery organization
- Revise the IT job series and classifications, where appropriate, in order to ensure that IT job classifications reflect job-relevant standards with identifiable career ladders/paths
- Improve retention and recognition of IT personnel to meet the County’s business and IT staff needs

Over the last year, significant progress has been made in designing a cohesive, streamlined organizational model that will address skill gaps and improve collaborative processes. In addition, over 150 job classifications were defined and are in various stages of review.
Once ESA completes the compensation review and bargaining unit allocation, ITCC will begin the meet and confer process with bargaining units. Difficult to recruit positions are included in the compensation analysis pilot which will conclude by August 2017.

3.3 Direct staff to shorten recruitment timelines by taking the following actions:

i. Develop policies, procedures, and trainings to set a clear division of labor and accountability between ISD division managers and the ISD Technology and Resource Management Division to expeditiously prepare requisitions to fill a new or vacant position and to engage ESA in developing job announcements and filtering existing eligible lists to identify candidates with the desired skills.

ii. Develop time-specific performance goals for each step of the recruitment process and regularly report to executive management actual time for recruitments compared to these goals.

iii. Make more use of continuous examinations and create a live eligible list so that hiring managers can begin interviewing candidates immediately after a requisition is prepared rather than waiting for a job announcement to be posted, closed, and candidates ranked.

iv. Make more use of unclassified employees, with recruitments handled mostly by ISD.

v. As long as current Merit System rules regarding interviewing candidates are in place, direct staff to streamline the interview process by conducting initial telephone interviews of candidates and in-person interviews only of those that are determined to be more qualified through the initial telephone interviews.

RESPONSE: Partially Agree

The report states that the recruitment process is significantly delayed due to the amount of time it takes for ISD to initiate the recruitment process and explains this delay stating, “The lack of clarity about the formal division of labor has often meant that neither the ISD hiring division nor the Finance and Administration Division take initiative to fill a new vacancy.” While we agree that more formal process documentation would be helpful, we do not agree that lack of clarity or initiative contributes to this delay. Frequent informal (verbal, email) and formal (staffing meetings) communications between the administrative staff and hiring managers are common. Also, hiring managers fill out an electronic hiring request form which is routed to administrative staff to initiate the hiring process. This form includes information about filtering criteria. There are specific reasons for initiation delays, unrelated to documentation of procedures:

- First and foremost, ESA’s practice is to wait at least 90 days before retirement of an eligible list. Therefore, a hiring manager cannot immediately initiate a requisition after a failed recruitment because ESA will in turn provide an identical or near identical list of candidates. In addition, a hiring manager often invests time in training contractors or unclassified employees who might be strong candidates for permanent positions. However, due to the lack of continuous recruitments, the hiring manager must wait until an eligible list expires so that these temporary employees can have an opportunity to apply for permanent codes.
• Another reason for delay is the desire for a certain type of recruitment. For example, if a hiring manager requests an open-competitive recruitment but an internal promotional recruitment is already underway (or vice versa), the manager must wait for the entire recruitment cycle to complete as well as the expiration of resulting eligible lists.

• Other delays include the desire to hire in a particular order (e.g., hiring a manager before hiring the individual contributors for a new group), the need to complete an add/delete before initiating the hiring process and in rare cases, the need for specification revisions, all of which can take several months to complete.

• Finally, as pointed out in the audit, the hiring process is extraordinarily time consuming. In a few cases, hiring managers intentionally delayed initiating requisitions in order to manage ongoing workload.

ISD currently tracks the time required for each step of the recruitment process and can set some performance goals related to this process. However, ISD has no control over when ESA retires eligible lists or how long it takes ESA to post job openings, review candidates or create eligible lists. ISD and ESA have engaged a consultant with lean expertise to conduct a process study with the goal of significantly shortening the hiring cycle. Part of this process will include identifying key metrics that are meaningful to both ESA and ISD. This engagement will begin in late July to early August.

We agree that the use of continuous recruitments could help to expedite the hiring process. However, ESA prefers to use continuous recruitment for recruitment of positions that historically fail to produce enough qualified candidates for a complete list (10 for one opening). According to Sec. A25-172 of the Merit System Rules, “In lieu of abolishing a list, the Director may authorize supplementing the list with names mingled in order of final grades resulting from additional examinations.” Therefore, continuous recruitments require continuous updates to the ordered list and are extremely time consuming according to ESA.

ISD uses unclassified positions to the greatest extent possible. However, use of unclassified positions also introduces greater risk to the organization. Unclassified employees require the same training investment as permanent staff, but these employees are often simultaneously seeking permanent employment opportunities and thus can be difficult to retain. Also, term-limited positions are less desirable to job seekers in a healthy job market.

ISD agrees with the recommendation to conduct initial telephone interviews of candidates and in-person interviews of the strongest finalists. This approach is widely used by ISD hiring managers already. The Administrative Unit is compiling general guidelines for hiring managers with a targeted completion date of September 2017. The guidelines will include this suggestion to shorten the hiring time.

Section 4: Internal Service Fund Charges

The Information Services Department should:

4.1 In advance of the acquisition and implementation of new software that will perform much of this function, establish a procedure and criteria for staff “truing-up” or adjusting its ISD charges every year, after actual cost data is finalized for the prior year(s). (Priority 1)
RESPONSE: Agree

ISD will document formal procedures for the true-up process. While it has been our practice to consider the risk of cross-subsidization when making financial decisions including use of salary savings, hiring of contractors or unclassified staff, and realignment of funds, we acknowledge that these practices must be fully documented to ensure this general awareness translates into consistent business practices. Formal procedures will (1) spell out a review process to ensure correlation between ISD service rates and service costs and (2) outline corrective actions in the event of significant over or under collection, while at the same time adhering to Government Finance Officers Association best practice stating that benefits gained by greater complexity should be worth the additional cost. As noted in the audit, ISD has remained OMB A-87 compliant since the introduction of the new cost model. The documentation of formal procedures will be completed by September 2017.

4.2 Revise written materials for County departments and agencies that explain how rates are developed and update annually to explain changes to rates. (Priority 3).

RESPONSE: Agree

ISD currently provides written materials that explain the breakdown of various IT charges to departments. However, we agree that this communication could be enhanced by providing more detail about the actual development of rates, as well as the drivers for change. In May 2017, ISD rolled out the Bill of IT module in Apptio. This module gives significant visibility into the usage factors driving IT service costs, including month over month trends and drill-downs which provide informative billing details. The next priority will be to create reporting that graphically depicts cost components of our service rates. This reporting capability is scheduled for completion by June 2018.

Section 5: Customer Service and Performance Management

The Information Services Department should:

5.1 Prior to acquisition of a new ticketing system, revise current and ongoing ticketing practices to integrate email and other requests for ISD service into a single, consolidated database to allow for ISD management tracking of staff performance on all customer requests. (Priority 2).

RESPONSE: Partially Agree

The department partially agrees with the recommendation. We agree that all incidents and service requests should be captured in one system, and we agree that is necessary to form an accurate picture of departmental workload. However, email messages sent to us by customers (which account for greater than 50 percent of ISD service requests) frequently do not contain sufficient information to create a ticket. Consequently, service to the customer is delayed while Help Desk staff work to obtain the additional information needed to create a ticket. Our proposed alternative solution is to establish a web portal through which customers would complete a template that captures all essential ticket information. Some information, such as workstation ID, would be captured automatically. This capability is built into the new ticketing system that we have purchased. Our intention is to activate that capability as rapidly as possible.
5.2 Prior to acquisition of a new ticketing system, revise current and ongoing ticketing practices to track and report to management on additional ticket and other customer request data necessary to measure and constantly improve performance, including:

i. Number of customer contacts and requests for service

ii. Assignment of ISD staff including staff outside the Help Desk division, to ensure that tickets not completed by the Help Desk are completed in a timely manner.

iii. Customer satisfaction (Priority 2)

**RESPONSE:** Partially Agree

The department agrees it’s important to track and report ticket information as a means by which to measure important aspects of departmental performance such as speed to resolution, and to identify commonalities and trends. However, until all incidents and service requests are captured in the system, reported data will be inaccurate. As noted in our response to Recommendation 5.1, implementation of the new ticketing system’s web portal will enable much more accurate and complete information. Our intention is to activate that capability as rapidly as possible.

i. The department agrees it’s useful to track and report the number of customer contacts and requests for service. However, limitations of the current ticketing system prevent reporting of this information. Reporting capabilities are significantly better in the new ticketing system.

ii. The department agrees that all resources assigned to a ticket should be noting their actions in the ticketing system.

iii. The department agrees that certain ticketing data can be useful for measuring customer satisfaction. Further, we believe that the addition of various executive and senior-level management roles within County IT will serve as another means by which to increase the efficiency of ISD’s service work and, thereby, increase customer satisfaction. Demand and growth are vastly outpacing capacity and without executive leadership the organization will not be able to optimize IT services and costs to best serve our partners throughout the County. The absence of architectural standards and data governance, siloed/duplicative technology and work, and immature project management practices leading to project delays and overruns are examples of the current gaps. The deepening of the executive and senior management level is a critical step toward righting these problems.

5.3 Develop written procedures and required fields for ticket and other customer service request data entry, including standardized definitions for priority. (Priority 2)

**RESPONSE:** Partially Agree

Unfortunately, the current ticketing system require the use of “global” definitions for all agencies using the system (ISD, HHS and SSA). While global definition are appropriate for services that are common across all three agencies, flexibility is required for services that are unique. This deficiency is addressed in the new ticketing system.
5.4 Establish a method of obtaining customer feedback, such as after each service request is fulfilled or project completed, to be used by management to assess and continually improve ISD service levels. (Priority 2)

**RESPONSE:** Agree

Customer feedback is currently obtained anecdotally via conversations, solicited & unsolicited emails, and meetings with the customers. This deficiency is addressed in the new ticketing system which features the ability to automatically solicit customer feedback upon ticket completion and produce statistical reports. Additionally, ISD has begun formally soliciting customer feedback annually using automated survey tools.

5.5 Develop procedures to ensure that all non-project workload is tracked in the ticket system. (Priority 2)

**RESPONSE:** Agree

Policies and procedures will be written to help ensure all IT resources assigned to a ticket are noting their actions in the ticketing system. Furthermore, with the new ticketing system, we will be able to produce reports to audit staff compliance.

5.6 Establish service level commitments with all of its customer departments and agencies that have clear points of contact at ISD detailing expected service levels. Such commitments would provide customers with details of ISD services and their expected service levels. (Priority 3)

**RESPONSE:** Agree

ISD is working with County Counsel to produce a boilerplate Service Level Commitment that can be applied globally to ISD’s entire customer base. This will help ensure service is uniform across the entire enterprise and eliminates the overhead of creating and maintaining department-specific agreements.

5.7 Prepare a draft model for the county-wide approach to IT centralization [for] review and approval by the board of supervisors detailing IT functions and responsibilities to be centralized and those to be decentralized to departments and agencies and the costs and benefits of each element.

**RESPONSE:** Partially Agree

In cooperation with ESA, Labor Relations, the labor unions representing county IT staff and our consulting partner (Gartner), ISD is working to prepare a future state organizational model for board review and approval. However, we believe the best approach to focus first on the consolidation of ISD and the IT functions within HHS and SSA. As appropriate, the scope of this work will expand to include functions or portions of functions currently performed by departments who run their own IT organizations, primarily when these functions are also performed in the central IT organization. While we believe that further consolidation is appropriate, we also believe it is premature to begin assimilating the more unique functions that service a single line of business or agency until a structure for the existing consolidated IT organization has been designed. We will
develop and present a framework for that at some point in the future. However, there is currently too much in flux and too many questions that prevent us from providing a draft model or cost/benefit data.

Section 6: Low Value Asset Management

The Information Services Department should:

6.1 Develop an accurate, up-to-date inventory of low value assets in ISD and ISD-supported departments, including cell phones and laptops. For any asset not located, ISD should immediately shut off and cease payment for the data plan for these devices. A list of the devices for which service has been terminated should be reported to ISD’s Chief Information Security Officer, the director of the responsible department, the Controller, and the Management Audit Division. All remaining data-connected assets should be added to the Controller’s SAP system.

RESPONSE: Partially Agree

The Department’s IT Asset Management unit (ITAM) was established to develop and implement formal standards and practices to manage the IT asset repository. ITAM’s purpose is to track and manage IT assets such as software licenses, end-user hardware, and cellular. Related responsibilities include management of purchasing records, maintenance contracts to ensure compliance with license agreements, and appropriate governance to protect the County from overspending, misuse and licensing liabilities. In November 2016, ITAM completed a physical hardware inventory of end-user workstations in most supported departments. While this effort did reveal gaps in the inventory records, there are many potential causes for inventory gaps including incomplete departmental records (before a department was supported by ISD), improper expense classification in SAP (e.g., using GLA 5275200, PC Hardware instead of GLA 1308000, Low Value Assets), manual record-keeping, improper disposal processes, “out of sight” devices stored in closets, cabinets or drawers, or unreported loss/theft. To date, the Department has issued best practices memos, initiated adoption of an IT Asset Management solution, and drafted policies to manage county assets. As each department is refreshed, the inventory will be cleansed so that ITAM can effectively track low value assets and cease payments for data plans when appropriate.

The Department moved responsibility for cell phones, data plans and cellular service management to the ITAM unit on March 27, 2017. As part of this transition, the Network Division is conducting a comprehensive reconciliation of all active mobile devices against PeopleSoft records. Where the status of the cell phone owner is unclear, the Network Division is reaching out to each department to complete the reconciliation. If a device cannot be located, ITAM will cancel the wireless service. In addition, the Department is now piloting Apptio’s Bill of IT module with several business units. The module allows departments to see detailed mobile device billing data and monitor their usage. Once the data reconciliation is complete, ITAM will furnish a final report to the Chief Information Security Officer, Controller, and Management Audit Division.

While SAP can track purchases, it is not capable of discovery, security notifications, software installation tracking or data normalization duties associated with managing an IT
asset base of this size. The Department recommends that tracking for data-connected assets occur in the IT Asset Management solution currently under development. Currently, ISD uses Airwatch to manage and secure mobile devices and while it is not a complete asset management solution, it will provide sufficient cell phone data to enable manual inventory management until the IT Asset Management solution is operational.

6.2 Require that supported departments implement and conduct future inventories at least annually for low-value assets and report the results to ISD and to the Controller. For any asset with a data plan or that connects to the network that is not located in this process, ISD should immediately shut off the data plan or logon credentials. A list of the devices for which service has been terminated should be furnished at least annually to ISD’s Chief Information Security Officer, the director of the responsible department, the Controller, and the Management Audit Division.

RESPONSE: Partially Agree

The ITAM unit completed a physical inventory of supported departments in November 2016 and will continue to conduct annual physical inventories and send appropriate reports to the Controller. Physical inventories are supplemental to discovery reports of low value assets, which will be consumed by the IT Asset Management solution. New functionality will flag devices that are idle (potentially missing) in order to launch the necessary investigations. The workflow for these investigations will include the Chief Information Security Officer and the director of the responsible department. New standard devices are encrypted to prevent intrusion should a device be stolen. Also, if the investigation confirms that a device is lost or stolen, ISD will file the appropriate Property Loss Report and include the record with the annual inventory, along with shutting off any associated data plan. Since reporting protocols are already in place, additional reporting would be redundant.

6.3 Develop procedures for the timely submittal of disposition paperwork for assets contained in ISD and customer-supported departments to the Controller-Treasurer.

RESPONSE: Agree

The Department’s asset database consists of current active hardware and hardware disposed and removed from the portfolio during the current fiscal year. The hardware portfolio is maintained in an Asset Repository log pending implementation of the IT Asset Management software tool, projected to begin rollout starting on July 24, 2017. The Department’s IT Asset Management unit restructured the hardware disposal process in December 2017 with approval from the Chief Information Security Officer. The new procedure has resulted in successful tracking and disposal of out-of-warranty hardware according to County Policies. The Department will begin to submit an annual inventory report to the Controller-Treasurer, which will document the hardware portfolio, reconciled with all disposals.

6.4 Develop a temporary method for assigning asset numbers and tags to low-value assets that are being newly purchased by ISD for customer departments; determine how this system will be continued once the department switches to the new asset management system.
RESPONSE: Agree

The Department’s IT Asset Management unit is responsible for managing the overall hardware asset tagging program. In November 2016, ITAM initiated mandatory factory-asset tagging for all standard county hardware. Additionally, ITAM has established an in-house method for tagging non-standard and repurposed devices in the ISD warehouse. Together, these programs will ensure all low value assets are tagged by the end of the first complete asset refresh cycle. Since the selected tagging solution includes both barcode capabilities and inventory details in the firmware, the new asset management system will be able to consume and store the same inventory information.

6.5 Develop policies and plans indicating how the new asset management system will be used to plan for lifecycle replacements of hardware and software assets.

RESPONSE: Agree

To date, the Department has drafted the following policies and plans for long term asset management:

- Hardware Standards Policy (May 2017, in County review process)
- Hardware Asset Tag Procedures (February 2017)
- Employee Off-Boarding Policy (May 2017, in County review process)
- Hardware and Hard Drive Disposal Procedures (November 2016)

Related policies under current development include hardware standardization and employee onboarding. These policies and procedures provide the framework to institute formal asset refresh cycles. In February 2017, the Department presented an asset lifecycle management plan to the Office of Budget and Analysis and again to the Business Information Technology Steering Committee (BITS). This plan outlined a four year refresh cycle for 23 County departments and divisions and introduced the need for County hardware standards. One of the goals of the IT Asset Management team is to look for opportunities to enter into countywide enterprise agreements for commonly used software products. The consolidation of Microsoft licensing agreements has enabled County IT to track software usage, guard against unlicensed installations and ensure that products are secure through patching and scheduled upgrades. Similar enterprise agreements will enable proper lifecycle management of broadly used software.

These planning efforts, along with continued development of policies and procedures, are foundational preparation for the configuration of new IT Asset Management software applications. The department will begin implementation of these software tools in the next few months.

6.6 Require an inventory of all low-value assets that use a data plan or that connect to the County network on at least an annual basis and submit documentation of the results to the Controller-Treasurer and to ISD’s Chief Information Security Officer. (Priority 1)

RESPONSE: Agree
As previously mentioned, the Department moved responsibility for cell phones, data plans and cellular service management to the ITAM unit on March 27, 2017. The Department’s ITAM unit has responsibility for managing and reporting all cellular inventory on an annual basis. All cellular devices are now asset tagged before delivery to end users. Beginning in October, ITAM will provide inventory reports applicable to each department. The Mobile Device Deployment, Management and Use policy (currently in draft) will require that departments validate the accuracy of inventory reports and verify the continued business need for all issued cell phones. Finally, the Hardware Asset Management tool that is currently under implementation will allow ITAM to manage the cell phone inventory continuously in same manner as hardware devices.

6.7 Update its cell phone policy to clarify responsibilities of ISD and County departments regarding cell phone issuance, ongoing use, and disposal and integrate this with the information security policy regarding mobile devices. (Priority 2)

RESPONSE: Agree

The Department has drafted a comprehensive Mobile Device Deployment, Management and Use policy that was developed specifically to integrate with the information security policy regarding mobile devices. The new policy spells out ISD and County department responsibilities regarding cell phone issuance, management of ongoing use, and procedures to address lost or stolen devices. This policy is currently with County Counsel as part of the review process required to establish county policy.

Discussions regarding the proper disposal of cell phones are currently underway with the Chief Information Security Officer. A complete hardware disposal policy will address collection of devices as well as appropriate handling of electronic media and protected data contained on devices identified for disposal. This policy is scheduled for completion by December 2017.

6.8 Develop an approved mobile device and accessory list that is cost-effective and compatible with County systems and security standards. (Priority 2)

RESPONSE: Agree

The Department has developed cellular standards that comply with both fiscal and security requirements. These standards identify the only devices the Department will purchase for County end users. (Exceptions are permitted in some cases, but require fiscal, operational and security approvals.) Working with Information Security, the Department has also identified a list of “Restricted Accessories” that pose a potential security concern. Cellular Standards and the Restricted Accessories lists are maintained on Connect to ensure departments have the most current list of acceptable vs. restricted devices and accessories.
County of Santa Clara
Employee Services Agency
County Government Center, East Wing
70 West Hedding Street, 8th Floor
San Jose, California 95110-1705

DATE: August 4, 2017

TO: Board of Supervisors’ Management Audit Division

FROM: John P. Mills, Deputy County Executive
       Director, Employee Services Agency

SUBJECT: Management Audit of the Information Services Department

This memo is in response to the recommendations pertaining to the Employee Services Agency (ESA) in the report of the management audit of the Information Services Department (ISD), conducted by the Board of Supervisors’ Management Audit Division. ESA appreciates the opportunity to provide a response to these recommendations. ESA commends the thorough and thoughtful manner in which the Board of Supervisors’ Management Audit Division has performed its work and the care taken to understand ESA’s various processes and constraints.

SECTION 3. HUMAN RESOURCES MANAGEMENT

3.2 Request that ESA conduct revisions of its IT classifications to modernize their job descriptions and compensation ranges, prioritizing review of classifications that have the highest vacancy rates.

ESA Response: Agree

ESA is currently collaborating with ISD to develop more than 100 new job classifications as part of the Information Technology Career Compass (ITCC) project. This effort will bring all IT job specifications up to date to include accurate Employment Standards to evaluate candidates. Salaries are being reviewed when establishing these new classifications to ensure an appropriate salary for each classification. ESA has revised problematic IT job specifications on an ongoing basis, and continues to work with ISD to identify existing job specifications that need updating on a more urgent basis than the ITCC project timeline provides.

3.3 iii Make more use of continuous examinations and create a live eligible list so that hiring managers can begin interviewing candidates immediately after a requisition is prepared rather than waiting for a job announcement to be posted, closed, and candidates ranked.

ESA Response: Partially Agree

Board of Supervisors: Mike Wasserman, Cindy Chavez, Dave Cortese, Ken Yeager, S. Joseph Simitian
County Executive: Jeffrey V. Smith
The Merit System Rules do allow for continuous recruitments that are merged together into one eligible list. ESA does conduct continuous recruitments when there is an insufficient number of qualified candidates on the eligible list in relation to the number of vacancies for that classification. This scenario is not the case for IT-type classifications. Many candidates apply and are deemed qualified for IT classifications based on the Employment Standards for the specific classification. Because there are more than enough qualified candidates on the eligible list, continuous recruitments are not typically used for IT recruitments.

ISD does have a number of vacant positions within the same classification, but the Department has opted to withhold submitting a requisition to obtain names from an existing eligible list in order to have the ability to start a new recruitment once that list expires. This is not the most efficient way to fill a vacancy, as it causes time to elapse, and there may be many qualified candidates available on the existing eligible list. Filtering the list for specific skills can help identify those candidates who may be a good match for the specific position. ESA can also start a new recruitment prior to the existing eligible list expiring so that there is no lag time between one list expiring and another list being certified.

The ITCC project to bring all IT job specifications up to date to include accurate Employment Standards to evaluate candidates and appropriate salaries for each job classification will likely result in qualified candidates that are more acceptable to the Department.

3.3 iv Make more use of unclassified employees, with recruitments handled mostly by ISD.

ESAs Response: Partially agree

The County Charter and Merit System Rules prescribe how unclassified positions may be utilized. ESA approved the addition of 18 unclassified IT positions that are alternately staffed with a variety of classifications as part of ISD’s Service on Demand Program. These positions are used to provide ISD the ability to temporarily meet departments’ unexpected and unplanned IT needs with the appropriate classification while also providing ISD the flexibility to obtain the skill sets required if internal staff is unavailable or skill sets are not yet developed. This is consistent with the County Charter, which allows for unclassified positions in order to render technical services of an occasional nature. In keeping with the County Charter, no individual will occupy such unclassified positions for more than the allowable 18 months.

The Merit System Rules also specify that ESA has responsibility for administering the personnel system, including Classification, Recruitment, and Examination. This encompasses the posting of recruitments, review of job applications, and the development and validation of examinations. ESA does work with Department job experts to develop job bulletins, review job applications, and develop content for an examination, but ESA is ultimately responsible for ensuring the integrity of the personnel system.
3.4 In conjunction with requesting the Personnel Board to take corresponding action, amend the County’s Ordinance Code, Section A25-184, to eliminate the requirement that departments interview all candidates on an eligible list. Instead, departments should only interview candidates they believe are likely to be selected for a job offer.

**ESAs Response:** Disagree

The Merit System Rules were established to provide a fair and competitive process. The requirement to interview all candidates referred is central to this principle. Only affording some referred candidates and not others the opportunity to interview undermines the fairness of the process. Interviewing all referred candidates also allows the hiring manager the opportunity to clarify the knowledge, skills, and abilities that the candidate presented in the job application and to identify the candidate’s “soft skills” to ascertain whether the candidate is a good fit for the position.

There are many ways that ISD can simplify their hiring process. The Merit System Rules do not dictate the make-up of the hiring interview panel nor the length of the hiring interview. ISD’s practice has been to have three high-level managers make up a hiring interview panel with hour-long interviews for each referred candidate, which ESA has advised is not necessary. As an alternative, many departments conduct phone interviews of the referred candidates to obtain sufficient information to determine whether they want to move the candidate forward for consideration. Only those candidates that meet the department’s criteria are moved forward for a more in-depth interview. ESA believes this alternative would reduce the amount of time ISD takes to fill its vacancies, while maintaining the core principle of the Merit System Rules—to provide a fair and competitive process.
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DATE: August 15, 2017
TO: Nicolas Menard, Harvey M. Rose Associates, LLC
FROM: George P. Doorley, Assistant Controller-Treasurer
SUBJECT: Response to Management Audit of Information Services Department

Thank you for the opportunity to review and respond to the Management Audit Division’s recommendations. While the focus of the audit was on the Information Services Department, there were recommendations pertaining to the Controller-Treasurer Department as well. This document responds specifically to those Controller-Treasurer recommendations included in Section 6 - Mobile Device Security Weaknesses. Our responses are detailed below.

Recommendation 6.9
Work with departments and the Controller to “clean” the SAP list: remove low value IT assets that are no longer in the possession of the department; assign tag and serial numbers to all assets that are currently in the possession of the department; add assets to the list that are under departmental control but that are not currently in SAP; and report completion of this effort to the Board of Supervisors by June 30, 2018. (Priority 1)

Response
Concur. Controller-Treasurer Department will remove all assets that are no longer in the possession of the department from the County’s accounting system and ensure all existing assets are given tags.

Recommendation 6.10
Clarify the policy related to the disposition of low-value assets and require that appropriate paperwork is submitted to the Controller for assets when they are retired so that they can be removed from the SAP system. (Priority 3)

Response
Concur. Controller-Treasurer Department will update the policy and implement the use of a workflow in disposing of assets in order to eliminate instances of missing asset disposition forms.

Recommendation 6.11
Clarify policies as to what is considered a low value expense item, or low-value asset, and develop instructions that carefully detail which of such items departments should track and how they should attach asset tags to low value expense items. (Priority 3)

Response
Concur. Controller-Treasurer Department will update the policy to better distinguish between low value expense items and low-value assets.

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