City and County of San Francisco

Office of the Controller – City Services Auditor

# SHERIFF'S DEPARTMENT:

## The Department Can Better Address Critical Information Technology Needs With Improved Staffing, Organization, and Governance

*February 15, 2018*

**OFFICE OF THE CONTROLLER**
**CITY SERVICES AUDITOR**

The City Services Auditor Division (CSA) was created in the Office of the Controller through an amendment to the Charter of the City and County of San Francisco (City) that voters approved in November 2003. Charter Appendix F grants CSA broad authority to:

- Report on the level and effectiveness of San Francisco's public services and benchmark the City to other public agencies and jurisdictions.
- Conduct financial and performance audits of city departments, contractors, and functions to assess efficiency and effectiveness of processes and services.
- Operate a whistleblower hotline and website and investigate reports of waste, fraud, and abuse of city resources.
- Ensure the financial integrity and improve the overall performance and efficiency of city government.

CSA may conduct financial audits, attestation engagements, and performance audits. Financial audits address the financial integrity of both city departments and contractors and provide reasonable assurance about whether financial statements are presented fairly in all material aspects in conformity with generally accepted accounting principles. Attestation engagements examine, review, or perform procedures on a broad range of subjects such as internal controls; compliance with requirements of specified laws, regulations, rules, contracts, or grants; and the reliability of performance measures. Performance audits focus primarily on assessment of city services and processes, providing recommendations to improve department operations.

CSA conducts audits in accordance with the Government Auditing Standards published by the U.S. Government Accountability Office. These standards require:

- Independence of audit staff and the audit organization.
- Objectivity of the auditors performing the work.
- Competent staff, including continuing professional education.
- Quality control procedures to provide reasonable assurance of compliance with the auditing standards.

For questions regarding the report, please contact Chief Audit Executive Tonia Lediju at Tonia.Lediju@sfgov.org or 415-554-5393 or CSA at 415-554-7469.

Audit Team: Kat Scoggin, Supervising Auditor
Snehi Basnet, Senior Auditor
Michael Bahler, Staff Auditor
William Zhou, Staff Auditor
Marina Blum, San Francisco Fellow

# City and County of San Francisco

## Office of the Controller – City Services Auditor

**Sheriff's Department:**
**The Department Can Better Address Critical Information Technology Needs With Improved Staffing, Organization, and Governance**

**February 15, 2018**

## Why We Conducted the Audit

Information technology (IT) governance helps organizations achieve their objectives and reduce cybersecurity risks. The City and County of San Francisco's Sheriff's Department (Sheriff) asked the Office of the Controller's City Services Auditor Division to audit the staffing and governance of the Sheriff's Information Technology Support and Services Unit (ITSS). ITSS supports county jails with help desk, systems administration, data reporting, technology consulting, and compliance management services.

## What We Found

ITSS does not have a dedicated chief information officer to create a strategic plan for IT governance and improve the division's organizational maturity, nor does it have someone with sufficient security expertise to implement a cybersecurity framework and manage risk.

ITSS's organizational structure impedes maturing the organization because technical experts are not managed by leaders with the technical experience and training required to support and oversee the work. Technical experts do not have alternates to help address the backlog or ensure business continuity in a disaster.

Civilianizing most ITSS positions will bring knowledge, skills, and abilities that align with IT work and free deputies for sworn duties, saving the department up to an estimated $136,000 annually.

ITSS cannot determine staffing needs, establish IT performance measures, or monitor individual employees' productivity because the help desk tracking system is underused. ITSS's overtime could be reduced by up to 45 percent by improving scheduling of IT support staff.

## What We Recommend

*The report includes 13 recommendations, including that the Sheriff should:*

Hire a chief information officer with the technical, project management, and information technology management experience and skills to implement an appropriate governance and security program.

Ensure technical experts are managed by leaders with the technical expertise needed to guide the work.

Hire additional technical experts to address the backlog of work and to facilitate cross-training to ensure business continuity.

Develop a plan to civilianize the IT function to onboard staff with the knowledge, skills, and abilities to effectively and efficiently address IT needs, free up deputies for sworn duties, and address the challenges that arise with civilianization.

Ensure all of ITSS's work is accurately tracked in the support-request tracking system to enable the workload to be assessed and performance measures to be implemented.

The audit's recommendations will ensure the department effectively and efficiently supports its critical systems and continues operations in the event of a disaster. The audit report also recommends adopting a cybersecurity framework, which can help the department manage risk.

*Copies of the full report may be obtained at:*
*Office of the Controller ● City Hall, Room 316 ● 1 Dr. Carlton B. Goodlett Place ● San Francisco, CA 94102 ● 415.554.7500*
*or on the Internet at http://www.sfgov.org/controller*

**CITY AND COUNTY OF SAN FRANCISCO**
**OFFICE OF THE CONTROLLER**

**Ben Rosenfield**
**Controller**

**Todd Rydstrom**
**Deputy Controller**

February 15, 2018

Sheriff Vicki Hennessy
Sheriff's Department
City Hall, Room 456
San Francisco, CA 94102

Dear Sheriff Hennessy:

The Office of the Controller's City Services Auditor Division (CSA) presents its audit report of the Information Technology and Support Services Unit (ITSS) of the Sheriff's Department (Sheriff). The audit, conducted at the request of Sheriff's executive management, had as its objectives to determine whether:

- ITSS's functions reflect the unit's intended role in the department.
- ITSS's strategic planning process facilitates the department meeting its strategic goals.
- ITSS's service delivery meets the department's needs.
- The Sheriff's oversight and management of Information Technology (IT) spending promotes effective use of IT resources.
- ITSS's staffing levels facilitate the unit achieving its mission.

The audit found that:

- The Sheriff lacks a chief information officer. A chief information officer would have relevant IT experience to provide technical expertise to the department and to mentor ITSS staff.
- ITSS has mostly sworn staff with limited IT experience, so cannot adequately support the unit's technical experts, who are civilians.
- ITSS's help desk ticket data is incomplete, and no procedures ensure that all service and support requests are entered in the unit's ticketing system, so ITSS cannot monitor performance measures or determine appropriate staffing levels.
- ITSS schedules an average of six overtime shifts per week to provide 24-hour coverage, costing an estimated $195,000 per year.

The report includes 13 recommendations for the Sheriff to improve ITSS's organizational structure, data tracking, and shift scheduling. The Sheriff's response to the report is attached as Appendix D. CSA will work with the Sheriff to follow up on the status of the recommendations made in this report.

CSA appreciates the assistance and cooperation of Sheriff staff during the audit. For questions about the report, please contact me at Tonia.Lediju@sfgov.org or 415-554-5393 or CSA at 415-554-7469.

Respectfully,

Tonia Lediju
Chief Audit Executive

cc: Board of Supervisors
Budget Analyst
Citizens Audit Review Board
City Attorney
Civil Grand Jury
Mayor
Public Library

# TABLE OF CONTENTS

# GLOSSARY OF TERMS

| | |
|---|---|
| CIO | Chief Information Officer |
| City | City and County of San Francisco |
| COBIT | Control Objectives for Information and Related Technologies, an information technology governance framework produced by the IT Governance Institute |
| CSA | City Services Auditor Division of the Office of the Controller |
| Deputy | Deputy Sheriff |
| FTE | Full-Time Equivalent |
| IS | Information Systems |
| IT | Information Technology |
| ITIL | Information Technology Infrastructure Library, an information technology framework for service management produced by the government of the United Kingdom |
| IT Support | Information Technology Operations Support Administrator II (Classification 1092) |
| IT Support Manager | Information Technology Operations Support Administrator V (Classification 1095) |
| ITSS | Information Technology Support and Systems Unit |
| JUS.T.I.S. | Justice Tracking Information System |
| KSA | Knowledge, Skills, and Abilities |
| Lieutenant | Sheriff's Lieutenant |
| NIST | National Institute of Standards and Technology |
| Sergeant | Sheriff's Sergeant |
| Sheriff | San Francisco Sheriff's Department |
| Spiceworks | An online help desk tracking system |
| Technical experts | The two civilian employees in the Information Technology Support and Systems Unit with information technology backgrounds and experience |
| Technical support | Deputy sheriffs who provide help desk support |

# INTRODUCTION

**Audit Authority**

The Office of the Controller's City Services Auditor Division (CSA) conducted this audit under the authority of the Charter of the City and County of San Francisco (City), Section 3.105 and Appendix F, which requires that CSA conduct periodic, comprehensive financial and performance audits of city departments, services, and activities. The Sheriff's department (Sheriff) requested this audit as a tool to continue the assessment of its information technology (IT) function.

**Background**

*The Sheriff manages inmates, provides building security, and carries out court orders in San Francisco.*

The Sheriff operates San Francisco's county jails, provides rehabilitation and re-entry programs to inmates, provides security at some city facilities, including City Hall and the Superior Court's facilities, and carries out warrants and court orders. The Sheriff's operations fall under three divisions, as shown in Exhibit 1.

**EXHIBIT 1 Divisions of the Sheriff's Department**

| | |
|---|---|
| Custody Operations  | Maintain a safe and secure jail system.<br>Operate county jails, including the booking and release process, the hospital ward, the classification unit, and various jail programs.<br>Facilitate an environment in which educational and rehabilitation programs can accomplish their mission. |
| Administration and Programs  | Operate educational and rehabilitation programs offered to criminal offenders.<br>Ensure a continuum of services as inmates transition from in-custody programs to out-of-custody programs.<br>Monitor inmate participation in jail programs.<br>Support department operations, including personnel management and training. |
| Field Operations  | Provide the public with best customer service and protection.<br>Provide services to contract agencies, other Sheriff divisions, and outside law enforcement agencies.<br>Provide security services to contract agencies such as Superior Court, City Hall, hospitals and clinics. |

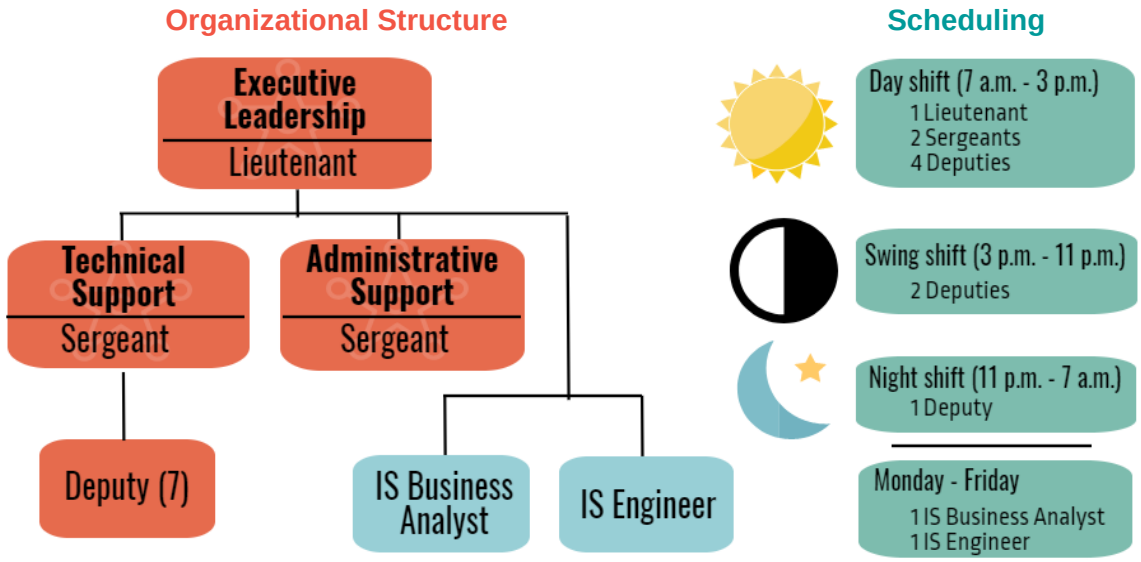
Source: Sheriff's website.

*ITSS employs 12 full-time employees, consisting of 10 sworn officers and 2 civilians.*

The Sheriff budgeted for 1,103 full-time equivalent (FTE) positions in fiscal years 2015-16 and 2016-17. The Sheriff's Information Technology Support and Services Unit (ITSS) is part of the Custody Operations Division and accounts for 12 of the division's positions. ITSS is staffed with both sworn and civilian employees who provide 24-hour coverage most days of the year.

Exhibit 2 presents ITSS's organizational structure and scheduling.

**EXHIBIT 2 Organizational Structure and Scheduling of ITSS**




Notes:
Lieutenant = Sheriff's Lieutenant
Sergeant = Sheriff's Sergeant
Deputy = Deputy Sheriff
Sworn positions Civilian positions

Sources: Interviews of ITSS staff and Sheriff's website.

The primary functions of ITSS are help desk, systems administration, data reporting, technology consulting, and compliance management.

Exhibit 3 presents examples of specific duties in ITSS, by function.

**EXHIBIT 3 Functions of ITSS**

| Function | Example of Duties |
|---|---|
| Help Desk  | • Support department hardware, including computers, telephones, and printers<br>• Support network connectivity<br>• Support the Jail Management System<br>• Assist users of software applications, including e-mail, Excel, and PowerPoint<br>• Provide miscellaneous technical and user access assistance, including password resets, over the phone |
| Systems Administration  | • Support desktop and applications<br>• Monitor the Justice Tracking Information System (JUS.T.I.S.) hub and related systems<br>• Work with vendors and Department of Technology to resolve systems issues<br>• Roll out system updates |
| Data Reporting  | • Monitor the automatic generation of data reports<br>• Create ad hoc data reports and dashboards on request |
| Technology Consulting  | • Advise department on technology procurement and systems replacement<br>• Ensure department keeps up with emerging technologies |
| Compliance Management  | • Administer use of California Law Enforcement Telecommunications System (CLETS) and National Crime Information Center (NCIC)<br>• Ensure compliance with local, state, and federal law governing IT<br>• Provide support for audits related to compliance with U.S. Department of Justice and Federal Bureau of Investigation provisions |

Sources: Auditor interviews of ITSS staff and ITSS website.

*Civilianization is employing nonsworn personnel at law enforcement agencies.*

Although many Sheriff functions must be performed by sworn officers, some—administrative and supporting roles in operations—can be performed by civilians. These functions vary according to individual agency needs, but include vital departments. Civilianization is the practice of assigning to civilian employees law enforcement work that does not require a sworn officer's special training or skills. In 2013 civilians constituted 46 percent of full-time employees of sheriffs' offices in the U.S.[1]

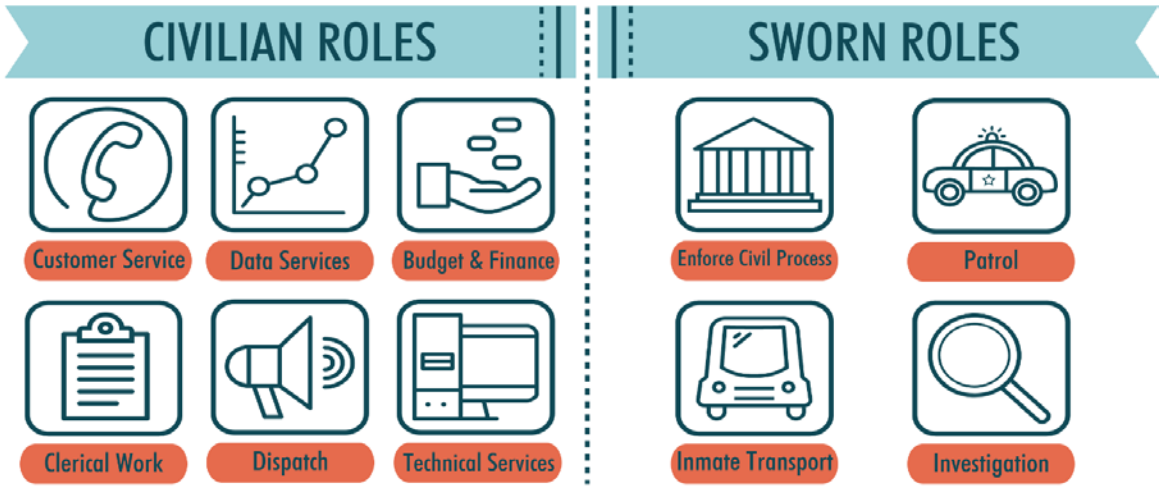
[1] U.S. Department of Justice, Bureau of Justice Statistics, *Sheriffs' Office Personnel, 1993-2013,* June 2016.

Since 1967 federal initiatives have promoted civilianization of administrative and support functions in law enforcement agencies:[2]

- 1967 – The President's Commission on Law Enforcement and the Administration of Justice concluded that civilianization could create greater community confidence in policing.
- 1994 – The Violent Crime and Law Enforcement Act of 1994 provided grants for hiring additional staff, some of which had to be civilians.
- 1999-2000 – The Office of Community Oriented Policing Services awarded funds to police agencies to hire more than 6,500 civilians for administrative and specialist positions. Grants from the Bureau of Justice Assistance's Edward Byrne Memorial Competitive Grant Program[3] funded hiring civilians in criminal justice agencies.

Exhibit 4 shows roles commonly filled by civilians in sheriffs' offices.

**EXHIBIT 4 Civilians Commonly Fill Administrative and Support Positions in Sheriffs' Offices**




Sources: Police Executive Research Forum, *Civilian Staff in Policing: An Assessment of the 2009 Byrne Civilian Hiring Program*, 2013. This study was funded by the U.S. Department of Justice and includes both police and sheriff agencies. Sheriff's website. Deputy sheriff classification description, San Francisco Department of Human Resources.

[2] Police Executive Research Forum, *Civilian Staff in Policing: An Assessment of the 2009 Byrne Civilian Hiring Program, December 31, 2013.*

[3] Part of the American Recovery and Reinvestment Act of 2009.

*IT Governance Frameworks*

Governance is the combination of processes and structures that inform, direct, manage, and monitor the activities of an organization toward the achivement of its objectives. Three commonly used IT governance frameworks are the following:[4]

- National Institute of Standards and Technology (NIST): This framework is designed to help organizations better understand, manage, and reduce cybersecurity risks and assists in determining which activities are most important to assure critical operations and service delivery.

- Control Objectives for Information and related Technologies (COBIT): This framework aims to effectively align IT with organizational goals and assess whether IT services are meeting business requirements and are likely to deliver expected benefits. COBIT was created and is updated by the IT Governance Institute, which describes the benefits of using the framework as improved understanding of the role of IT, more transparency of IT costs, better quality information delivered in a more timely manner, better quality IT services, implemented and monitored security and privacy policies, and improved IT risk management.

- Information Technology Infrastructure Library (ITIL): This framework is designed to apply to managing all aspects of IT service delivery, from the development and deployment of new services to the improvement and replacement of existing ones. ITIL is intended to help ensure that an IT organization delivers business value and provides for the needs of its customers and users.

The City has also issued policies through the Committee on Information Technology (COIT), which includes:

[4] Finding 1 discusses governance frameworks in more detail.

- Disaster Preparedness, Response, Recovery and Resiliency policy, which guides city departments on how to successfully prepare for, respond to, and recover from a disaster.

- Citywide Cybersecurity Policy, which establishes the key elements of a citywide cybersecurity program.

- Cybersecurity Awareness and Training Standard, which will help the City mitigate cybersecurity risks by training users, documenting the training, and communicating with them about cybersecurity best practices.

**Objectives**

CSA conducted this audit to assess whether the Sheriff's IT function, as executed by ITSS, aligns with and facilitates the department's mission. Specifically, the audit determined whether:

1. ITSS's functions reflect its intended role in the department.
2. ITSS's strategic planning process facilitates the department meeting its strategic goals.
3. ITSS's service delivery meets the department's needs.
4. The department's oversight and management of IT spending promotes effective use of IT resources.
5. ITSS's staffing levels allow it to achieve its mission.

**Scope and Methodology**

The audit scope was ITSS operations during July 2015 through December 2016. To achieve the audit's objectives, CSA:

*What we did.*

- Evaluated 2016 weekly schedules for effective scheduling to provide 24-hour coverage while minimizing overtime.
- Assessed support requests made during 2016 from ITSS's Spiceworks help desk ticket management system for type, frequency, and timing of requests.
- Observed two deputies on the technical support team for an entire shift to assess their workload.

- Interviewed 9 of 12 ITSS employees, including all 3 managers.
- Reviewed audit and other types of reports of law enforcement agencies in San Francisco and other jurisdictions related to the agencies' administrative, support, or technology functions.

**Statement of Auditing Standards**

CSA conducted this performance audit in accordance with generally accepted government auditing standards. These standards require planning and performing the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for the findings and conclusions based on the audit objectives. CSA believes that the evidence obtained provides a reasonable basis for the findings and conclusions based on the audit objectives.

# AUDIT RESULTS

## Finding 1

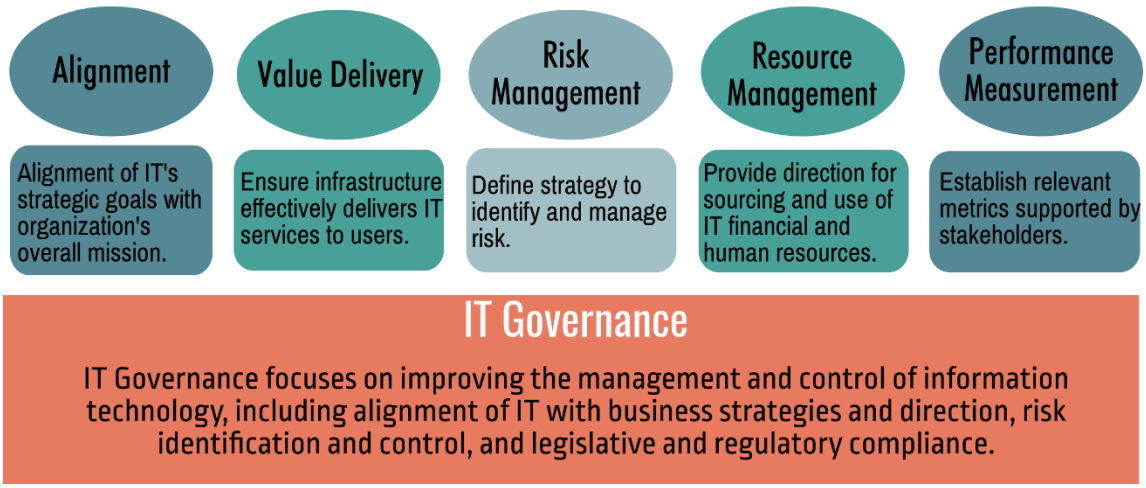
**A dedicated chief information officer will improve ITSS's ability to be a strategic partner to lead the department in IT governance and cybersecurity.**

*ITSS does not have a strategic plan, governance or security framework, or chief information officer.*

ITSS does not have a chief information officer to establish effective IT governance, lacks a strategic plan, and has not adopted a governance or IT security framework. Without these governance elements, the Sheriff cannot ensure that ITSS's activities align with the department's mission and cannot identify or mitigate risks to the department. An established IT governance framework would help ensure ITSS functions effectively and in accordance with best practices. Hiring a chief information officer would facilitate strategic planning for ITSS and help the unit become a strategic partner to the department's other units.

Exhibit 5 highlights the critical areas of governance that a chief information officer should address.

**EXHIBIT 5** **Effective IT Governance Focuses on Five Key Areas**

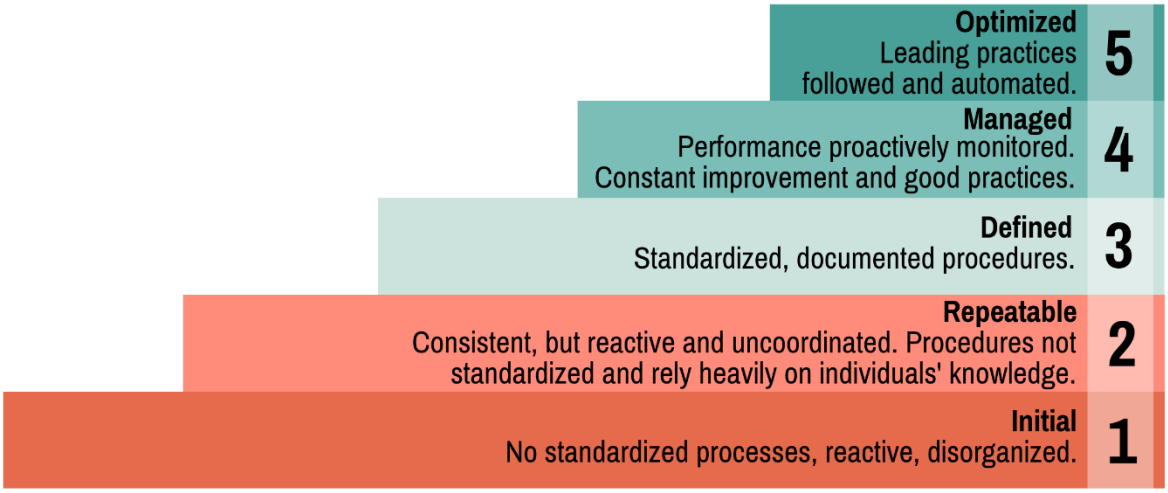



Source: The COBIT IT governance framework.

*A chief information officer could improve ITSS's process maturity.*

A chief information officer could improve the maturity of ITSS's processes. Exhibit 6 describes their maturity levels.

**EXHIBIT 6 Most ITSS Processes Are at Maturity Level 1 or 2**




Source: Auditor's analysis of ITSS processes in relation to COBIT 4.1, 2007.

A strategic plan sets goals that reflect the upper levels of the maturity model and provides specific direction on how to achieve those goals. Maturity levels 3, 4, and 5 presume the development of an IT strategic plan linked to organizational goals.

Most of ITSS's processes are at maturity level 1 or 2. Not all processes need to reach the highest maturity level or meet all aspects of a level at the same time. However, improving maturity reduces risk and improves efficiency, resulting in more accurate work, more predictable processes, and greater cost-efficiency in resource use. Best practice publications[5] recommend maturing selected processes based on the organization's needs, type, and strategy. A strategic plan can target critical processes based on the department's priorities.

*A chief information officer should implement multi-faceted governance programs.*

A chief information officer (CIO) is responsible for implementing and facilitating compliance with a strong governance framework through the establishment of an IT strategic plan. The plan should align the business and IT sides of the organization, and the CIO should

[5] COBIT 4.1.

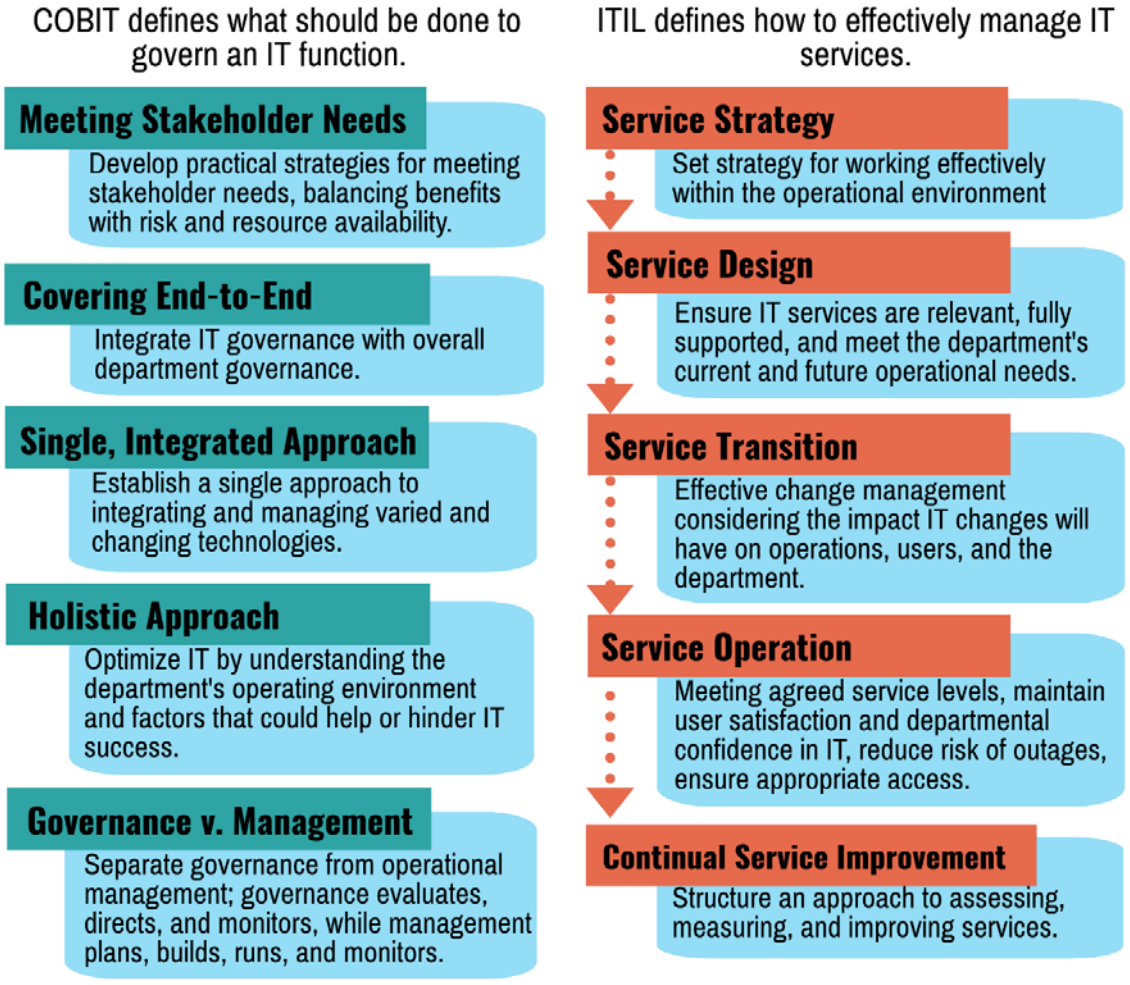
encourage each side to understand the perspective of the other. Effective IT governance requires an agreed-upon framework that defines IT processes and their controls. A formal governance structure provides a written, strategic foundation for better management of risks, resources, and performance.

*Different frameworks have different focuses.*

Different IT governance frameworks have different focuses. COBIT addresses end-to-end management, ITIL focuses on service management, and NIST standards concentrate on cybersecurity. These frameworks can be used in conjunction with each other to address the different needs of an IT organization.

Exhibit 7 summarizes the elements of COBIT and ITIL.

**EXHIBIT 7 COBIT and ITIL Highlight Different Aspects of IT Governance**




Source: Auditor's analysis of key principles of COBIT and ITIL guidance.

COIT requires adopting the NIST cybersecurity framework to secure information resources. Adopting NIST would align the Sheriff's cybersecurity strategy with that of other city departments.

*A chief information officer would provide valuable additional support to ITSS.*

Finally, a chief information officer would be equipped to provide technical expertise to the Sheriff and ITSS. An individual with appropriate experience and training would oversee the hiring and mentoring of skilled IT managers and technical staff and ensure that ITSS's strategies support the objectives of the entire Sheriff's department.

## Recommendations

The Sheriff's Department should:

1. Hire a chief information officer with technical, project management, and information technology management experience and skills to lead the Information Technology Support and Services unit.

2. Create a strategic plan for its Information Technology Support and Services unit based on an established information technology governance framework that covers strategic alignment, value delivery, risk management (including disaster preparedness in compliance with the Committee on Information Technology's Disaster Preparedness, Response, Recovery and Resiliency policy), resource management, and performance measurement.

3. Adopt the cybersecurity framework promulgated by the National Institute of Standards and Technology, in compliance with the Committee on Information Technology's policies, including the Cybersecurity Policy and Cybersecurity Awareness and Training Standard.

## Finding 2

## ITSS's organizational structure impedes the organization's maturation because technical experts are not managed by leaders with the technical expertise and training required to support and oversee the work.

*ITSS's technical experts (information systems (IS) Business Analyst and IS Engineer) do not have technical leaders to ensure proper guidance.*

ITSS needs to improve its organizational structure by creating an infrastructure team led by a manager with strong technical expertise. This would increase the efficiency and effectiveness of ITSS's technical experts to design, create, and maintain critical departmental data and systems.

An infrastructure unit serves a critical function in an IT division.[6] An infrastructure unit houses highly technical aspects of a division's work, such as systems, network, security, and data services—functions along the lines of those performed by ITSS's technical experts. The help desk function is not typically part of the infrastructure unit because help desk staff resolves routine issues, such as hardware and software troubleshooting and monitoring and reviewing software applications, which typically require less technical knowledge.

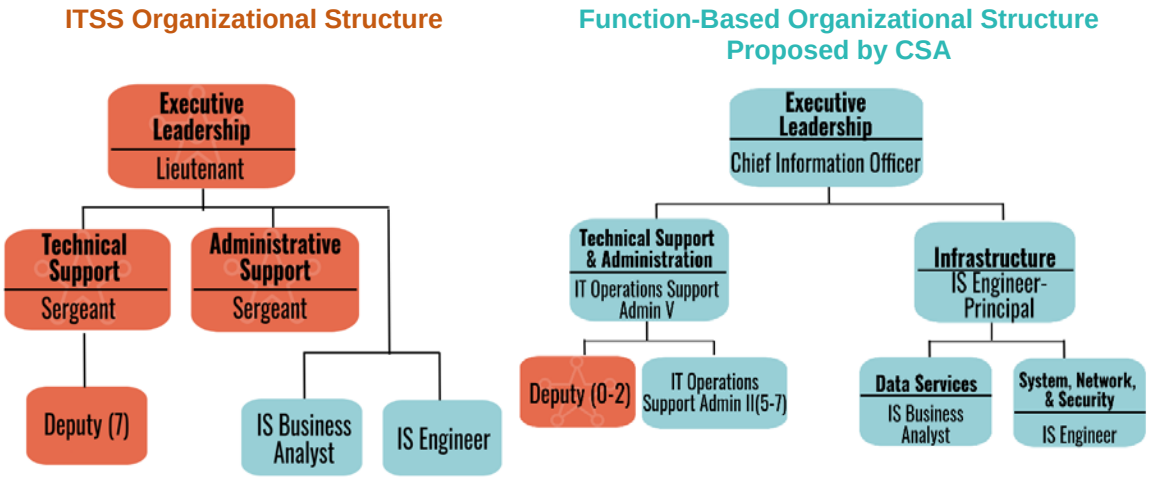
*A functional organizational structure can help develop expertise.*

ITSS's organizational structure groups together those performing the support function but does not have a structure to support other, more technical functions. Technical experts report directly to executive leaders and work independently, without a designated unit or manager technically skilled in their areas. Alternately, a function-based structure requires units focused on specific functions, such as technological infrastructure, and is led by an expert in the specific function.

Exhibit 8 shows ITSS's structure compared to the function-based structure CSA proposes.

[6] Saudi e-Government Program – Yesser, *Best Practices of IT Organization Design*, 2007.

**EXHIBIT 8 CSA Proposes a New Organizational Structure for ITSS**




Note: IS = Information Systems
Sworn positions Civilian positions

Sources: Sheriff's ITSS organization chart dated 1/9/17; auditor's analysis of ITSS roles and relevant classification descriptions from Department of Human Resources.

The proposed structure facilitates the development of experts in each functional area and emphasizes standardization in organization and processes, which can help ITSS achieve higher levels of organizational maturity.

*Highly technical leaders would better support technical experts.*

The proposed structure and job classifications for leaders within that structure would provide greater support to ITSS's technical experts, who now report to and work with sworn personnel who lack the technical expertise to provide needed direction and guidance. ITSS staff and management reported that the technical experts must rely on their own knowledge to resolve complex issues because no one else on staff has the technical knowledge to consult. A manager with technical expertise would have the knowledge and skills needed to assess work quality and appropriately support IT employee needs.

*CSA proposes a new organizational structure to better support critical functions in ITSS.*

The department needs to accelerate the maturity of ITSS by creating an infrastructure team led by management with appropriate technical expertise. The proposed functional organizational structure dedicates needed resources to modernizing the department's systems, improving technology use, and addressing governance areas such as information security and

disaster recovery. Having a dedicated infrastructure team will help the unit ensure that it has the expertise and resources to devote to its technical work.

**Recommendation**

4. The Sheriff's Department should reorganize its Information Technology Support and Services unit to create an infrastructure team led by a manager with the technical expertise to oversee systems and storage, networking, system administration, data services, cybersecurity, business continuity, and data classification planning.

**Finding 3**

**Technical experts performing critical functions do not have alternates to help with the backlog or to ensure business continuity.**

*ITSS has no backup and no support staff for its two technical experts.*

No ITSS staff can perform certain critical duties in the absence of the IS Business Analyst and/or IS Engineer. The department needs additional full-time employees and should cross-train existing employees to address work backlogs and provide backup for its technical experts.

*The IS Engineer has increasing responsibilities without an increase in backup.*

A backlog of critical work exists for the IS Engineer's role, including improving data storage and ensuring business continuity in the event of a disaster. According to ITSS staff, the Engineer has more duties than comparable engineering positions in other departments. The City's Department of Technology also recently stopped supporting some of the department's systems running on older platforms, increasing the Engineer's workload. ITSS staff reported that the IS Engineer is effectively on call 24 hours a day due to the lack of backup staff.

*ITSS's IS Business Analyst is backlogged in processing data requests.*

Similarly, the IS Business Analyst and ITSS management describe the analyst's workload as heavy. The analyst, who produces reports that help the department's managers make decisions, consistently has a backlog of requests for data processing. According to management, ITSS received significantly more data requests after the analyst was hired because the analyst's skills made more complicated data requests feasible. Although other employees help the analyst with the workload and some data requests, the

complexity of certain requests exceeds the technical expertise of all other ITSS employees.

The absence of staff cross-trained for technical expert roles puts the department at risk in the event of an unexpected system failure, cyber-attack, or disaster coinciding with the unavailability of either staff member. Best practice publications direct IT organizations to minimize reliance on one individual performing a critical job function by ensuring that cross-training and backup for key staff roles exist.[7] To comply with COBIT standards and ensure business continuity, more ITSS staff should be hired—and some existing staff should be cross-trained—to provide backup.

**Recommendations**

The Sheriff's Department should:

5. Hire staff to support the Information Technology Support and Services unit's technical experts in their roles.

6. Cross-train Information Technology Support and Services unit employees to ensure that critical functions are not interrupted in an emergency.

**Finding 4**

**Civilianizing most ITSS positions will create a highly-skilled and cost-effective IT function.**

Civilianizing ITSS positions will ensure that IT staff has the knowledge, skills, and abilities that align with the work, aid in cross-training of IT functions, and help the unit achieve its objectives. Besides saving up to $136,000 in wages annually and additional savings in benefits, civilianizing will facilitate safer[8] and more evenly distributed overtime work by ITSS staff.

Exhibit 9 shows the proposed classifications for existing positions in ITSS.

[7] COBIT 4.1.

[8] According to a report supported by a grant from the National Institute of Justice, fatigue associated with sleep loss due to shift work and overtime assignments can decrease alertness, impair performance, and worsen mood. Excess fatigue associated with police overtime may have adverse effects on police-community relations and public safety. ITSS staff work overtime within ITSS, but also within other divisions of the Sheriff's Office.

**EXHIBIT 9 CSA Proposes Civilianizing Most ITSS Roles**

| Role | ITSS Staffing | CSA's Proposed ITSS Staffing |
|---|---|---|
| Executive | Lieutenant | Chief Information Officer (Manager V) |
| Management | Sergeant (2) | IT Operations Support Administrator V<br>IS Engineer – Principal |
| Technical Support | Deputy Sheriff (7) | Deputy Sheriff (0-2)<br>IT Operations Support Administrator II (5-7) |
| Technical Experts | IS Business Analyst<br>IS Engineer | IS Business Analyst<br>IS Engineer |

Note: Numbers in parentheses indicate the number of budgeted positions.

Sources: Sheriff's ITSS organization chart dated 1/9/17; auditor's analysis of ITSS roles and relevant classification descriptions from Department of Human Resources.

Civilianization of support functions such as IT services is a common practice in law enforcement agencies. Nationwide in 2013, civilians made up 46 percent of full-time employees of sheriffs' offices.[9]

All the audit reports from state and local governments reviewed for this audit recommend civilianizing IT functions, and some noted that civilianization had already partially or fully occurred.

Exhibit 10 summarizes some of these reports' findings.

**EXHIBIT 10 Audits of Law Enforcement Agencies Frequently Recommend Civilianization for Enhanced Productivity and Cost Savings**

| Organization | Finding or Recommendation |
|---|---|
| San Francisco Police Department (1998) | • Save up to $2.24 million annually by civilianizing some administrative and technical support work.<br>• Civilian staff demoralized due to lower pay than sworn personnel for the same work. |
| Maryland State Police (2004) | • Civilianize 79 positions, including 5 IT positions. |
| San Jose Police Department (2010) | • Save $5.1 million by civilianizing 88 positions.<br>• 275 of 281 employees in the department's Bureau of Technical Services were civilians. |
| Denver Sheriff Department (2015) | • Civilianize 54 positions and outsource another 4 to civilian agencies, including 3 IT positions. |

Sources:
- Budget and Legislative Analyst Office, *Management Audit Report of San Francisco Police Department Phase 2*, 1998.
- Office of Legislative Audits for Maryland General Assembly, *Department of State Police Workforce Civilianization: Opportunities Exist to Increase Civilian Employment,* 2004.
- Office of the City Auditor, *Audit of Civilianization Opportunities in the San Jose Police Department: Opportunities Exist to Civilianize a Significant Number of Sworn Positions in the Police Department,* 2010.
- Hillard-Heintze, *The Denver Sheriff Department: Transforming the Leadership, Operations, and Culture of the Department*, 2015.

[9] U.S. Department of Justice, Bureau of Justice Statistics, *Sheriffs' Office Personnel, 1993-2013,* June 2016.

## Finding 4.1 — Unlike sworn officer classifications, IT classifications align with IT work.

Sworn job classifications do not require knowledge, skills, or abilities that align with IT work, and most sworn personnel would require additional training to be able to fill that function. The City makes a significant investment to train Deputy Sheriff recruits, including at least 700 hours of academy and job-specific training. When sworn personnel perform administrative and support tasks, such as working in the IT function, the department cannot apply those resources to the duties of sworn personnel for which their extensive training prepares them.

Personnel hired in the 1092 IT Operations Support Administrator II (IT Support) classification bring to the position knowledge, skills, and abilities tailored to IT work, including technical knowledge, analytical problem solving, data processing, and the ability to perform mechanical computer (hardware) repairs. Although the Sheriff reports that the deputies working in ITSS have gained some of these skills through training and experience, the Deputy Sheriff classification does not require such knowledge or abilities.

The contrast between sworn and civilian personnel in required knowledge, skills, and abilities also applies to management-level classifications. For example, a Sheriff's Sergeant manages the IT support group. Although experience in the ITSS unit has provided this employee with technical abilities, the Sheriff's Sergeant classification does not require any knowledge or skills specific to IT support. In contrast, the IT Operations Support Administrator V (IT Support Manager) position requires network, software, and systems knowledge. Appendix A compares the knowledge, skills, and abilities required of each of these classifications.

Exhibit 11 shows a selection of support requests and their alignment with the knowledge, skills, and abilities of the relevant sworn and nonsworn classifications.

**EXHIBIT 11** **Support Requests Better Align With the Required Knowledge, Skills, and Abilities (KSAs) of IT Classifications Than of Sworn Classifications**

| Support Request *(actual examples)* | Applicable KSAs of Sworn | Applicable KSAs of Civilian |
|---|---|---|
| **Requests Completed by Deputies** | **Deputy Sheriff** | **IT Support** |
| Printer service request | None | Technical problem-solving; minor mechanical computer repairs |
| Word document crashing | None | Maintenance of software; technical problem-solving |
| Password reset | None | Solve systems problems |
| 3270 program has failed error | None | Solve systems problems |
| **Requests Completed by Sergeants** | **Sheriff's Sergeant** | **IT Support Manager** |
| Unlock file | None | Manage systems and networks |
| JUS.T.I.S. Oracle Upgrade | None | Installation and upgrading of software |
| Delete document from system | None | Solve systems problems |
| Unable to communicate with server | None | Maintain networks |

Sources: Auditor analysis of support requests in Sheriff's Spiceworks support request management system for 2016; classification descriptions for 8304 Deputy Sheriff, 8308 Sheriff's Sergeant, 1092 IT Operations Support Administrator II (IT Support), and 1095 IT Operations Support Administrator V (IT Support Manager) from Department of Human Resources .

In some cases, the sworn status of IT Support staff aligns with the needed work. For example, a civilian cannot enter maximum security locations without being escorted by a sworn officer. However, the Sheriff does not have sufficient data on service requests to determine the need for sworn staff in the IT function and cannot determine the costs and benefits of employing a sworn officer in a technical support role compared to having a sworn officer escort a civilian IT Support employee into maximum security areas to respond to service requests.

**Finding 4.2** **The technical background of staff in IT classifications would enable cross-training of IT roles.**

ITSS has no back-up for the critical functions filled by its technical experts. The IS Engineer stated that he is effectively always on call because he is the only employee able to support the department's critical IT systems.

The skills IT Support staff would bring to ITSS's technical support positions would more readily facilitate cross-training, which would provide back-up of critical functions that must be handled by employees who are more technically proficient. ITSS employs one IS Engineer, who manages IT infrastructure such as the servers, implements system integration and interfaces, and serves as an administrator for all of Sheriff's information systems and networks.

Sheriff staff reports that the Department of Technology no longer supports many of the Sheriff's systems because the department does not use the City's standardized infrastructure. This has greatly increased the support burden on the Sheriff's IS Engineer. ITSS states that no one in the department has the skills to back up the IS Engineer. Providing adequate back up of this critical position could require hiring a second IS Engineer or cross-training other personnel on critical functions. Staff hired under IT classifications are far more likely to come into the position with the knowledge, skills, and abilities to take on this cross-training.

## Finding 4.3

**IT classifications are more cost-effective than sworn officer classifications for IT work.**

It is costlier to hire and train sworn personnel than civilians in IT classifications. Sworn personnel often earn greater salaries and have higher overtime rates, receive benefits that are costlier, and receive larger pensions than nonsworn personnel.

*Recruiting, hiring, and training sworn officers is more expensive than doing so for civilians in IT classifications.*

As mentioned in Finding 1, sworn officers have a lengthy hiring and training process and typically require further investment in training and development to enable them to fulfill IT functions. In contrast, the investment in hiring and training IT classifications is substantially less. Those appointed in IT classifications do not require peace officer academy training and arrive with technical knowledge.

*IT classifications have similar or lower compensation and fringe benefits than sworn classifications.*

In addition to lower investment in hiring and training, some of the City's IT classifications have lower salaries than the corresponding sworn positions.

Exhibit 12 compares the highest salary available to each relevant sworn and nonsworn classification in fiscal year 2017-18.

**EXHIBIT 12** **Civilianizing ITSS Could Save the Sheriff up to $136,000 in Salaries Annually**

| Sworn Classification | Proposed Civilian Classification | Difference in Salary | Cumulative Annual Savings |
|---|---|---|---|
| Lieutenant $149k | Manager V $173k | $24k | -$ 24k |
| Sergeant $130k | IS Engineer-Principal $168k | $38k | -$ 62k |
| | IT Operations Support Admin V $128k | $ 2k | -$ 60k |
| Deputy $108k | IT Operations Support Admin II $80k | $28k | 1 -$ 32k<br>2 -$ 4k<br>3 $ 24k<br>4 $ 52k<br>5 $ 80k<br>6 $ 108k<br>7 $ 136k |

Number of deputies

Note: Calculations are based on conservative estimates and exclude savings of premium pay.

Source: Auditor analysis of fiscal year 2017-18 salary ranges for each classification.

Further, the City pays more in benefits to sworn personnel.[10] Besides regular pay and benefits, sworn classifications often receive premium pays unavailable to nonsworn classifications. For example, sworn personnel possessing an intermediate or advanced POST[11] certificate receive a premium of 4 or 6 percent, respectively. Also, sworn personnel receive longevity pay.

*Overtime for IT classifications is less costly than overtime for sworn classifications.*

Overtime is also more costly for sworn personnel due to higher pay rates and scheduling practices. According to ITSS staff, the Sheriff's practice is to assign overtime shifts on a voluntary basis to the most senior employees. This concentrates overtime with relatively few, higher-

[10] The City pays 37 percent and 23 percent more in benefits to the Deputy and Sergeant classifications than to the IT Support and IT Support Manager classifications, respectively.

[11] California's Commission on Peace Officer Standards and Training (POST) issues professional certificates to peace officers in the state. Possession of a POST basic certificate is required for all sworn personnel. Sworn Sheriff's personnel who possess POST intermediate or advanced certificates are eligible for additional premium pay.

paid officers.[12] For IT classifications, the labor agreement requires that overtime be evenly distributed.

*Sworn classifications can continue to be costlier to the City for decades as the increased costs carry through retirement.*

The City also pays retirement benefits to sworn classifications at a higher rate than to IT classifications. Sheriff's employees may receive a maximum of 90 percent of their average final pay, including premium pays, while IT classifications receive a maximum of 75 percent.

**Finding 4.4** **ITSS is benefiting from civilianization.**

ITSS already employs two nonsworn technical experts, an IS Business Analyst who serves as a data services analyst and an IS Engineer, who have proven to be highly valuable to ITSS, helping the unit meet its objectives. For instance, the IS Engineer reports that he implemented Spiceworks, a help desk ticket tracking system, to enable ITSS managers to assign and monitor work tasks in the unit. The IS Engineer also described building an updated infrastructure to support the department's case management software. ITSS managers stated that they have seen increased demand for data requests because the IS Business Analyst produces new reports due to her increased ability to make the department's data accessible.

*Civilianization presents challenges.*

Although integration of the technical experts has been successful, civilianizing support functions presents specific challenges, which the Sheriff should proactively address.

- Civilians must be integrated into the department's culture. ITSS's technical experts report not having support because they lack technically trained coworkers (Finding 2).
- When supervisory roles are civilianized, sworn personnel can have difficulty adjusting to a civilian supervisor.
- Civilians turn over more often than sworn personnel.
- The morale of civilians can decline because they are paid less than their sworn counterparts for the

[12] Of the Sheriff's top 50 overtime-earning employees in 2015, 33 percent were above the rank of Deputy, although only 23 percent of the 2015-16 budgeted positions were above the rank of Deputy.

same or similar work.

The Sheriff should consider and address these challenges in future civilianization efforts.

**Recommendations**

The Sheriff's Department should:

7. Develop a civilianization plan that will convert sworn positions to nonsworn positions in the department's Information Technology Support and Services unit.

8. Include in its civilianization plan mechanisms to address known challenges to successful civilianization of law enforcement agencies.

9. Ensure that any sworn employees who work in the information technology function gain the knowledge, skills, and abilities equivalent to the relevant information technology classification.

**Finding 5**

**ITSS cannot determine its staffing need, establish performance measures, or monitor individual productivity because it underuses the help desk tracking system.**

*ITSS data is incomplete.*


*Work recorded in Spiceworks for 2016 accounted for only 16 percent of total work time.*

ITSS help desk ticket data is incomplete. ITSS has not implemented procedures and does not have written policies to ensure that all service and support requests go through Spiceworks, the help desk ticketing system. This has resulted in a dataset that does not represent all the work the technical support team actually performs. ITSS must establish policies and improve its procedures to more accurately determine its workload and an appropriate staffing level for the technical support team.

Spiceworks allows ITSS staff to enter the time it took to complete each task. However, ITSS employees do not enter all support requests they receive into the system and, according to ITSS management, the time to resolve each request is an estimate. Thus, the system does not reflect the team's total workload or the actual time required to accomplish it. For example, the system shows the team working an average of only 27 hours per employee per month. This may be at least partly

because some of the tasks the team worked on were not in Spiceworks.

*Help desk does not appear to have a backlog.*

The audit team observed two technical support team members for a full shift. On both observation days, the deputies appeared to have enough work to occupy the entire work day and did not appear to have an unmanageable backlog. However, the deputy performed some work inefficiently. In two instances one deputy attempted to perform tasks that required him to travel from the team's primary worksite to San Bruno and City Hall. These trips took 60 minutes and 45 minutes, respectively, but the deputy could not complete the tasks because the recipient of the intended services was not at the location upon the deputy's arrival.

With better planning, the deputy could have confirmed that the necessary contact would be available before traveling to these locations. The auditor could not determine whether there would have been enough work to fill the deputy's day without these inefficient trips.

The auditor also observed management answering the technical support phone line and responding to calls—work that is typically the responsibility of support staff, not management.

The incomplete Spiceworks data also inhibits monitoring the team's individual and group performance. Without performance monitoring, team leaders cannot identify poor performers or areas where the team may need additional training.

NIST defines performance monitoring as a process that establishes goals relevant to achieving the organization's mission, gathers relevant data to measure progress towards those goals, and then reports those measures to the staff and management responsible for the function. Performance measures facilitate effective governance because they focus resources on the work that is critical to meeting the division's and department's mission.

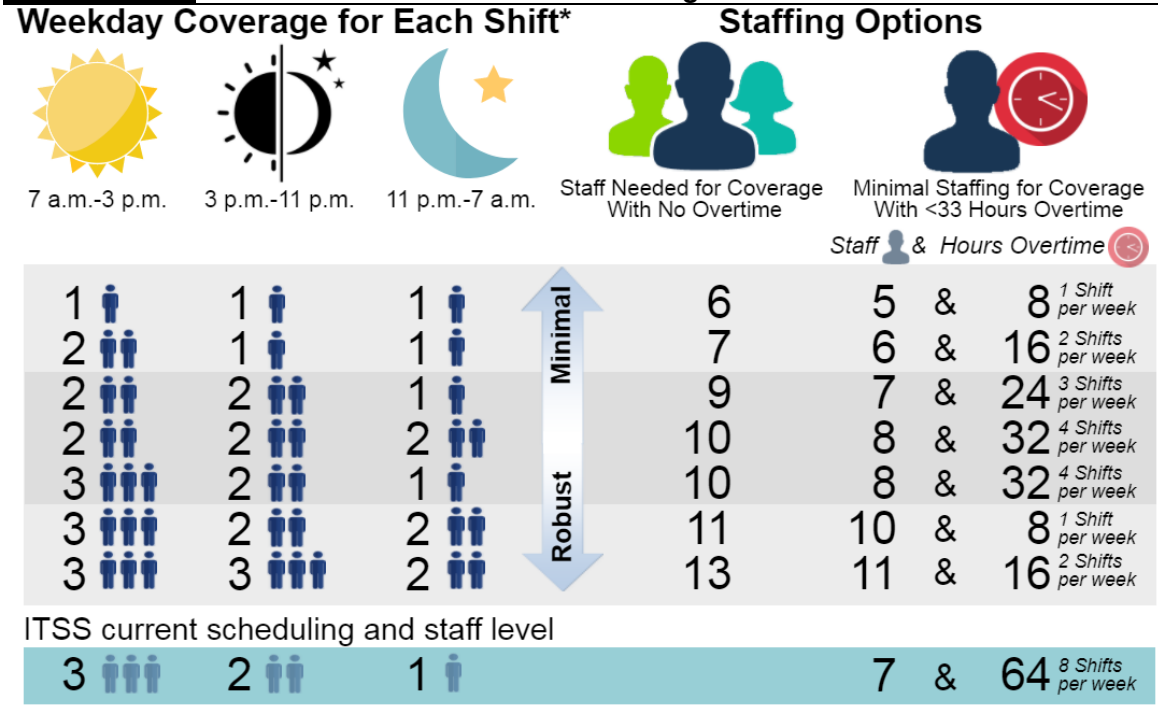
By not measuring IT performance, the Sheriff cannot:

- Adequately assess whether ITSS is meeting its goals or is effectively supporting the department's mission.
- Identify and address skill deficiencies or training needs.
- Assess workload or staffing levels.
- Identify the areas of improvement needed for the continued development of the IT function.

Due to incomplete data, the audit team could not determine the ideal staffing level for the technical support team. However, CSA calculated the number of FTE employees the Sheriff must employ in technical support roles to provide 24-hour service in varying scenarios.

Exhibit 13 shows staffing scenarios from minimal to robust coverage. It also shows both ideal coverage staffing and the average amount of overtime ITSS would need to schedule each week if it had less-than-ideal coverage.

**EXHIBIT 13** **ITSS' Technical Support Team Staffing Levels and Overtime Needed for Various Levels of Staff Coverage**




Source: Auditor analysis of ITSS technical support team's 2016 weekly schedules. For full calculations, see Appendix B.

If ITSS ensures that the appropriate employees perform technical support duties and consistently use Spiceworks to record the team's work, the Sheriff will be better able to determine whether the staffing level is sufficient to accomplish the workload. However, before determining whether to add positions to achieve greater coverage, ITSS should consider that civilianizing positions may affect the workload by enabling faster and more efficient completion of the work.

**Recommendations**

The Sheriff's Department should:

10. Fully implement use of a support-request tracking system for all work performed by the Information Technology Support and Services unit's support team to enable the assessment of workload and implementation of performance measures.

11. After a tracking system is fully used, analyze system data to reassess the staffing level of the Information Technology Support and Services unit's support team.

12. After a tracking system is fully used, analyze system data to assess whether it is more efficient to maintain one sworn employee, to maintain two sworn employees, or to escort a nonsworn employee to maximum security locations.

**Finding 6**

**ITSS could reduce overtime by up to 45 percent by better scheduling its technical support staff.**

*ITSS schedules an average of six overtime shifts per week, costing an estimated $195,000 per year.*

ITSS uses an average of six overtime shifts per week to provide 24-hour support, which costs an estimated $195,000 in overtime pay each year. Because ITSS has scheduled only one employee to work at night, it schedules at least two overtime shifts per week to cover the employee's regular days off.

Exhibit 14 is an example of the technical support staff's weekly schedule.

**EXHIBIT 14 ITSS Schedules an Average of Six Overtime Shifts per Week to Cover Schedule Gaps Due to Regular Days Off, Leave, and Training**

Schedule of ITSS Technical Support Staff for October 29 – November 4, 2016

| | | Sat | Sun | Mon | Tue | Wed | Thu | Fri |
|---|---|---|---|---|---|---|---|---|
| Day | Staff 1 | RDO | RDO | | | | | |
| | Staff 2 | | | RDO | RDO | Leave | Leave | Leave |
| | Staff 3 | RDO | RDO | | | | | |
| | Staff 4 | RDO | RDO | | Leave | Leave | Leave | Leave |
| Swing | Staff 5 | Leave | Leave | RDO | RDO | Leave | Leave | Leave |
| | Staff 6 | RDO | RDO | Leave | | | | |
| Night | Staff 7 | RDO | RDO | Leave | | | | |
| **Overtime Shifts** | | | | | | | | |
| Day Shift | | | | | | | | |
| Swing Shift | | Staff 2 | Staff 4 | Staff 4 | | | | |
| Night Shift | | Staff 4 | Staff 2 | Staff 2 | | | | |

Note: RDO = Regular Day Off

Source: Sheriff

*Adjusting scheduling practices could reduce overtime in ITSS by 45 percent.*

In 2016 if ITSS had assigned one of its day staff to instead work nights, it would have saved 21 overtime shifts to cover regular days off and 12 overtime shifts to cover leave and other days away from work, for a total of 33 overtime shifts. This 45 percent decrease in overtime shifts worked would have saved an estimated $88,000 per year. Although there will always be instances in which some or all employees assigned to a shift are unavailable to work and, therefore, overtime will be offered to another employee to provide 24-hour coverage, reducing overtime would result in substantial savings.

Exhibit 15 shows the same weekly schedule shown in Exhibit 14, but with one employee reassigned from day to night. The reassignment eliminates the need for three of the six overtime shifts.

**EXHIBIT 15** **Reassigning One Day Shift Employee to the Night Shift Would Reduce the Need for Scheduled Overtime Shifts**

**Schedule of ITSS Technical Support Staff for October 29 – November 4, 2016**
Reassigning "Staff 4" from Day to Night and Adjusting Scheduled Regular Days Off

| | | Sat | Sun | Mon | Tue | Wed | Thu | Fri |
|---|---|---|---|---|---|---|---|---|
| Day | Staff 1 | RDO | RDO | | | | | |
| | Staff 2 | | | RDO | RDO | Leave | Leave | Leave |
| | Staff 3 | RDO | RDO | | | | | |
| Swing | Staff 5 | Leave | Leave | RDO | RDO | Leave | Leave | Leave |
| | Staff 6 | RDO | RDO | Leave | | | | |
| Night | Staff 7 | RDO | RDO | Leave | | | | |
| | Staff 4 | | | | Leave | Leave | RDO | RDO |
| **Overtime Shifts** | | | | | | | | |
| Day Shift | | | | | | | | |
| Swing Shift | | Staff 2 | Staff 4 | Staff 2 | | | | |
| Night Shift | | | | | | | | |

Note: RDO = Regular Day Off

Source: Auditor analysis of Sheriff's ITSS staff schedules.

**Recommendation**

13. The Sheriff's Department should ensure that the Information Technology Support and Services Unit modifies its scheduling of technical support staff so that a minimum of two employees normally work during the 3 to 11 p.m. swing shift and the 11 p.m. to 7 a.m. night shift, so that it can usually cover staff's regular days off without overtime.

# APPENDIX A: COMPARISON OF REQUIRED KNOWLEDGE, SKILLS, AND ABILITIES OF SWORN AND IT CLASSIFICATIONS

Sworn positions require knowledge, skills, and abilities appropriate to law enforcement, physical security, and inmate management, whereas classifications intended for IT positions include knowledge, skills, and abilities related to software, networking, systems, programming, and project management. The following tables compare the required knowledge, skills, and abilities for the sworn classifications the Sheriff employed in the ITSS unit and job classifications designed for the work performed by those officers.

| KSAs of Sworn Classification Sheriff Uses for IT Work | KSAs of IT Classification Designed for the Work |
|---|---|
| 8304 – Deputy Sheriff | 1092 – IT Operations Support Administrator II |
| | Knowledge of:<br>• On-site, broad-based user technical support, operational support, programming support, and analytical problem-solving support<br>• Installation, maintenance, expansion and upgrading of software, hardware, networks, desktops, mobile devices, and peripherals<br>• Common operating systems<br>• Information technology methods and procedures<br>• Training techniques |
| Skills and Ability to:<br>• Deal tactfully and courteously with the public<br>• Control prisoners individually and in groups and deal with them fairly and impartially<br>• Always remain alert and react quickly and calmly in an emergency<br>• Speak and write effectively<br>• Observe situations and write reports accurately and concisely<br>• Prepare and maintain accurate records and reports | Skills and Ability to:<br>• Work as a team member<br>• Communicate effectively orally and in writing<br>• Use logic and analysis to solve systems problems<br>• Establish and maintain effective working relationships<br>• Apply new technologies and system changes<br>• Analyze and categorize data and information to determine the relationship of the data with reference to established criteria/standards<br>• Advise and provide interpretation to others on how to apply policies, procedures, and standards to specific situations<br>• Exercise the judgment, decisiveness and creativity required in situations involving the evaluation of information against measurable criteria<br>• Read and understand professional journals and literature<br>• Prioritize competing requests for service Mentor lower level staff as needed |

Source: Department of Human Resources' job descriptions of the 8304 and 1092 classifications, as edited by CSA.

| KSAs of Sworn Classification Sheriff Uses for IT Work | KSAs of IT Classification Designed for the Work |
|---|---|
| 8308 – Sheriff's Sergeant | 1095 – IT Operations Support Administrator V |
| Knowledge of:<br>• Federal, state, and local standards of prisoner care, and penal laws and procedures<br>• Facility security requirements<br>• Departmental work rules and other policies and procedures<br>• Defensive tactics, approved restraint methods, use of force techniques, and lethal and non-lethal weapons<br>• Proper search techniques, first aid, and CPR (cardiopulmonary resuscitation)<br>• Laws and procedures related to discrimination and harassment | Knowledge of:<br>• Installation, maintenance, expansion, and upgrading of software, hardware, networks and peripherals<br>• Practices and techniques of supervision and project management<br>• Training techniques<br>• Computer languages<br>• Interactive macro-based applications<br>• Common operating systems and relational database systems<br>• Systems analysis and design<br>• Functional requirements, structured or procedures analysis<br>• Emerging technologies |
| Skills and Ability to:<br>• Follow written and oral directions<br>• Clearly and concisely instruct subordinates<br>• Lead subordinates effectively both by example and verbal direction<br>• Prioritize assignments<br>• Resolve conflicts<br>• Develop and maintain a team environment<br>• Listen effectively<br>• Show appropriate sensitivity to ethnic and cultural diversity | Skills and Ability to:<br>• Work as a team member<br>• Supervise a group of workers, including the ability to counsel and mediate<br>• Persuade, convince, and train others<br>• Decide the time, place, and sequence of operations in an organizational framework and oversee their execution<br>• Establish and maintain good working relationships with peers, vendors, and contractors<br>• Exercise decisiveness and creativity required in situations involving the evaluation of information against judgmental criteria<br>• Conduct cost-benefit analyses<br>• Prioritize competing requests for service |
| Note: These knowledge, skills, and abilities are in addition to those required of the 8302 and 1091 classifications shown in the preceding table. | |

Source: Department of Human Resources' job descriptions of 8303 and 1095 classifications, as edited by CSA.

| KSAs of Sworn Classification Sheriff Uses for IT Work | KSAs of IT Classification Designed for the Work |
|---|---|
| 8310 – Sheriff's Lieutenant | Chief Information Officer |
| Knowledge of:<br>• Appropriate laws, codes, etc., and the functioning of the criminal justice system, city/county and department administrative policies, procedures, etc.<br>• Detention facility requirements and security procedures<br>• Supervisory and managerial methods<br>• Current law enforcement tactics<br>• Strategies and methodology<br>• Law enforcement investigative techniques and procedures<br>• Internal systems<br>• Appropriate grammar, phraseology, and sentence structure | Knowledge of or experience with:<br>• Collaborating with, advising, and informing high-level managers on IT-related matters<br>• Strategic planning including development and implementation of goals, objectives, and priorities<br>• Determining service levels and resource allocation for an information technology division<br>• Implementing, interpreting, and enforcing rules, regulations, and policies; set IT policy and technical standards<br>• Project management<br>• Developing and evaluating IT performance measures |
| Skills and Ability to:<br>• Establish procedures and give directions for accomplishment of tasks and goals<br>• Deal with conflict and confrontation when necessary<br>• Accept responsibility for behavior of those commanded<br>• Use leadership style to fit the situation<br>• Assess, isolate, and identify problems<br>• Decide logically and act when necessary<br>• Creatively and innovatively resolve problems<br>• Build consensus and negotiate<br>• Listen and elicit information from others<br>• Make verbal presentations and respond effectively to spontaneous questions<br>• Demonstrate commitment to the job, objectives of the department, and ideals of the law enforcement profession<br>• Demonstrate initiative and take risks when necessary<br>• Adapt to changing circumstances | Skills and Ability to:<br>• Excellent communication; ability to articulate ideas to both technical and non-technical audiences<br>• Willingness and motivation to stay current with technology as it evolves<br>• Leadership ability, including ability to hire, mentor, and motivate IT personnel<br>• Purchase, deploy, and evaluate risks of adopting new technologies and computer systems<br>• Negotiate favorable contracts with IT vendors<br>• Track, optimize, and enforce short-term and long-term IT budgets |

Source: Department of Human Resources' job description of 8310 Classification and previous City and County of San Francisco chief information officer job description, as edited by CSA.

# APPENDIX B: SUPPORT UNIT STAFFING CALCULATIONS

| Net Annual Work Hours for ITSS Support Team Staff | | |
|---|---|---|
| Total hours in one year for all seven Support Team staff (8 hours x 365 days x 7 staff) | 20,440 | |
| 2016 hours spent at work but away from ITSS duties, such as assignment in another unit or training | (608) | 2.97% |
| 2016 hours spent on leave, including compensatory time off, sick leave, and vacation | (2,936) | 14.36% |
| 2016 hours spent on regular days off (8 hours x 2 days x 52 weeks x 7 staff) | (5,824) | |
| ***Net annual work hours*** | ***11,072*** | |
| *Net annual work hours per staff (11,072 ÷ 7)* | 1,582 | |
| *Shift relief factor* (number of full-time equivalent employees needed to ensure coverage of a single shift on a 24-hour schedule) | 1.85 | |
| ***Portion of regular work schedule where employees were unavailable for ITSS work*** | | **17.33%** |

| Average Number of Shifts Per Week an ITSS Support Team Employee Works in ITSS: | | | | |
|---|---|---|---|---|
| **5** | | **(1 - 0.1733)** | | **4** |
| Regularly scheduled days per week | **x** | Days available for regular work schedule, accounting for leave and days performing other duties | **=** | Average number of shifts covered by one employee per week |

## Determining Staffing Needs for a Specific Level of Coverage

| Weekday Shifts: Desired Daily Coverage | | | | | | | Weekday Shifts per Week | | | Shifts of Weekend Coverage* | | Total Weekly Shifts | | Average Shifts Per Day | | | Shift Relief Factor | | Full-Time Equivalent Staff Needed | | | Staff for Coverage With No Overtime (rounded up) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Day* | | *Swing* | | *Night* | | | | | | | | | | | | | | | | | | |
| 3 | + | 2 | + | 1 | = | 6 | | | = 30 | | | = 36 | | | = 5.14 | | | | = 9.51 | | 10 |
| 1 | + | 1 | + | 1 | = | 3 | | | = 15 | | | = 21 | | | = 3.00 | | | | = 5.55 | | 6 |
| 2 | + | 1 | + | 1 | = | 4 | | | = 20 | | | = 26 | | | = 3.71 | | | | = 6.87 | | 7 |
| 2 | + | 2 | + | 1 | = | 5 | x | 5 | = 25 | + | 6 | = 31 | ÷ | 7 | = 4.43 | x | 1.85 | = | 8.19 | | 9 |
| 2 | + | 2 | + | 2 | = | 6 | | | = 30 | | | = 36 | | | = 5.14 | | | | = 9.51 | | 10 |
| 3 | + | 2 | + | 1 | = | 6 | | | = 30 | | | = 36 | | | = 5.14 | | | | = 9.51 | | 10 |
| 3 | + | 2 | + | 2 | = | 7 | | | = 35 | | | = 41 | | | = 5.86 | | | | = 10.84 | | 11 |
| 3 | + | 3 | + | 2 | = | 8 | | | = 40 | | | = 46 | | | = 6.57 | | | | = 12.16 | | 13 |

**Assumes desired coverage is one employee on each weekend shift, which is ITSS's current schedule.*

## Determining Overtime Required for Staffing Levels to Achieve Nearly Ideal Coverage

| *Weekday Shifts: Desired Daily Coverage* | | | *Staff for Coverage With Overtime** | *Shifts Covered Weekly by One Employee* | | *Weekly Shifts Covered* | *Total Weekly Shifts* | *Weekly Shifts Covered* | *Shifts NOT Covered* | *8 Hours per Shift* | | *Hours of Overtime Needed* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Day* | *Swing* | *Night* | | | | | | | | | | |
| 3 | 2 | 1 | 7 | | | = 28 | 36 | - 28 | = 8 | | | = 64 |
| 1 | 1 | 1 | 5 | | | = 20 | 21 | - 20 | = 1 | | | = 8 |
| 2 | 1 | 1 | 6 | | | = 24 | 26 | - 24 | = 2 | | | = 16 |
| 2 | 2 | 1 | 7 | x | 4 | = 28 | 31 | - 28 | = 3 | x | 8 | = 24 |
| 2 | 2 | 2 | 8 | | | = 32 | 36 | - 32 | = 4 | | | = 32 |
| 3 | 2 | 1 | 8 | | | = 32 | 36 | - 32 | = 4 | | | = 32 |
| 3 | 2 | 2 | 10 | | | = 40 | 41 | - 40 | = 1 | | | = 8 |
| 3 | 3 | 2 | 11 | | | = 44 | 46 | - 44 | = 2 | | | = 16 |

**Full-time equivalent staff needed (see previous table) rounded down. Adjusted down if staffing level resulted in all shifts covered.*

# APPENDIX C: BENCHMARKING RESULTS

CSA compared San Francisco to three other counties, two of which are in California, on the structure, required qualifications, and sworn-to-civilian employee ratios of their sheriff's departments and internal sheriff's department divisions. CSA gathered information from the jurisdictions' websites and relevant reports and by distributing a survey to selected jurisdictions.

Of ten jurisdictions it contacted, CSA received completed survey responses from three: Multnomah County, Oregon; Sacramento County, California; and San Diego County, California.[13] The table below presents the survey questions and responses received from these three sheriff's departments.

| | Multnomah | Sacramento | San Diego |
|---|---|---|---|
| How many sworn employees are in your department? | 578 | 1,800 | 2,200 |
| How many civilians are employed by your department? | 223 | 750 | 2,000 |
| What is the average daily jail population of your county? | 1,072 | 3,500 | 5,500 |
| Does your county have staff dedicated to supporting the department's IT needs? (*This could be staff within or outside the sheriff's department*.) | Yes | Yes | Yes |
| How many employees are dedicated to supporting your department's IT needs? | 14 | 41 | 60 |
| How many of the IT employees identified above are sworn personnel? | 0 | 3 | 0 |
| How many of the IT employees identified above are civilians? | 14 | 38 | 60 |

[13] CSA contacted but did not receive responses from: Alameda County, California; City and County of Denver, Colorado; Erie County, New York; Fresno County, California; Mecklenburg County, Virginia; Multnomah County, Oregon; and Santa Clara County, California.

| What roles make up your IT department? Please enter the appropriate number of staff in each category. | | | | | | |
|---|---|---|---|---|---|---|
| | Multnomah | | Sacramento | | San Diego | |
| **Role** | **Sworn** | **Civilian** | **Sworn** | **Civilian** | **Sworn** | **Civilian** |
| Systems Engineer | - | 1 | - | 3 | - | 10 |
| Help Desk Staff | - | 1 | - | 6 | - | 3 |
| Network Engineer | - | 1 | - | 3 | - | 3 |
| Information Security | - | 1 | - | 5 | - | 1 |
| Database Administrator | - | 1 | - | 4 | - | 10 |
| Other | - | 9 | 3 | 17 | - | 33 |
| **TOTAL** | **-** | **14** | **3** | **38** | **-** | **60** |

| What types of services does your IT help desk provide? (*Select all that apply*) | | | |
|---|---|---|---|
| | Multnomah | Sacramento | San Diego |
| Software Support | Yes | Yes | Yes |
| Hardware Support | Yes | Yes | Yes |
| Password Reset | Yes | Yes | Yes |
| Telecom/Phone | Yes | Yes | Yes |
| Internet | Yes | Yes | Yes |
| Security | Yes | Yes | Yes |
| Account Management | Yes | Yes | Yes |
| Printer | Yes | Yes | Yes |
| Other (Please Specify) | We contract out custom software development. | - | We also develop applications that are used in our organization and the region. |

| Question | Multnomah | Sacramento | San Diego |
|---|---|---|---|
| **What background or certifications do you require your IT staff to have to do IT-related work?** | Staff must pass same full background check as sworn staff, must be CJIS[14] data cleared and LEDS[15]/NCIC[16]-certified. | A bachelor's degree (or higher) in computer science, information systems, or a closely related field and one year of experience in systems engineering, programming, database administration and/or analysis, operating systems, network analysis and/or management, or a similar field in a multiplatform information systems environment, or three years' experience in a related field. | Degrees in a computer-related field (math, sciences, engineering) |
| **What ongoing trainings do you require your IT staff to take?** | Staff must keep LEDS, CJIS, and NCIC current—and other technology, as needed—to keep current with agency standards. They also need to take agency training around PCI[17], PREA[18], etc. | No ongoing required technical training. We train employees when needed. | Staff has several options available to keep skill sets refreshed. The most prominent is Pluralsight or Lynda.com. These platforms provide a wide array of opportunities that range from traditional development to machine learning and artificial intelligence courses. |

[14] Criminal Justice Information Services
[15] Law Enforcement Data System
[16] National Crime Information Center
[17] Payment Card Industry
[18] Prison Rape Elimination Act

# APPENDIX D: DEPARTMENT RESPONSE

**OFFICE OF THE SHERIFF**
**CITY AND COUNTY OF SAN FRANCISCO**

1 DR. CARLTON B. GOODLETT PLACE
ROOM 456, CITY HALL
SAN FRANCISCO, CALIFORNIA 94102

VICKI L. HENNESSY
SHERIFF

February 2, 2018
Reference: 2018-014

Ms. Tonia Lediju
Chief Audit Executive
Office of the Controller
City Hall, Room 316
San Francisco, Ca 94102

Dear Ms. Lediju,

Thank you for the completed audit of the Information Technology and Support Services (ITSS) Unit of the San Francisco Sheriff's Department. I appreciate your efforts and those of the assembled team. I understand all the hard work and hours that went into planning, conducting, and finalizing this report. Thank you also for reviewing my comments on the draft audit and making some of the suggested changes. I appreciate your thoughtful responses to each comment.

I have attached the completed "Recommendation and Response Form" that indicates concurrence with most of your 13 recommendations.

Aside from the recommendations, your report also expresses the difficulty in implementing civilianization of sworn positions. As you note this is a sensitive issue and the department must plan accordingly. I believe the reader of the report should also realize the history of the SFSD ITSS Unit. Like many departments caught up in the age of technology, the department was unable to add non-sworn staff to this function in the late 1990s and the early 2000s To keep up with the demand for modern communications and data collection, the department assigned talented, and dedicated people from our sworn staff to meet these needs. With the adoption of JUSTIS in 2002, our staff went to work and became the first of the member departments to "go live" with our Jail Management and Booking System – a crucial step in the replacement of the antiquated Court Management System.

Phone: 415 554-7225 Fax: 415 554-7050
Website: sfsheriff.com Email: sheriff@sfgov.org

Lieutenant Hardy led this effort for many years, and his team has accomplished amazing work without the anticipated support of the JUSTS members and the recent withdrawal of robust DT support.

This context is essential, because the leadership of the SFSD ITSS has done an excellent job under the circumstances and their achievements should not be minimized.

Now we are at a crossroads where we need to move into a time where our sworn staff primarily work in sworn duties and non-sworn staff step in to manage and support the majority of our data needs. This first includes the acquisition of a Chief Information Officer (CIO) with appropriate qualifications who can organize the unit around functions and hire the proper non-sworn technical staff. I will be asking for an appropriation for this purpose in the FY18/19 budget.

Other items captured in the report may not be fully developed and it is heplful for the reader to understand the following:

- ITSS currently reports directly to the Undersheriff.
- The Sheriff's Department has extensive data needs. Since the report was meant to be high level, many functions performed by ITSS are not captured in the detail that may indicate an increase in staffing beyond your office's recommendations. The tracking system used for every task, as recommended, will help justify appropriate staffing levels.
- In comparing like staffing in other departments, the closest agency in size and function to the SFSD is the Denver Sheriff's Department. The comparison of non-sworn to sworn in other jurisdictions is not "apples to apples."
- The savings predicted by hiring non-sworn in place of most sworn positions is a potential benefit and should be explored, however overtime for a deputy sheriff is very close to a straight time expense for the department.

Once again, thank you for your critical eye and many thoughtful recommendations.

Sincerely,

Vicki Hennessy

attachment

Phone: 415 554-7225 Fax: 415 554-7050
Website: sfsheriff.com Email: sheriff@sfgov.org

# RECOMMENDATIONS AND RESPONSES

For each recommendation, the responsible agency should indicate whether it concurs, does not concur, or partially concurs. If it concurs with the recommendation, it should indicate the expected implementation date and implementation plan. If the responsible agency does not concur or partially concurs, it should provide an explanation and an alternate plan of action to address the identified issue.

| Recommendation | Agency Response | CSA Use Only Status Determination[1] |
|---|---|---|
| The Sheriff's Department should: | | |
| 1. Hire a chief information officer with technical, project management, and information technology management experience and skills to lead the Information Technology Support and Services unit. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>We have asked for a CIO, as well as another software engineer and analyst in our FY 18/19 budget. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 2. Create a strategic plan for its Information Technology Support and Services unit based on an established information technology governance framework that covers strategic alignment, value delivery, risk management (including disaster preparedness in compliance with the Committee on Information Technology's Disaster Preparedness, Response, Recovery and Resiliency policy), resource management, and performance measurement. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>The acquisition of a CIO will allow us to work with our partners to develop a strategic plan. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 3. Adopt the cybersecurity framework promulgated by the National Institute of Standards and Technology, in compliance with the Committee on Information Technology's policies, including the Cybersecurity Policy and Cybersecurity Awareness and Training Standard. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>The SFSD is in the process of working on this project with DT. This will continue. | ☒ Open<br>☐ Closed<br>☐ Contested |

| Recommendation | Agency Response | CSA Use Only Status Determination[1] |
|---|---|---|
| 4. The Sheriff's Department should reorganize its Information Technology Support and Services unit to create an infrastructure team led by a manager with the technical expertise to oversee systems and storage, networking, system administration, data services, cybersecurity, business continuity, and data classification planning. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>Please see response to Item #1. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 5. Hire staff to support the Information Technology Support and Services unit's technical experts in their roles. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>Please see response to Item #1. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 6. Cross-train Information Technology Support and Services unit employees to ensure that critical functions are not interrupted in an emergency. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>I would expect that a qualified CIO will cross-train staff. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 7. Develop a civilianization plan that will convert sworn positions to nonsworn positions in the department's Information Technology Support and Services unit. | ☐ Concur ☐ Do Not Concur ☒ Partially Concur<br>With our FY 18/19 budget this plan will begin. The unit will still require the presence of some number of sworn staff to monitor our criminal justice compliance with CORI and CJIS, as well as provide some physical security when working in our jail facilities. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 8. Include in its civilianization plan mechanisms to address known challenges to successful civilianization of law enforcement agencies. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>The challenge that exists will be with our bargaining units. | ☒ Open<br>☐ Closed<br>☐ Contested |

| Recommendation | Agency Response | CSA Use Only Status Determination1 |
|---|---|---|
| 9. Ensure that any sworn employees who work in the information technology function gain the knowledge, skills, and abilities equivalent to the relevant information technology classification. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>This is our goal until we can replace appropriate number of sworn with nonsworn employees appropriate for the unit. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 10. Fully implement use of a support-request tracking system for all work performed by the Information Technology Support and Services unit's support team to enable the assessment of workload and implementation of performance measures. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur | ☒ Open<br>☐ Closed<br>☐ Contested |
| 11. After a tracking system is fully used, analyze system data to reassess the staffing level of the Information Technology Support and Services unit's support team. | ☒ Concur ☐ Do Not Concur ☐ Partially Concur<br>ITSS will be instructed to begin using the tracking system in order to gather data for use in studies regarding future staffing needs. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 12. After a tracking system is fully used, analyze system data to assess whether it is more efficient to maintain one sworn employee, to maintain two sworn employees, or to escort a nonsworn employee to maximum security locations. | ☐ Concur ☐ Do Not Concur ☒ Partially Concur<br>An analysis of the data captured by the tracking system should reveal the answers to these questions and others. | ☒ Open<br>☐ Closed<br>☐ Contested |
| 13. The Sheriff's Department should ensure that the Information Technology Support and Services Unit modifies its scheduling of technical support staff so that a minimum of two employees normally work during the 3 to 11 p.m. swing shift and the 11 p.m. to 7 a.m. night shift, so that it can usually cover staff's regular days off without overtime. | ☐ Concur ☐ Do Not Concur ☒ Partially Concur<br>Overtime costs the same as straight time for a deputy. We cannot make this change unless we have more people assigned to the unit as the day watch staff are overtaxed. | ☒ Open<br>☐ Closed<br>☐ Contested |