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Cellular Devices

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*Internal Audit Report Authorized by the
Maricopa County Board of Supervisors*

Report Highlights	Page
Reports identifying unused cellular device lines will be distributed to agencies at least quarterly.	1
Responsibility for selecting plans will be effectively communicated and enforced.	3
Approval controls over wireless carrier invoices will be strengthened.	5
County policies will be updated and maintained.	6
Documentation requirements for authorizing mobile devices will be clarified.	7
Inventory controls over cellular devices will be strengthened.	9
Automated system tools will be reviewed for implementation.	10

Objectives	<p>To ensure that cellular:</p> <ul style="list-style-type: none"> • Service plans are canceled in a timely manner. • Devices are on cost-effective service plans. • Devices are effectively tracked and accounted for. • Devices issued to employees are properly authorized.
Scope	<p>The audit focused on the management of County-owned cellular devices and service plans at the top five agencies with the highest charges for cellular service in fiscal year (FY) 2016. This encompassed the Adult Probation Department, Juvenile Probation Department, and the Offices of the County Attorney, Public Defender, and Sheriff, which are referred to as the “top five agencies” within this report.</p> <p>We also reviewed cellular lines with 7–12 months of no usage (voice or data) at 14 agencies with \$10,000 or more in charges for unused lines in calendar year (CY) 2016. This encompassed the five agencies listed above and the Air Quality Department, Environmental Services Department, Flood Control District, Human Services Department, Office of Enterprise Technology, Public Health Department, Superior Court Administration, Recorder’s Office, and the Department of Transportation. A separate report of findings was issued to the agencies reviewed.</p> <p>In order to achieve our objectives, we reviewed relevant records, reports, and processes, and conducted interviews with staff and management.</p>
Standards	<p>This audit was approved by the Board of Supervisors and was conducted in conformance with International Standards for the Professional Practice of Internal Auditing. The specific areas reviewed were selected through a formal risk-assessment process.</p>
Auditors	<p>Carla Harris, Audit Manager, CPA, CIA, CFE Stacy Aberilla, Senior Auditor, MPA, CGAP Jenny Chan, Senior Auditor, CIA, CGAP Lisa Scott, Senior Data Analyst, CISA, CFE, ACDA Tim Lockinger, Senior Auditor KPMG, LLP</p>

This report is intended primarily for the information and use of the County Board of Supervisors, County leadership, and other County stakeholders. However, this report is a public record and its distribution is not limited. We have reviewed this information with OET management. The Action Plan was approved by Richard McHattie, Interim Chief Information Officer, on December 7, 2017. If you have any questions about this report, please contact Mike McGee, County Auditor, at 602-506-1585.

Audit Results

Issue #1: Service Cancellation

Observation: During CY 2016, the County was charged \$4.3 million for wireless cellular service and equipment.¹ Of this amount, \$998,600 was charged for 4,152 lines that had no usage (voice or data) for one or more months. This includes \$728,120 in charges for 1,836 lines that had no usage for 7-12 months, as summarized below.

Cellular Lines with No Usage Countywide – CY 2016							
1-3 months		4-6 months		7-9 months		10-12 months	
# Lines	Charges	# Lines	Charges	# Lines	Charges	# Lines	Charges
1,149	\$97,791	1,167	\$172,689	633	\$162,621	1,203	\$565,499
Total (1-6 months)				Total (7-12 months)			
# Lines		Charges		# Lines		Charges	
2,316		\$270,480		1,836		\$728,120	

Detailed testing was performed on 1,668 lines with 7-12 months of non-usage at the 14 agencies with \$10,000 or more in charges for unused lines. We found that there was no business need for at least 721 lines, resulting in \$301,677 in avoidable charges during CY 2016.

The agencies reported that 692 of the 721 (96%) lines will be canceled, while 29 lines (4%) will be retained due to current business needs. The agencies also identified 335 additional lines that are not currently needed. The total annual savings from canceling these 1,027 lines is \$471,757. Additional savings may be realized through service plan optimization, as discussed later in Issue 2.

According to the County's Telephony Policy #A1202, department directors and elected officials are responsible for monitoring usage and controlling overall cost. Management at the 14 agencies reviewed agreed to implement policies and procedures to ensure that unused lines are identified and canceled in a timely manner.

The policy also requires that the Office of Enterprise Technology (OET) produce and distribute reports identifying lines that appear to be unused at least quarterly, and to perform periodic audits of policy adherence. This did not occur during the audit period.

¹ Includes all charges billed through the County's telecom expense management system known as TriWatchDog (TRI).

<p>Conclusion #1A: The County does not have an adequate process in place to ensure that unnecessary cellular lines are identified and canceled in a timely manner. Avoidable charges totaled at least \$301,677 in CY 2016 for all 14 agencies reviewed.</p>	
Recommendations	OET Action Plan
<p>1A-1 Distribute reports identifying lines that appear to be unused at least quarterly, as required by policy.</p>	<p>Concur – in process.</p> <p>OET is currently working with Verizon to complete a guide to distribute with the January 2018 Verizon optimization report that will help County agencies understand the information presented, including how to review for unused lines. OET will work with the other carriers to ensure optimization reports are received and distributed quarterly by OET.</p> <p>Agencies have access to this information in the current Telecommunication Expense Management System (TEMS), TRIWatchDog. The monthly statements provided through TRIWatchDog contain details on line use that can be copied into Excel and analyzed.</p> <p>Target Date: 2/28/2018</p>
<p>1A-2 Update County policies to include agency reviews of unused lines and documentation requirements.</p>	<p>Concur – will implement with modification.</p> <p>All policies listed in Issue #4, less OET SOP (Standard Operating Procedure) 1010, are currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. Updated policies will include requirements for agency reviews of unused lines and documentation requirements.</p> <p>Target Date: 3/16/2018</p>
<p>1A-3 Perform periodic audits of Telephony Policy #A1202 adherence, as required by policy.</p>	<p>Concur – will implement with modification.</p> <p>Policy A1202 is currently being circulated through the County approval process. The draft update of Policy A1202 places responsibility for ensuring compliance with the policy, including periodic audits, at the County agencies.</p> <p>Target Date: 3/16/2018</p>

Issue #2: Service Plan Selection

Observation: An effective system is not in place to ensure that cellular devices are on the most cost-effective service plans. The County's Mobile Device Usage Policy #A1612 requires department directors and elected officials, or their designee, to select service plans that are compatible with employee usage of the device for County business. We found that:

- The County currently has four contracted wireless carriers offering over 300 plans.
- Telecom coordinators at four of the top five agencies reviewed were unaware that multiple carriers and plans are available.
- No analysis is performed to identify the most cost-effective service plan based on the employee's anticipated usage.
- Most new users are placed on a Verizon Wireless 400 shared minute plan with unlimited data, based on the advice/direction of OET.
- An unaudited optimization analysis indicates that the 400 shared minute plan is not optimal for 45% of lines reviewed.

Optimization Analysis

All contracted wireless carriers and the telecom expense management system vendor offer service plan optimization analysis upon request at no additional cost to the County. Optimization analysis improves cost-effectiveness by identifying the most appropriate plans based on usage patterns. Optimization reports were provided to OET by one carrier during the audit period but the reports were not distributed to County agencies. The agency telecom coordinators and management that were interviewed reported that they were not aware this service was available.

We requested an optimization analysis for the top five agencies reviewed. According to the unaudited reports, 1,270 of the 3,218 (39%) lines reviewed were not on the most cost-effective plan, and recommended plan changes could result in annual savings of \$173,242. Additional savings are likely through optimization of the remainder of the County's lines.

The County's Telephony Policy #A1202 requires OET to produce and distribute reports identifying cell phones that may be appropriate for conversion to more cost effective rate plans at least quarterly. However, this did not occur during the audit period.

Additionally, the TRI system includes a Carrier Services/Offering Management module that would provide agency telecom coordinators with information about carriers and plan options, but this feature has not been deployed, as discussed in Issue 7.

The top five agencies reviewed agreed to (a) obtain reports from OET that identify devices that may be appropriate for conversion to more cost-effective rate plans, (b)

authorize appropriate plan changes, and (c) establish written procedures to ensure that cellular devices are placed on the most cost-effective service plans upon activation and are reviewed periodically thereafter.

Conclusion #2A: The County does not have an effective process in place to ensure that cellular devices are on the most cost-effective service plans.	
Recommendations	OET Action Plan
<p>2A-1 Work with the Office of Procurement Services (OPS) to determine the feasibility of simplifying and/or reducing the number of wireless service plan options.</p>	<p>Concur – in process.</p> <p>OET was notified by Verizon that discussions were in process with OPS. OET contacted OPS, asking to be included in those discussions. The first discussion is scheduled for November 29, 2017.</p> <p>Target Date: 3/31/2018</p>
<p>2A-2 Ensure that the responsibility for selecting plans is effectively communicated and enforced.</p>	<p>Concur – will implement with modification.</p> <p>Policy A1202 is currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. The draft update of Policy A1202 makes these activities the responsibility of County agencies.</p> <p>Target Date: 3/16/2018</p>
<p>2A-3 Ensure that all available plan options (and any changes thereto) are effectively communicated to the agencies in a timely manner.</p>	<p>Concur – in process.</p> <p>OET added plan pricing details with the quarterly Verizon promotions information (emailed on October 25, 2017), and included a statement that the plan pricing for other carriers are available through the County Telecom Coordinator. OET will be publishing all plans on MYMC and will continue to send the Verizon pricing details with the quarterly promotions information.</p> <p>Target Date: 1/31/2018</p>
<p>2A-4 Establish and maintain guidance (e.g., decision matrix) to assist agencies in making cost-effective plan selections.</p>	<p>Concur – in process.</p> <p>OET will provide plan details and provide information related to the plan options, but it is the responsibility of the agency to adhere to policy and determine what plans are of best use to their operations.</p> <p>Target date: 3/16/2018</p>

Recommendations	OET Action Plan
<p>2A-5 Distribute reports identifying lines that may be appropriate for conversion to more cost-effective rate plans to County agencies at least quarterly, as required by policy.</p>	<p>Concur—in process.</p> <p>OET is currently working with Verizon to complete a guide to distribute with the January 2018 Verizon optimization report that will help County agencies understand the information presented. OET will work with the other carriers to ensure optimization reports are received and distributed quarterly.</p> <p>Target Date: 2/28/2018</p>
<p>2A-6 Update County policies to include agency review and documentation requirements.</p>	<p>Concur – in process.</p> <p>Policy A1202 is currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. The draft update of Policy A1202 assigns responsibility for review and documentation of plan selection to the agencies.</p> <p>Target Date: 3/16/2018</p>

Issue #3: Invoice Review & Approval

Observation: The County does not have an effective process in place to ensure that wireless carrier invoices are properly reviewed and approved.

Wireless carrier invoices are uploaded into the County’s telecommunications expense management system (TRI) monthly. OET pays the vendors and charges back each agency for the amount due. Invoices are then made available in TRI for agency review. None of the top five agencies review invoices to ensure that: (a) charges comply with contract pricing, (b) service plan selections are correct, and (c) all lines and other charges are authorized.

County policy regarding invoice review is outdated, and there were no written policies and procedures in place at the top five agencies reviewed. Agency management agreed to implement policies and procedures to ensure that carrier invoices are reviewed for propriety.

Additionally, the TRI system includes an automated feature that is designed to track and acknowledge invoice reviews. However, few agencies use this feature, as discussed in Issue 7. For instance, during FY 2016, 92% of wireless carrier invoices were not acknowledged in TRI Countywide.

Conclusion #3A: An effective process is not in place to ensure that invoices from contracted wireless carriers are properly reviewed and approved.	
Recommendation	OET Action Plan
3A-1 Update County policies to include requirements for the review and approval of wireless carrier invoices, including acknowledgement in TRI.	<p>Concur – will implement with modification.</p> <p>All policies listed in Issue #4, less OET SOP 1010, are currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. Draft policies make the approval of wireless carrier invoices and the associated acknowledgement the responsibility of agencies, whether that acknowledgment occurs in TRIWatchDog or a different TEMS that the County adopts.</p> <p>Target Date: 3/16/2018</p>

Issue #4: Policies and Procedures

Observation: We identified four separate County policies and one standard operating procedure (SOP) issued by OET that pertain to County-owned mobile devices. As shown below, some have not been updated in years yet technologies have changed rapidly.

No.	Title	Date of Last Revision	Years Since Last Revision
A1201	Telecommunications Policy	May 2001	16.6
A1609	Acceptable Use of County Technology Resources	Mar. 2003	14.8
A1202	Telephony	Jan. 2010	7.9
A1612	Mobile Device Usage	Dec. 2012	5.0
1010 (OET SOP)	Mobile Device Ordering (County Issued) and Provisioning Process (County and BYOD devices)	June 2017	0.5

Many policies are not effectively communicated and some contain provisions that are obsolete and unenforced. This has resulted in confusion, a lack of proper oversight and accountability, and increased costs.

Additionally, each agency's responsibility to establish internal policies is not clearly delineated, and no guidance or minimum content requirements have been established. For instance, the policies in place at the agencies reviewed *did not address certain key elements* (e.g., employee eligibility, approval documentation requirements, device upgrades, text messaging, device decommissions, invoice review and approval).

Conclusion #4A: There are multiple County policies that impact mobile device management. The policies are not updated timely, and many are not effectively communicated and/or enforced.	
Recommendations	OET Action Plan
4A-1 Ensure that County policies governing mobile devices are properly updated, consolidated, maintained, and enforced. Provide Internal Audit with an opportunity to review and comment on the draft policies.	Concur – in process. All policies listed in Issue #4, less OET SOP 1010, are currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. Target Date: 3/16/2018
4A-2 Ensure that agency responsibility for establishing internal mobile device management policies are clearly delineated in County policy. Minimum content requirements should be included, as applicable.	Concur – in process. Policy A1202 is currently being circulated through the County approval process. Responsibility for establishing internal policies is clearly delineated and minimum content requirements have been included. OET SOP 1010 was updated in June 2017 and is still current. The draft update of Policy A1202 assigns responsibility for maintaining internal mobile device management policies related to approval, use, and monitoring to the agencies. Target Date: 3/16/2018

Issue #5: Authorized Users

Observation: In order to determine that cellular devices are issued only to authorized employees, we requested approval documentation for 157 of 3,132 (5%) devices at the top five agencies reviewed. We found that:

- For 32 of 157 (20%) devices, there was no approval documentation on file. However, in all cases, the agencies asserted that there was a legitimate business need for the devices.

- There were no written policies or procedures for determining employee eligibility and/or documenting approval for the issuance of County-owned mobile devices at any of the five agencies reviewed.

The County’s Telephony Policy #A1202 requires department directors and elected officials, or their designee, to forward written requests for cellular phones to OET. However, orders are submitted electronically through TRI by the agency telecom coordinators and OET no longer requires authorization memos.

The top five agencies agreed to establish and enforce written policies and procedures for determining eligibility and authorizing cellular devices, including documentation requirements.

Conclusion #5A: Devices were issued to authorized employees, but documentation of eligibility requirements and authorization needs improvement.	
Recommendations	OET Action Plan
5A-1 Update County policies and procedures to include documentation requirements for eligibility and authorization for cellular device orders.	<p>Concur – in process.</p> <p>Policy A1202 is currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. The draft update of Policy A1202 assigns responsibility for determination of eligibility and authorization for devices to the agencies.</p> <p>The agencies will determine eligibility based on operational needs and internal approvals. OET will process orders based on approvals received from the agencies.</p> <p>Target Date: 3/16/2018</p>
5A-2 Ensure that all cellular device orders are accompanied by required authorization documentation.	<p>Concur – in process.</p> <p>Policy A1202 is currently being circulated through the County approval process. OET SOP 1010 was updated in June 2017 and is still current. The draft update of Policy A1202 assigns responsibility for determination of eligibility and authorization for devices to the agencies.</p> <p>The agencies will determine eligibility based on operational needs and internal approvals. OET will process orders based on approvals received from the agencies.</p> <p>Target Date: 3/16/2018</p>

Issue #6: Inventory Management

Observation: In order to determine that cellular devices are effectively tracked and accounted for, we reviewed device orders, device returns, and internal inventory listings at the top five agencies. Our findings appear below.

Device Orders

- 1,416 of 1,434 (99%) devices were accounted for on invoices.
- 18 devices did not appear on the invoices. The agency telecom coordinators reported that the agencies were in possession of the devices.

Device Returns

- Only two of the top five agencies retained documentation when devices were returned and/or decommissioned.
- 74 of 90 (82%) devices sampled were returned, recorded as lost/stolen, and/or transferred to another employee, according to the agency telecom coordinators.
- 16 devices (18%) at three agencies were unaccounted for and the agencies did not provide a record of disposal.

Agency Inventory Listing

We tested the accuracy and completeness of internal inventory records at the top five agencies and found that agency records were not always complete and accurate. Specifically:

- 170 of 3,084 (6%) active lines/devices did not appear on agency inventory listings.
- 3 lines were being charged to the wrong department.

Conclusion #6A: Inventory controls over cellular devices should be strengthened. The top five agencies agreed to ensure that inventory records are accurate and complete, and that all devices are tracked and accounted for.	
Recommendation	OET Action Plan
None	N/A

Issue #7: Automated System Tools

Observation: The County’s telecom expense management system (known as TriWatchDog or TRI) includes various automated tools to help agencies select service plans, monitor costs, manage devices, and strengthen overall controls. However, many of these features have not been activated and/or effectively implemented, such as:

- *Carrier Services/Order Management Module* – Provides users with a menu of options for carriers, service plans, and device types/models from which to select and order. If properly configured, this feature would provide agency telecom coordinators with information about the carriers, service plans, available devices, and associated costs.
- *Carrier Billing Auditing and Discrepancy Management Services* – Provides automated alerts to assist with plan optimization and cost control (e.g., usage spikes, underused service, plan overages). As of June 2017, there were 16,603 outstanding alerts. While OET has access to view/resolve alerts, this tool has not been made available to County agencies, as the alerts have not been configured to meet the County’s needs (e.g., service plans options and price lists are not actively maintained in TRI).
- *Inventory Management* – According to the TRI vendor, when inventory management features are fully engaged, devices are added to the system as they are ordered, and their status is managed as they are received, delivered to subscribers, upgraded, transferred to another subscriber, and taken out of service.
- *Invoice Review* – Provides users with the ability to track and acknowledge invoice reviews. However, few agencies use this feature, and 92% of invoices were not acknowledged in TRI during FY 2016, as discussed in Issue 3.

<p>Conclusion #7A: Automated system tools that may help strengthen controls are not being used and/or have not been effectively implemented.</p>	
<p>Recommendation</p>	<p>OET Action Plan</p>
<p>7A-1 Review the automated tools available through TRI and evaluate the feasibility of deploying these tools. Provide training to County agencies, as appropriate.</p>	<p>Concur – implementation not currently possible. OET is not currently able to complete this evaluation of these tools in the current fiscal year. All attempts will be made to begin the evaluation in Fiscal Year 2019. The evaluation of all tools may take a full fiscal year or longer. Target Date: June 30, 2019</p>