Internal Audit Report – Wireless Communication Devices

Report Date: November 6, 2018

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TRANSMITTAL LETTER

November 6, 2018

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Pursuant to the contract and related statement of work for Arlington County, Virginia ("the County"), we hereby present the internal audit of the County's wireless communication devices ("wireless devices"). Our report is organized in the following sections:

Executive Summary	This section includes a background summary of the function, the objectives and approach and a detailed description of the observations noted during this audit. Identified with each observation is the recommended action(s), and management's corrective action plan, including the responsible party and estimated completion date.
Background	This section provides an overview of the function within the process and pertinent operational control points and related compliance requirements.
Objectives and Approach	The internal audit objectives and focus are expanded upon in this section as well as a review of the various phases of our approach.
Process Maps	This section illustrates process maps, which depict data flow, key control points and any identified gaps.

As described in our objectives and procedures outlined on pages 16 and 17 of this report, the observations noted are based on our analysis of the processes, documents, records and information provided to us by the County. This internal audit focused on evaluating the soundness of internal control policies to safeguard assets and on reviewing compliance with County policies. We offer no assurances that schemes or fraudulent activities have not been, or are not currently being perpetrated by any person within the areas reviewed.

We would like to thank the staff and all those involved in assisting RSM US LLP with this internal audit of the County's wireless devices.

Respectfully Submitted,

RSM US LLP

RSM US LLP

EXECUTIVE SUMMARY

Background

The purpose of a wireless communication device program is to provide County employees the ability to perform their duties effectively, with flexibility, and to improve communication channels throughout the County. Arlington County's wireless communication device program is operated by the Department of Technology Services ("DTS"). Wireless devices are provided to employees based on legitimate business needs. As of fiscal year ending June 30, 2018, there were approximately 2,800 wireless devices, with an associated annual expenditure of ~$1,603,972, across 24 Departments. These 2,800 devices include phones, tablets and air cards. Almost 1,100 of these devices are for public safety and include not only devices for personnel, but devices included in vehicles such as the bomb squad or police/sheriff vehicles.

DTS is responsible for new device requests, provisioning, and deactivation/disposal. Individual Departments are responsible for monitoring mobile device usage through reports received from DTS. The *Mobile Device Use and Management Policy* and *Administrative Regulation Wireless Communication* guides the processes related to the wireless communication device program.

The County utilizes multiple systems to manage their wireless devices. Mobile Device Management ("MDM") is a cloud-based multi-tenant platform that monitors and manages all of the County's wireless devices. OnBase is the County's records management system and process management software, which manages documentation related to the wireless devices such as request and supervisor approval. Cherwell is a workflow ticketing system utilized by DTS for new devices. The Wireless Billing System is a system created in-house to input raw invoice data from carriers and generate monitoring reports to be utilized by the Departments for review and monitoring.

Overall Summary / Highlights

The observations identified during our assessment are detailed within the pages that follow. We have assigned relative risk or value factors to each observation identified. Risk ratings are the evaluation of the severity of the concern and the potential impact on the operations of each item. There are many areas of risk to consider in determining the relative risk rating of an observation, including financial, operational, and/or compliance, as well as public perception or 'brand' risk.

Objectives and Scope

The objective of this internal audit was to assess the design and effectiveness of internal controls over wireless communication devices, to identify areas of risk and opportunities for potential savings, including the policies and procedures, controls in place, and to determine the design and operating effectiveness of those controls identified. To accomplish the objective, areas of focus included:

- Wireless communication device policies and procedures
- Segregation of duties and access
- Device/service inventory, acquisition, activation, and deactivation
- Device/service usage reporting and monitoring

The focus also included the use of computer assisted audit techniques ("CAATs") for data analytics, where data usage information was available.

The scope of this audit included wireless devices (cell phones, iPads with 4G, and MiFis) that incurred monthly charges during the audit period of July 1, 2017 through April 30, 2018.

The County's wireless program is a centralized function in terms of billing, security, and providing reports to Departments for monitoring, but decentralized in other aspects such as actual monitoring and decision making of appropriate plans/devices needed. DTS has been proactively working to mature the function including developing systems and reports for effective management.

Fieldwork was performed May 2018 through October 2018.

Internal Audit – Wireless Communication Devices

We would like to thank all Arlington County team members who assisted us throughout this internal audit.

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EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations

Observation	1. Mobile Device Program Monitoring
High	***Zero-Usage Report:***

Monthly, DTS generates a Zero-Usage Report to facilitate identification of devices that have not been utilized during the previous three billing cycles. The respective Department designated contact is notified of those devices that haven't been used for three months or longer and are responsible for requesting deactivation if deemed necessary. This is an informal process that is not included in the County's *Mobile Device Use and Management Policy* or the *Administrative Regulation Wireless Communication*.

It is our understanding that various County Departments hold devices on standby in case an emergency event occurs and those devices are required at that moment. These devices do not frequently incur monthly usage since they are for emergency use, therefore they account for some of the devices identified by the Zero-Usage Reports.

We reviewed and analyzed Zero-Usage Reports for six (6) months (July 2017, August 2017, November 2017, December 2017, February 2018 and March 2018) noting the following:

Based on March 2018 Zero-Usage Report:

# of months since device last use	#	Cost ($) for March 2018	Cost ($) Since last utilized date
3 months	65	$ 2,704	$ 8,045
4 to 6 months	82	$ 3,408	$ 15,969
7 to 12 months	66	$ 2,854	$ 25,519
13 - 18 months	20	$ 847	$ 13,789
19 - 24 months	17	$ 687	$ 15,004
24+ months	65	$ 2,209	$ 86,928
Total	315*	$ 12,709	$ 165,254

*Note: The March 2018 Zero-Usage Report included 315 devices. Forty (40) of the devices did not include a 'date of last use' for voice or data cellular services. Based on inquiry with DTS, all forty (40) of these devices had not been utilized which is why there was no 'date of last use'. After inspection of wireless device data from the system of record, we were able to identify and utilize the first billing cycle date for the forty (40) devices.

Based on analysis performed on the July 2017, August 2017, November 2017, December 2017, and February 2018 Zero-Usage Reports: 118 devices appeared on and were removed from the report leading up to March 2018. Sixteen (16) of the 118 devices did not include a 'date of last use' for voice or data cellular services, therefore these devices were excluded from the following calculations:

- The average amount incurred for devices with no usage was ~$417 prior to being deactivated or being utilized once again.
- The average cost of devices with zero-usage as of March 2018 was ~$42 monthly.
- The average amount of time a device had zero-usage prior to being removed from the Zero-Usage Report was ~9.5 months.

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EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	1. Wireless Device Program Monitoring (continued)

	We tested a sample of 15 wireless devices that appeared on three (3) Zero-Usage Reports from the months of July 2017, November 2017, and February 2018, noting the following:
	• Twelve (12) devices with zero-usage appeared on all three (3) Zero-Usage Reports, based on February 2018's date of last use for each device, these devices incurred monthly charges amounting to $11,186 since last use.
	• Three (3) devices had zero-usage for more than two (2) months after first appearing on the Zero-Usage Report. These devices were eventually deactivated, but not for at least two (2) months after identification. Monthly charges for the three (3) devices during the period amounted to $3,509 between the last known use of the device and the deactivation date.
	  o 2 of the 3 samples were last used in 2015
	  o 1 of the 3 samples was last used in 2016
	
	The Zero-Usage Report from March 2018 included 315 devices with zero-usage; ~11% of all issued devices across all vendors. We obtained Zero-Usage Reports for six (6) months, noting an average of 219 devices with zero-usage.
	
	There is a potential for additional cost savings to the County based on the information provided above.
	
	Multiple and/or Duplicative Devices:
	It is relatively common for County employees to have multiple wireless devices assigned to them, such as, a phone, tablet with cellular service, and aircard ("MIFI"). It is uncommon for County employees to have multiple of the same device type assigned to them, such as, two tablets.
	
	Based on a listing of 2,839 County owned cellular devices as of March 31, 2018, fifty-seven (57) individuals, with 118 associated devices, had more than one (1) of the same type of device assigned to them. Fifty-one (51) of the 118 associated devices were also included on, at a minimum, one (1) of the Zero-Usage Reports described above. The average cost incurred for each of these devices is ~$44 a month. Currently, it is each Department's responsibility to notify DTS when a device changes owners, a device is no longer needed, or any other changes.
	
	County employees with multiple devices of the same type require restrictive controls to prevent:
	• Users from having more devices than they need, resulting in unnecessary County costs; and
	• Device lending, which promotes the circumvention of controls around data security, device contracting and device user tracking.

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EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	1. Wireless Device Program Monitoring (continued)

Distribution of Monthly Monitoring Reports:

Each month, the DTS Management Specialist manually uploads device usage data provided by each vendor to the Wireless Billing System. Once the usage data has been uploaded, Zero-Usage Reports, Other Charges Reports, and Summaries of Active Accounts are also generated by the DTS Management Specialist. The DTS Management Specialist sends an email to a thread of over ~120 individuals across every Department notifying them that the reports are available on the Wireless Billing System. Additionally, a separate email is sent to each Department with the corresponding ‘zero-usage’ reports and ‘other charges’ reports to further emphasize their review responsibility.

- We tested a sample of ten (10) Department -specific emails across our audit period and identified six (6) instances, across five (5) months, in which a Department did not receive an email for the month.
- We performed a full population test of the mass email notification sent to over ~120 individuals each month between October 2017 and June 2018 and determined three (3) consecutive instances/months in which the email was not distributed. Per inquiry with DTS, the person responsible was out on leave during this timeframe.

Device Plan:

Per our review of the Other Charges Report, we noted eight (8) cellular phones that were activated and assigned to the incorrect cellular plan, causing the County to incur $9,135 in overage fees, and an estimated ~$1,127 in additional surcharges.

Approximately ~80% of County phones are on a Verizon cellular plan which allots 400 minutes a month to each phone on the plan. These minutes are combined (“pooled”), so if one phone goes over the 400 minute allowance, it will utilize the unused minutes from the minute pool to avoid overage fees. Between January and July 2018, a number of new devices were activated onto the wrong wireless phone plan. The plans joined did not avoid overages by utilizing pooled points. Therefore, every minute over the 400 minute allowance incurred $0.25 and additional surcharges. Each of these thirty-three (33) transactions, which averaged $276.83, were included in a monthly Other Charges Report which identifies additional charges that appear on the vendor’s invoice for the period. Although these transactions were included on the Other Charges Report, no action was taken by the respective Department or DTS to correct the issue between January and July 2018. All eight (8) devices have been returned to standard plans as an outcome of this review.

Based on a review of all vendor wireless device data within the March 2018 billing cycle we noted the following:

- Although there is a primary cellular plan utilized by the majority of County, there are additional plans utilized by various departments. Eleven (11) different phone voice/text/data service plans (“plan names”) were included on the March 2018 invoice for the most utilized carrier. Approximately eighty percent (80%) of all phones are on the same cellular plan incurring the same monthly access charge, and share rollover minutes to avoid overage charges. Currently, when a new phone is activated it utilizes the standard pooled plan as described. We reviewed a sample of ten (10) different plans and identified variations in plan components, such as, differences in discounts, allowances structures, or ability to incur “other charges”. Many of these alternate plans included a lower “monthly access charge” and appear to be for low use phone or phones that do not require data. By utilizing many different plans the County may incur unanticipated fees for use, devices may not be participating in program such as ‘pooled’ minutes or data, and some older plans may be missing the benefits of the newer most utilized County plan. Based on interviews, there is not a dedicated ‘low use’ or ‘Call/Text’ only plan that the County utilizes for devices with limited functionality needs.

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	1. Wireless Device Program Monitoring (continued)
	• Thirty-four (34) individuals had a device, which utilized a global/international plan. This plan incurs a higher 'monthly access charge' then the standard domestic plans. As a result of this audit, all but one (1) of these devices have been returned to domestic plans during our review once identified. In addition to reviewing the March 2018 billing cycle, we reviewed vendor wireless device data between January 1, 2014 and July 31, 2018, noting 135 County phones that were on a global plan, that were not reverted back to a standard plan within two months. These charges amounted to ~$7,505 in potentially unnecessary fees, since the global phone plans utilized cost ~$17.35 more per month than the standard Verizon plan (with no a Hotspot). It is our understanding that it is not in normal County business to require a global/international plan. Based on interviews, it is expected that employees who switch to global phone plans do so temporarily during business trips or vacation if responses are required. Therefore, there is not a common business reason for an individual to have a global phone plan for more than two (2) billing cycles as travel could cross multiple months. • We determined that over ~twenty (20) individuals have both a "hot spot" activated on their phone and a "MiFi" device to enable mobile Wifi access. MiFi's cost ~$40 a month, while "hot spots" cost ~$10 a month in addition to the phone plan's monthly fees. Typically, MiFi's provide better mobile Wifi quality and save phone battery life. Wireless device usage monitoring allows for timely identification of usage inconsistencies, improper usage, and/or potential cost saving opportunities.
Recommendation	We recommend the following: • DMF and DTS collaborate to implement a documented monthly wireless device monitoring process including the reports generated by DTS and the required Department review. The monthly monitoring implemented will facilitate timely identification of inconsistencies, improper usage, and/or to identify possible cost savings (for example zero-usage, international charges, hotspots in addition to MiFis, etc.), if any. Departments are more suited to perform monitoring activities internally as they are familiar with their specific operational requirements and service needs. Additional elements of the monitoring process should include: o Departments to report inconsistencies, and/or to identify possible savings to DTS and the respective Department Director or Division Chief within 30 days of receiving their respective monitoring reports. o Require carrier data to be uploaded to the Wireless Billing System from the previous month's service and Department notification be disseminated by the fifth (5th) business day of each month. An individual from the Department of Management and Finance ("DMF") will notify DTS, if they have not received their notification by the fifth (5th) business day of the month. o Establish guidelines for Departments to facilitate proper wireless device monitoring and required action. For example, the County may decide that if a device has had zero-usage for more than three (3) consecutive months and the Department has not provided an appropriate response, that the device should be deactivated by DTS. o Thresholds and exceptions to the rule should be established and defined, such as devices with zero-usage for a consecutive number of months will be deactivated unless they have email approval (exception) from the appropriate party. This exception list is critical since certain Departments require devices that may not be utilized frequently (ex. emergency devices). Another example could be instances where certain devices are put on a "Do Not Deactivate" list, which would be re-evaluated annually by DTS to determine if the need is still valid and justified.

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	1. Wireless Device Program Monitoring (continued)
	We recommend the following: (continued) o All devices which utilize a global/international plan should be reviewed to validate necessity. If international access is no longer necessary the plans should be reverted to a domestic plan. A review should occur at least quarterly to identify any international plans which may be no longer needed. o Protocols to limit individuals from having both an activated “hot spot” on their wireless device and use of a MiFi and/or cellular service active on a tablet. If a “hot spot” provides enough WiFi bandwidth/functionality for a user, a MiFi should not also be needed. If a MiFi is required due to “hot spot” limitations, a MiFi should be utilized and the “hot spot” should be deactivated. • DTS should identify a person to be cross trained on the DTS Management Specialist’s duties. • As additional oversight, DTS in conjunction with DMF should: o Establish guidelines for and perform at least a three-month(consecutive months) period of review in order to assess user plans and identify out of the ordinary usage (for example: “hot spots” and MiFis, global/international plans, no or limited use, etc) and recommend to Departments cost saving opportunities, such as canceling, downgrading, or switching plans. Current service provider plan offerings should be evaluated to determine if any opportunities for cost savings exist. o Review all users identified for having multiple devices of the same type. Inquiries should be made to users to determine if the associated user is actually utilizing all of the devices. If they are sharing devices, no longer use the device(s), or the device(s) has switched owners the information within MDM should be updated. Any necessary steps to bring newly identified users into compliance should be completed. This should be performed on an annual basis. • The *Mobile Device Use and Management Policy* should be updated to include the above requirements of wireless device monitoring and reporting. This policy update would provide guidance and requirements to each Department on a consistent basis.
Management’s Action Plan	**Response:** DTS agrees with the observations and recommendations. DMF and DTS took immediate action when this was brought to our attention and over 250 devices have been disconnected and monthly reviews are performed to minimize future zero usage devices. The County has witnessed an extraordinary growth in the utilization of wireless devices. There has been a significant benefit rendered through the use of such devices to extend and enhance the delivery of County Services, as evidenced by the most recent citizen surveys noting the high satisfaction rates with such services. Regardless DTS recognizes that current management practices for these devices that relied upon decentralized management by other business units in the County has proven to be in need of reform. We are actively working to modify our wireless device reporting package in several ways: 1) Full review of distribution lists to expand distribution of reports. Each department has determined who should receive their reports 2) Modify zero usage reports to show devices with two months of zero usage instead of three. Once reports are distributed, departments will have thirty days to notify DTS if devices SHOULD NOT be disconnected. If there is no response from an individual department, the zero usage devices will be disconnected after thirty days.

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	1. Wireless Device Program Monitoring (continued)
	Response (continued): DTS agrees with the observations and recommendations. DMF and DTS took immediate action when this was brought to our attention and over 250 devices have been disconnected and monthly reviews are performed to minimize future zero usage devices. The County has witnessed an extraordinary growth in the utilization of wireless devices. There has been a significant benefit rendered through the use of such devices to extend and enhance the delivery of County Services, as evidenced by the most recent citizen surveys noting the high satisfaction rates with such services. Regardless DTS recognizes that current management practices for these devices that relied upon decentralized management by other business units in the County has proven to be in need of reform. We are actively working to modify our wireless device reporting package in several ways: 3) Modify zero usage reports to show devices that are exempt from disconnection. We have added a field in the application where a department can flag a device as exempt from disconnection. There are some devices that will have spotty usage (bomb squad, etc). These devices will still show up on the two month zero usage report but will not be disconnected until DTS is notified by the department to do so. 4) DTS has begun to document the procedures to secure the raw data feeds from the wireless vendors, get the data in the proper format for uploading to the wireless billing application and distribute reports to individual departments. The goal is to train several DTS employees on how to do this, in the event of the primary employee's absence. 5) Annually, DTS will require all Department Directors to review and signoff on all wireless devices in use by their department. **Responsible Party:** DTS Finance Manager **Estimated Completion Date:** April, 2019

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

<table>
<tr><th>Observation</th><th>2. Wireless Device Inventory</th></tr>
<tr><td>High</td><td>The County has over 2,800 wireless devices. We noted that the County / Departments / DTS does not perform a physical inventory, including the associated wireless plan, or have an inventory system in place, in order to safeguard and account for these wireless devices and services.

Thorough inventory processes reduce the risk of unauthorized and invalid use.</td></tr>
<tr><td>Recommendation</td><td>We recommend that DTS, in conjunction with County Departments, implement and facilitate an independent wireless device inventory, including an inventory of the wireless plan by device, on, at least, an annual basis. At a minimum, the following should be performed:
• The County should work to identify and implement an enterprise accountable asset certification system to track all assets assigned to County employees, allow for employees to receive automated emails periodically (ex. quarterly) and click to certify those assets are still in possession, and improve the off-boarding process of employees. Having a system such as this allows for non-capital assets to be better managed, reduces unnecessary spending, and improves accountability throughout the County. This system should be used for all assigned assets not only wireless devices.
• Require execution of a formalized and documented annual inventory process, including review and sign-off of results by an independent knowledgeable supervisory level person or designee within each Department, with review and sign-off by an independent knowledgeable supervisory level person in DTS. The purpose of the inventory should be to validate existence of the wireless device and completeness of inventory records. The inventory records should include the below, at a minimum:
o User’s name or employee identification number
o Department and associated cost center
o Wireless device unique identification number
o Type of device
o Service plan type and cost
• Require each Department to confirm active wireless devices for which expenditures are being incurred;
• Compare inventory count results to control records and report discrepancies to DTS;
• Unaccounted for wireless devices should be deactivated immediately; and
• Update the Mobile Device Use and Management Policy to include the above as policies and procedures including responsibilities for involved parties, and appropriate document retention requirements for an audit trail.</td></tr>
</table>

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	**2. Wireless Device Inventory (continued)**
Management's Action Plan	**Response:** DTS agrees with the recommendations. 1) DTS will be implementing an annual review of all wireless devices. This will entail having every department director review, physically inventory and sign off on the devices in their respective departments. 2) DTS will begin the redefinition of the management strategy for wireless devices. Specifically, DTS will take the lead on forming a task force with the Department of Management and Finance (DMF) and Human Resources (HR) to establish a control framework to minimize the risk of loss and promote necessary accountability. To be effective, among other things, this framework will address onboarding and off boarding of employees as well as the transfer of staff between departments. This framework will identify the County's device inventory objectives and process for keeping records updated and accountable including the need to implement an Asset Tracking System. The County Manager has included funds for an IT asset management system in his 2020 Proposed Budget. This is consistent with earlier audit recommendations. **Responsible Party:** Division Chief, Infrastructure and Managed Services **Estimated Completion Date:** December, 2019 for final asset management solution.

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	**3. Segregation of Duties – Wireless Device Requests**
High	Per the County's *Mobile Device Use and Management Policy - Issuance and Ownership*: *"The purchase and provision of Mobile Devices, accessories and/or services are handled through a County-wide contract and otherwise must follow County procurement processes, including prior approval by the appropriate County personnel…"* The process for requesting a wireless device involves the requestor completing an online Mobile Device Request in OnBase. This request is then approved by the individual's Supervisor, and subsequently by their Department's appropriate Budget Analyst. DTS then submits a service desk ticket within the Cherwell ticketing system to begin the ordering process. As part of our detailed testing of twenty-five (25) wireless device requests, we noted the following: • One (1) sample utilized the same individual as requestor, Supervisor approver, and Department Budget Analyst approver. The order was for 16 new tablets amounting to $13,616. • Roles and responsibilities/segregation of duty guidelines are not included in the County's *Mobile Device Use and Management Policy*. No fraud, misuse, or inappropriate activity was identified as part of this internal audit, but there are not proper system controls surrounding segregation of duties to minimize these activities from occurring. Proper segregation of duties and controls over processing requests and orders, receiving devices, activating services and recording and making changes to inventory records decreases the risk of fraud, misuse, and inappropriate activity.
Recommendation	We recommend the following: • Requests and orders, receiving devices, activating services and recording and making changes to inventory records be properly segregated. In this instance, approvers should not be allowed to approve their own requests. • The *Mobile Device Use and Management Policy* should be updated to include all assigned roles and responsibilities including but not limited to requestor, Supervisor/approver, Department – Budget Analyst and Department Director, DTS, and DMF.
Management's Action Plan	**Response:** Normally, the Mobile Device Request application in OnBase follows Active Directory for employee and supervisor assignments and a table is maintained separately for budget analyst assignment. Two departments requested an exception to this through the DTS Telecom Operations group who subsequently had the DTS applications group modify the workflow. We have instructed the Telecom Operations team that this isn't proper segregation of duties and this has been corrected. No exceptions will be made in the future. **Responsible Party:** Division Chief, Infrastructure and Managed Services **Estimated Completion Date:** Complete

EXECUTIVE SUMMARY (CONTINUED)

Detailed Observations (continued)

Observation	4. Invoice Approval and Payment
Low	Per the County's *Contract Administration Policy*, Section D: Purchase Orders, Invoices and Payments: *"Payment is not required until 30 days after receipt of an accurate and proper invoice as determined by the Project Officer. Approve or reject all invoices as appropriate within this timeframe, or earlier."* Additionally, the *Code of Virginia, Public Procurement Act: Section 2.2-4325 "Prompt Payment of bills by localities" states: "The required payment date shall be either: (i) the date on which payment is due under the terms of the contract for the provision of the goods or services; or (ii) if a date is not established by contract, not more than forty-five days after goods or services are received or not more than forty-five days after the invoice is rendered, whichever is later."* We noted the following: • Three (3) of three (3) invoices sampled showed existing balances due, which indicates the previous month's invoice had not been paid. This demonstrates the review and approval of the previous invoices may not be timely and payment was not made in the allotted 30 days after receipt. • Of the three (3) invoices sampled, one (1) was paid three (3) days after the allotted 30 days after receipt. Delays in invoice payment may cause vendors to suspend services leaving County employees without access to their wireless device and the ability to perform County duties. In addition, if invoices are not paid in accordance with County policy or *Code of Virginia, Virginia Public Procurement Act*, the County is obligated to pay interest on invoices paid late.
Recommendation	We recommend that re-emphasis be made regarding review and payment of invoice per County contracts and the *Code of Virginia.*
Management's Action Plan	**Response:** DTS makes every effort to pay invoices promptly. However, often bills arrive 1-2 weeks after the date on the invoice, making timely payment within thirty days difficult. None of our vendors charge late fees. DTS will continue its efforts to pay bills within all contractually laid out time frames. **Responsible Party:** DTS Finance Manager **Estimated Completion Date:** Complete

EXECUTIVE SUMMARY (CONTINUED)

Improvement Opportunities

Improvement Opportunity
Wireless Device Service Model
The County is currently analyzing a different wireless device service model of consolidating to one service provider. This model has potential savings to the County in the means of actual dollars and workflow efficiencies. The County should periodically review and analyze the potential cost/benefit of other models such as reimbursement to employees for personal technology/usage.

BACKGROUND, OBJECTIVES AND APPROACH

Background

Overview

The County's wireless communication device ("wireless devices") program is operated by the Department of Technology Services ("DTS"). DTS is responsible for new device requests, provisioning, deactivation, purchasing, invoicing, and monitoring vendor contracts. Individual employees in Departments initiate and approve requests for devices and they are charged with reviewing their own mobile device usage and cost. The *Mobile Device Use and Management Policy*, which was last updated in April 2013, helps guides this process. Other guiding policies and procedures include, but are not limited to, the *Employee Travel Guidelines; Personnel Rules (Administrative Regulation 2.7); Information Technology Administrative Regulations for Wireless Communications*; and some Department specific mobile device policies. The *Mobile Device Use and Management Policy* covers all Arlington County wireless device users, including employees, authorized contractors, consultants, constitutional employees and temporary employees ("users").

One of the main functions of DTS, as it relates to wireless devices, is to provision the mobile devices, which means to install all of the required safety and security software on the mobile devices to manage County data so that it is not stored or accessed on a mobile device without appropriate security measures and to prevent data sharing with inappropriate parties or networks. This software and system utilized is called MaaS 360 Mobile Device Management ("MDM"), MDM is a cloud-based multi-tenant platform that helps to monitor and manage all of Arlington County mobile devices. The County utilizes multiple systems to manage their wireless devices, including OnBase, which is the County's enterprise content management and process management software suite; and, Cherwell, a ticketing system that is used by DTS to track progress during purchasing, provisioning, and assigning custody to end users.

Wireless Communication Devices

Wireless devices as defined in the *Mobile Device Use and Management Policy* are considered to be all County-issued mobile devices and personal mobile devices used for County business. Examples include, but are not limited to, smartphones (iPhone/Android), tablets (iPads), notebooks, laptops, Air Cards (MiFis), and netbooks. The County has three (3) separate vendors using "Rider" contracts, for the procurement of devices and associated service plans. Rider Contracts are intended to benefit the County by utilizing a vendor selection already performed by another local government. The three (3) contracts currently include Verizon, AT&T, and Nextel (Sprint). The number of Arlington County wireless devices are illustrated in **Figure 1**.

Figure 1: Number of Wireless Devices by Vendor (March 2018)

Vendor	March 2018 Invoice Amount	Cell Phone	MiFi	iPad/Tablet	Grand Total
AT&T	$ 4,768	106	2	2	**110**
Sprint-Nextel	$ 450	6	4	0	**10**
Verizon	$ 124,721	2,335	185	199	**2,719**
Total	**$ 129,939**	**2,447**	**191**	**201**	**2,839**

The DTS Budget Manager manages the wireless provider invoices as a whole for each of the Departments. The DTS Management Specialist maintains a record of the device name, phone number, and charge sheets, and receives data usage reports from Verizon, AT&T, and Nextel (Sprint) that are used to create the Zero-Usage Reports and monthly summary reports, which are used for internal reporting only.

BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Background (continued)

Wireless Communication Devices (continued)

Figure 2 depicts *Number of Wireless Devices by Department (March 2018).* Over half of all Arlington County devices are used by three (3) Departments: the Department of Environmental Services ("DES"), the Fire Department ("FIR"), and the Police Department ("POL"). Verizon devices are the most widely utilized across all Departments, ~96% of devices. Thirteen (13) of the twenty-four (24) Departments are using Sprint or AT&T devices, 4% of devices. FIR utilizes eight (8) of the ten (10) Sprint devices in the entire County.

Cost Savings Initiative

DTS has been considering migrating all wireless devices requiring cellular services to an alternative vendor to reduce the cost of the wireless program and to create efficiencies. They began exploring this option in the spring of 2018.

Department/ Bureau	# of Verizon	# of AT&T	# of Sprint	Total # of Devices
DES	667	35	-	702
FIR	551	8	8	567
POL	303	5	1	309
DHS	257	7	-	264
DPR	231	6	-	237
CPHD	190	8	-	198
DTS	131	31	1	163
SRF	131	-	-	131
OEM	60	1	-	61
AED	33	2	-	35
CMO	29	1	-	30
JDR	27	2	-	29
TRS	19	-	-	19
CCT	14	-	-	14
HRD	13	-	-	13
COR	12	-	-	12
LIB	8	3	-	11
CAO	9	-	-	9
DMF	9	-	-	9
REG	9	-	-	9
NVTA	8	-	-	8
CBO	7	-	-	6
CWA	-	1	-	1
RET	1	-	-	1
Total	**2,719**	**110**	**10**	**2,839**

BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach

Objectives
The objective of this internal audit was to assess the design and effectiveness of internal controls over wireless communication devices, to identify areas of risk and opportunities for potential savings, including the policies and procedures, controls in place, and to determine the design and operating effectiveness of those controls identified. To accomplish the objective, areas of focus included:

- Wireless communication device policies and procedures
- Segregation of duties and access
- Device/service inventory, acquisition, activation, and deactivation
- Device/service usage reporting and monitoring

The focus also included the use of computer assisted audit techniques ("CAATs") for data analytics, where data usage information was available.

The scope of this audit included wireless devices (cell phones, iPads with 4G, and MiFi's) that incurred monthly charges during the audit period of July 1, 2017 through April 30, 2018.

Approach
Our approach was consistent with our internal audit methodology, which consisted of the following phases:

Understanding and Documentation of the Process
The first phase of this audit consisted primarily of inquiry and walkthroughs, in an effort to obtain an understanding of the key personnel, risks, processes, and controls relevant to the objectives outlined above. The following was performed as a part of this phase:

- Conducted interviews with the appropriate representatives to discuss the scope and objectives of the audit work, obtain preliminary data, and establish working arrangements;
- Conducted interviews with key personnel to obtain a detailed understanding of the wireless communication devices process(es);
- Documented flowcharts of the process(es);
- Reviewed the applicable policies and procedures and agreements related to this project;
- Performed walkthroughs to gain an understanding of the function and assess the design of internal controls; and
- Developed a risk-based work plan for the evaluation of the design and operating effectiveness of processes and controls, based on the information obtained through our review, inquiry and walkthrough procedures.

BACKGROUND, OBJECTIVES AND APPROACH (CONTINUED)

Objectives and Approach (continued)

Approach (continued)

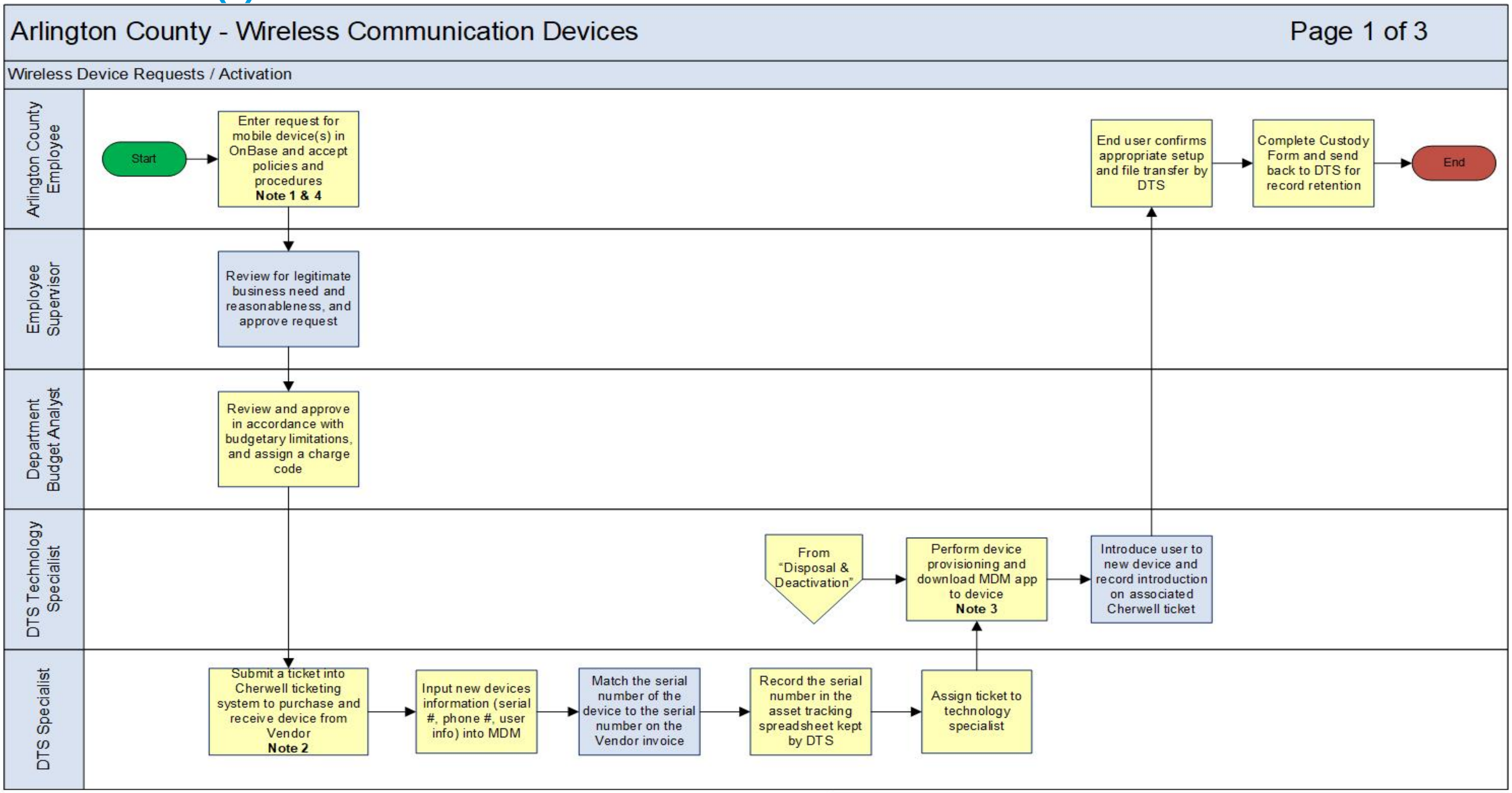
Evaluation of the Process and Controls Design and Testing of Operating Effectiveness
The purpose of this phase was to test compliance and internal controls based on our understanding of the processes obtained during the first phase. Audit steps included procedures such as vouching, analysis, and review where applicable. Specific procedures performed included:

- Assessed process over existence (inventory) and safeguarding of wireless communication devices/services;
- Assessed adequacy of wireless communication device usage monitoring;
- Determined if wireless communication device contracts, including usage plans, are appropriately structured, consistent with the best-interests of the County, and are monitored and updated in order to maximize the utilization of cost reduction measures;
- Determined if wireless communication device acquisition (determination of who requires a device)/ activation and return/ deactivation controls are adequate;
- Verified that appropriate control structures exist to identify and/or prevent fraud, waste, and abuse;
- Identified and assessed the effectiveness of segregation of duties and access controls, in areas such as biller user access privileges, inventory records, physical devices etc.; and
- Assessed the adequacy of applicable policies, procedures and guidelines and test for compliance.

Reporting
At the conclusion of this audit, we vetted the facts of this cycle audit with DMF and DTS. The draft report was submitted to DMF and DTS for review. An exit meeting was held with DMF and DTS to formally review and discuss the draft report and modify accordingly. Management's corrective action plan with estimated completion dates has been provided and included in the report.

Observation Risk Rating Definitions	
Rating	**Explanation**
Low	Observation presents a low risk (i.e., impact on financial statements, internal control environment, public perception / brand, or business operations) to the organization for the topic reviewed and / or is of low importance to business success / achievement of goals and internal control structure.
Moderate	Observation presents a moderate risk (i.e., impact on financial statements, internal control environment, public perception / brand, or business operations) to the organization for the topic reviewed and / or is of moderate importance to business success / achievement of goals and improve its internal control structure. Action should be in the near term.
High	Observation presents a high risk (i.e., impact on financial statements, internal control environment, public perception / brand, or business operations) to the organization for the topic reviewed and / or is of high importance to business success / achievement of goals and improve its internal control structure. Action should be taken immediately.

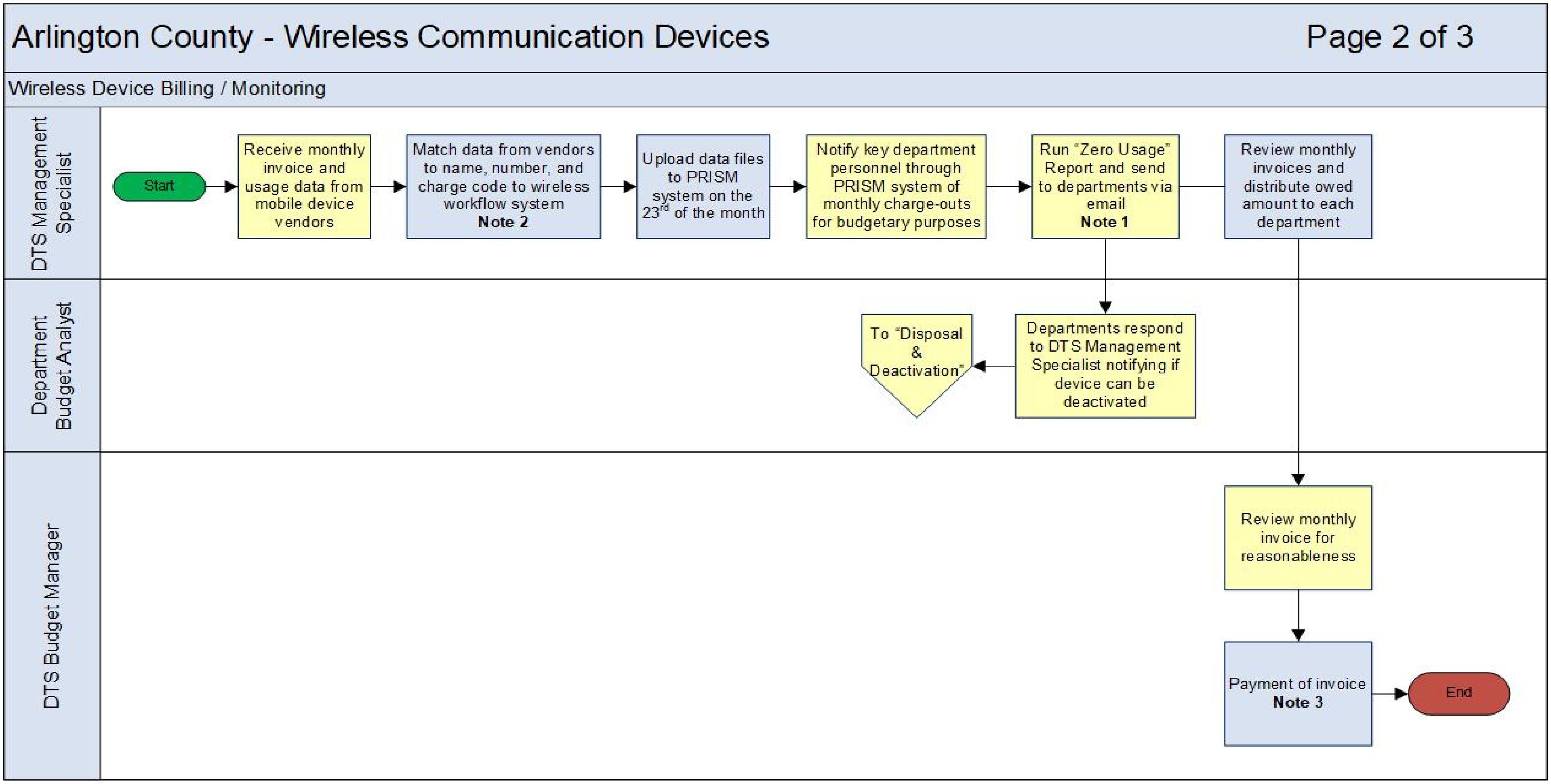
PROCESS MAP(S)



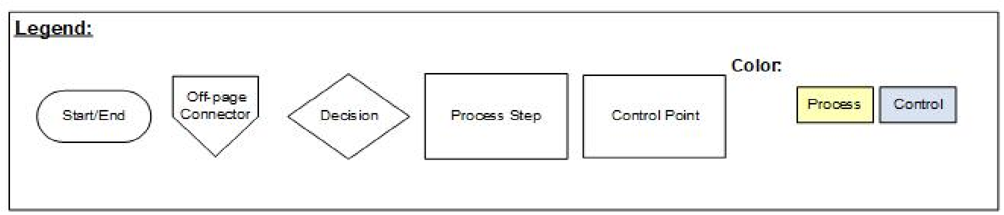
Notes:
1. Based on business need, and with department Director approval, users may use personally owned Mobile Devices to access County systems, to sync email, calendar and contacts etc. Employees using personal devices for County business are subject to the same security, provisioning and records management requirements as employees using County-issued devices.
2. The purchase and provision of mobile devices, accessories and/or services are handled through a County-wide contract and otherwise must follow County procurement processes, including prior approval by the appropriate County personnel. Any exceptions to the County's standard service and device offerings must be pre-approved in writing by the Chief Information Officer or designee.
3. Provisioning is done for both new and repurposed devices. For new devices, DTS scans into the MDM (Mobile Device Management) system and for old/repurposed devices the device information a is transferred within MDM (Mobile Device Management) system.
4. OnBase is the County's enterprise content management and process management software suite, this is where employees must go to submit a mobile device request.

Legend:

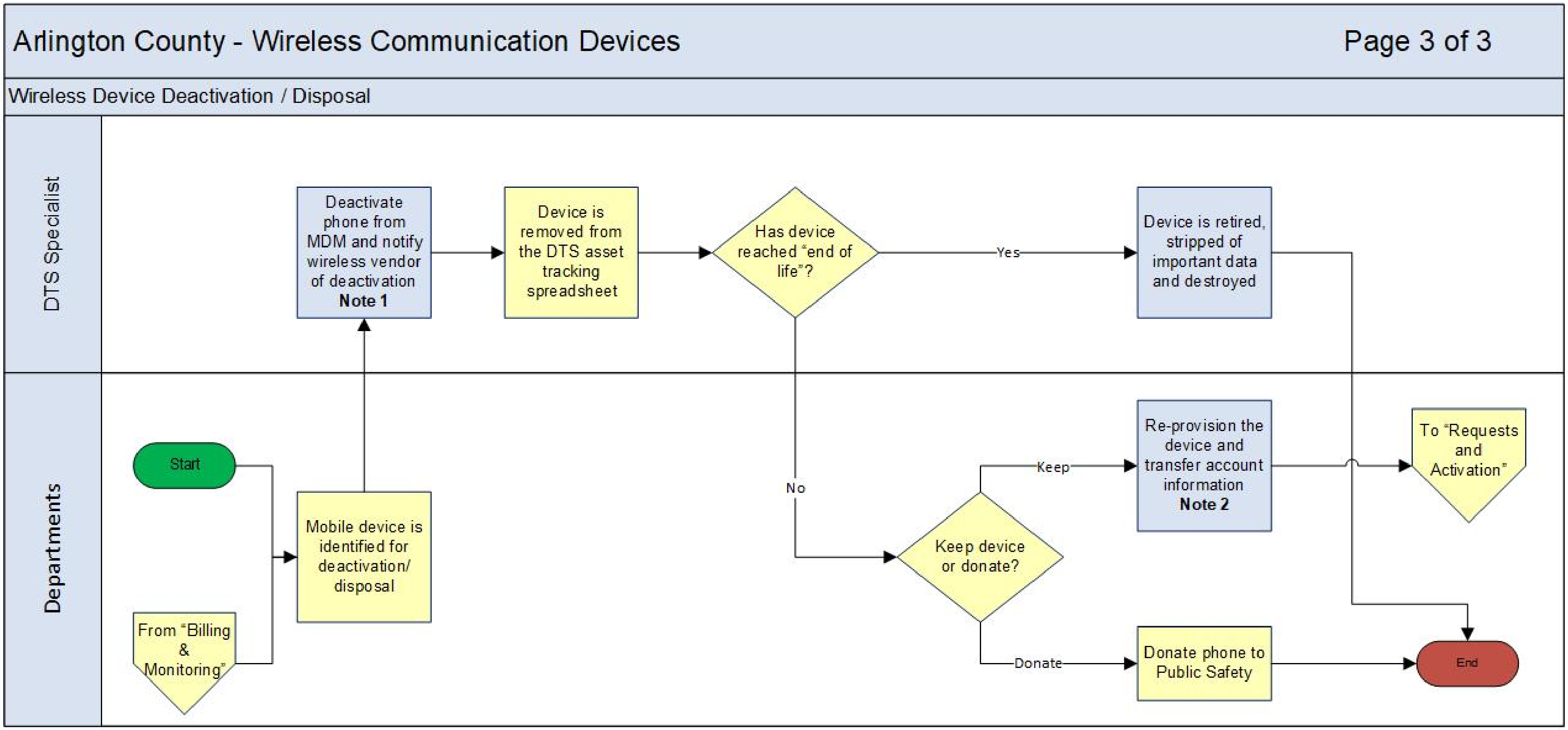
PROCESS MAP(S) (CONTINUED)



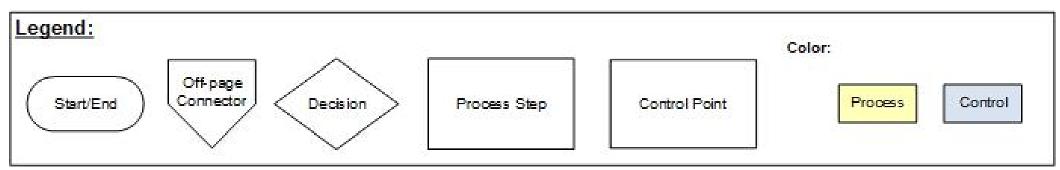
Notes:
1. On a monthly basis, the DTS Management Specialist will run a "Zero-Usage" Report across all vendors to identify devices that have not been used in the previous three (3) billing cycles. An "Other Charges" and "Summary of Accounts" report is also provided to departments via email.
2. Minutes are accumulated and rolled over each month.
3. The invoice is entered into PRISM by a separate analyst for subsequent payment.



PROCESS MAP(S) (CONTINUED)



Notes:
1. Once device is de-provisioned and removed from the monthly invoice, the device will no longer show up in the MDM system for tracking until it is re-purposed for another user.
2. Each employee has an account in the MDM system, which assists in the transfer of employee data from an old device to a re-provisioned (or new) device.



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Addendum to the Wireless Billing Audit Report

Since the initial Audit on Wireless Billing, the Arlington County Departments of Management and Finance and Technology Services have taken immediate action to review the assignments of the unused accounts, and where appropriate take accounts out of service. In addition, specific efforts have been focused on updating County policy, tracking, monitoring and training to ensure increased compliance. Specifically, there have been four key areas of focus: (1) strengthening of controls, monitoring and reporting; (2) regular inventorying of active devices; (3) defining segregation of duties; and (4) ensuring timely invoice approval and payment.

Immediate action was taken in November 2018 to review and make contact with the department associated with every device on the zero-usage report. A significant number of devices were shutdown immediately. Training materials on using the Wireless Billing Reporting System were developed and sent out to the departments. Every department was provided a list of all devices associated with their department for their review and signoff. This was a topic at multiple meetings across the County to ensure awareness and the importance of reviewing the report. Subsequently, early in 2019, the following steps were taken:

1. **<u>Wireless Device Program Monitoring and Related Policies.</u>**
    - The Audit Report identified 315 devices with zero usage of greater than 3 months on it. As of March 2019, DTS has drafted an internal zero usage policy and changed procedures to implement the following changes:
        - Requiring devices with zero usage to be reported to departments after only two months of non-usage (as opposed to three months).
        - Adding the ability to classify devices as “exempt” or “suspended” from disconnection. That means they are devices that need to remain active even though used infrequently (e.g., emergency management, public safety) so they can be accessed immediately when needed. Or, if the device is not needed for a short period of time, they are suspended and then reactivated.
        - Providing DTS with the authority to turn OFF any device that has zero usage after two months that is not classified as exempt or suspended.
        - Updating the monthly report distribution and notification system. Revisions include adding additional liaisons responsible for tracking in each department to ensure that multiple individuals and department directors are receiving regular monthly reports, notification, and training
        - Implementing required training. As of February 22, 2019, DTS has conducted three training sessions to over 100 people responsible for tracking and monitoring and reporting the zero-use policy in each department.

        - *NOTE: All department liaisons were notified via email on March 6, 2019 about these changes in policy. As of the March 2019 report with December 2018 data,* *there were 177 devices with zero usage greater than 2 months. Of those, 99 were determined to be exempt and 8 were suspended and 70 were disconnected*

- *Additionally, As of April 15, 2019, DTS has notified all users with multiple devices with cellular service to determine if a hot spot on a mobile phone could provide the cell service for a laptop or an iPad if a user has multiple devices. As a result, 12 'hot spot' devices have been disconnected.*

2. **Wireless Device Inventory**

   - Each department was provided a list of all devices assigned to their department in Arlington County Government in October / November 2018 for their review and validation. Numerous accounts were closed as a result of this review.
   - This practice to continue to send monthly lists of the users and status of devices to Department Directors for review and approval.
   - DTS is in the process of reviewing devices and connectivity plans (e.g., aircard, hot spots, etc.) to ensure the most cost effective and efficient utilization.
   - The County is in the process of migrating most of their cellular devices to a different provider with less costly plan**s.** As a result, a complete list of all phones with names, numbers, department and device type will be sent to departments for migration Spring/Summer 2019. This will serve as another inventory and review.
   - Separately, a Request for Information (RFI) for a new asset management system was issued in mid-June 2019. Subsequently, the County will identify the appropriate product to track the County's IT assets.
     - Additionally, an internal task force has been assigned to review and further develop onboarding and offboarding processes County-wide to integrate these processes with the new asset management system.

3. **Segregation of Duties** – Previously, there was a feature in the Wireless Provisioning System which allowed the approver of a device request to be changed. The system has been updated to ensure the workflow follows the requestor's supervisory chain.

4. **Invoice Approval and Payment** – Previously, DTS received paper copies of telecom invoices through the US Mail, which sometimes delayed payment. DTS now proactively downloads invoices directly from the individual vendor portals on a monthly basis.

In summary, the County is committed to carefully monitoring and tracking its Wireless devices and minimizing costs for these devices. We are also beginning to explore other methods and systems to manage wireless device costs