



**Compliance Audit 2021-02
Wireless Communication Usage**

August 2021

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Provide independent, objective assurance and consulting services designed to add value and improve the City of Fayetteville’s operations.

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EXECUTIVE SUMMARY

In accordance with the Fiscal Year 2021 Audit Plan, Internal Audit conducted an audit of wireless communication usage. The objective was to assess the City’s wireless communication usage to identify areas of risk and opportunities for potential savings.

The scope of the audit was based on Verizon Wireless device usage from February 11, 2020 through March 10, 2021 for a total cost of \$878,217. The costs reflected cellular devices used across 15 City departments. The scope excluded the Verizon Wireless invoices for “machine to machine” in-vehicle routing solutions. On March 10, 2021 the City had a total of 1,590 active device lines (unique phone numbers) as described below:

Device Type Categories*	Total # of Active Devices	Device Type
Basic Cell Phones, Smartphones	549	Mobile phones that include phone calls (voice), text messaging and smartphones that also allow internet access (data)
Tablets, Laptops	841	Devices using internet access (data)
MIFIs, Global Modems, Mobile Routers	142	Devices (i.e., routers) used to provide WiFi internet access to devices with no cellular service
Other Devices	58	Fleetlink DVR devices used in the management of solid waste operations.
TOTAL	1,590	

** Device type was based off Internal Audit’s interpretation of the information available within the Verizon Wireless online reporting.*

The Information Technology Department contributed to the management of the City’s computer and communication systems and the use of information technology (IT) resources belonging to or provided by the City. The process of managing and distributing devices was also dependent on the efforts of City departments who were responsible to validate monthly cellular service charges and make the ultimate decisions on the type and quantity of cellular devices, excluding laptops, needed to efficiently and effectively complete their day-to-day operations.

The Office of Internal Audit noted improvement opportunities around the usage of wireless communication. The devices referred to throughout the report were only those connected to a service plan with Verizon Wireless. For detailed explanation of each of the findings please refer to the appropriate finding contained in the body of this Audit Report.

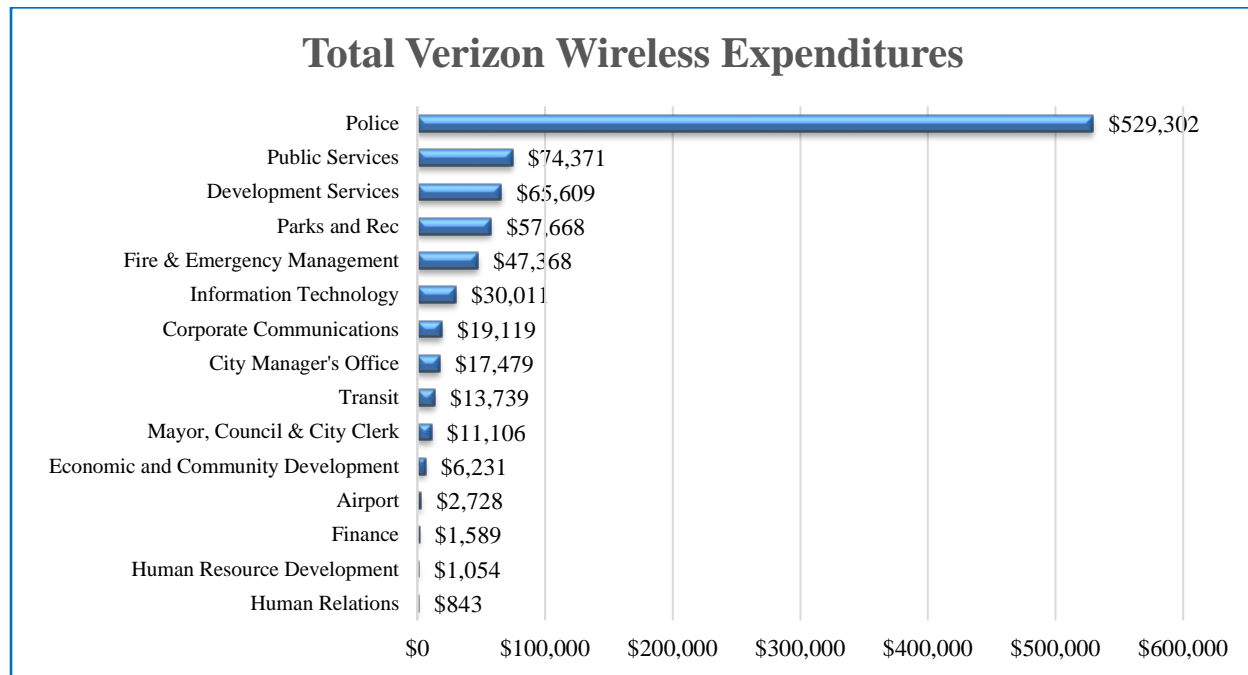
1. Improving management oversight related to cellular service plans could result in cost savings.
2. Inventory Management controls over devices associated with cellular services were not established.

BACKGROUND

Under a convenience contract through the State of North Carolina, the City of Fayetteville was able to establish wireless communication accounts with Verizon Wireless. This allowed the City the ability to choose from a variety of service plans with the authorized vendor. Verizon Wireless plans comprised of numerous features at discounted rates to include equipment and accessories. In addition, Verizon offered specific service plans designed for National Security, Public Safety, and First Responders with priority network service and no data slowdowns.

Verizon Wireless was the City’s primary vendor for wireless services and was available for all City departments. As an alternative to a City device, eligible employees could opt to receive a monthly cell phone stipend. Verizon Wireless maintained a website, utilized by City management that detailed and summarized the City’s wireless activity to include monthly billing and device usage. It also provided City management with the ability to add and change service plans and purchase equipment and device accessories.

The City’s Verizon Wireless account was divided into 19 sub-accounts. The sub-accounts reviewed incorporated expenditures for 15 departments in which the City paid a total of \$878,217 during the audit scope. This total incorporated monthly cellular service fees, usage overage fees, equipment purchases, and applicable taxes and fees. The total does not include equipment and accessory purchases not billed through the account or purchased with an outside vendor. The amount paid by department is depicted below.



AUDIT OBJECTIVES

The objective was to assess the City’s wireless communication usage to identify areas of risk and opportunities for potential savings.

AUDIT SCOPE

The scope of the audit included device usage from February 11, 2020 through March 10, 2021. Internal Audit utilized detailed usage reports from the Verizon Wireless online business account in addition to reviewing invoices. Reports were used to determine data, messaging, and voice usage as well as monthly access charges for the selected plans, overage charges and equipment purchases. A total of 1,934 unique cellular device lines were reviewed to include: 1,590 active lines and 344 suspended or disconnected lines. Additionally, Internal Audit selected a 10% City-wide sample of 190 wireless lines, both active and disconnected, to determine the device’s location, existence, security and overall usage.

AUDIT METHODOLOGY

In order to accomplish the audit objective, the Office of Internal Audit performed, but were not limited to, the following:

- Reviewed City-wide policies and procedures related to wireless services;
- Interviewed personnel from City department's with Verizon wireless services;
- Inventoried a sample of devices for existence and accuracy of Verizon Wireless information;
- Reviewed invoices and associated documentation; and
- Considered the risk of fraud, waste and abuse.

FINDINGS, RECOMMENDATIONS, AND MANAGEMENT'S RESPONSES

Finding 1

Improving management oversight related to cellular service plans could result in cost savings.

Criteria: The City and its management have an obligation to be responsible stewards of taxpayers' money. Therefore, to maximize the efficiency of the City's resources, device services should be assigned and utilized in respect to the expected use of the device.

Additionally, oversight and accountability of the monthly bills should include evaluating the continued business need for devices with zero or significantly underutilized usage and ensuring service plans were cost efficient and aligned with contract pricing.

Condition: The City had not established an oversight process, to include acceptable standards for managing device usage. Internal Audit reviewed Verizon Wireless reporting for zero and significantly underutilized device usage. Internal Audit defined underutilized usage as: voice minutes less than 10 minutes per month and/or data usage less than or equal to 1 gigabyte (GB) per month. Based on a review of the 1,590 active devices, 621 (39%) were considered to have either zero or underutilized usage, as described below:

Device Type*	# of Devices	Percent of Total Devices	Total Active Devices	Total Cost
Basic Cell Phones, Smartphones	51	9%	549	\$19,114
Tablets, Laptops	458	54%	841	\$106,826
MIFIs, Global Modems, Cradlepoints	57	40%	142	\$24,513
Other Devices	55	95%	58	\$18,688
Total	621	39%	1,590	\$169,141

**Device type was based off the information available within the Verizon Wireless online reporting.*

The City did not have guidelines on selecting cellular service plans. Therefore, the plans selected were not always the most cost effective.

- Plans used were not at the State contracted rates; and
- Plans varied based on the allowance of minutes, data and messaging causing additional monthly services fees and overages.

In addition, employees had multiple devices with cellular service plans versus activating mobile hotspots. Mobile hotspots were offered as an add-on to smart phone service plans. The cost of the hotspot ranged from \$5 - \$10 per month. Service plans for secondary devices started at \$37.99 per month resulting in a potential annual cost savings of \$336 per device.

Cause: Oversight and accountability of monthly bills to include an analysis of device usage was lacking. As a result devices with little or no usage were not temporarily suspended or deactivated.

Although some of the underutilized devices are necessary, such as devices assigned to public safety for emergency use, many devices appeared to remain active without a clear business need. In addition, employees were assigned multiple devices, all activated with a service plan, instead of using add-ons such as smartphone hotspots. Management had not performed a comprehensive review to determine cost-effective alternatives.

Effect: Without sufficient controls and oversight requirement, the City may expend City resources on underutilized devices and non-contracted cellular service plans. In addition, the City may be assigning devices to employees without a clear business need resulting in lack of use which could be suggestive of inefficient use of wireless resources.

Recommendation

The Information Technology Department should:

1. Establish written guidelines that outline user department requirements for oversight and accountability. These guideline should include but not limited to:
 - Identify clear delineation of responsibilities related to the City’s wireless communication function within the Information Technology Department and applicable departmental personnel;
 - Monthly review of invoices for billing irregularity, overage charges, and zero and underutilized usage with actionable follow-up;
 - Documenting the business need for devices that must remain active regardless of usage;
 - Documenting management exceptions to City-wide standards for device distribution;
 - Timelines and reasons for the suspension and deactivation of cellular service plans; and
 - Utilizing Verizon Wireless hotspots in lieu of activating cellular service on multiple devices.
2. Assign devices to the appropriate contracted service plan prior to deploying the device to the assigned individual or department.

Management’s Response

We concur with reservations. Management is in agreement with the recommendation, but there are circumstances that could affect its implementation which have to be resolved.

IT provided oral communication to departments regarding expectation for the monthly review of invoices. This finding is due to no management oversight by departments. In order to fully implement this recommendation, we need to centralize management of all wireless/mobile devices, which would require one FTE to manage the entire fleet of assets. Full implementation is contingent upon approval of FTE and support/collaboration from departments.

Responsible Party: Chief Information Officer

Implementation Date: December 31, 2022

Finding 2

Inventory Management controls over devices associated with cellular services were not established.

Criteria: The United States Government Accountability Office (GAO)¹ states that “creating an effective and cost-efficient government” required “useful, reliable, and timely information” that can be used daily by City Council, City management and other decision makers. The GAO further clarified a complete, accurate and reliable inventory allows decision makers to make “effective budgeting, operating, and financial decisions and to create a government that works better and costs less.”

¹ <https://www.gao.gov/assets/660/651157.txt>

Additionally, pursuant to the City’s Information Technology Acceptable Use Policy #603, an inventory of devices to include device assignment should be maintained by Information Technology. The inventory should be inclusive to include all type of devices;

- Device assignments should be clear to ensure devices can be easily located; and
- Annual reviews of device distribution should be conducted and provided to department directors per Policy #603.

Condition: The City did not maintain a current and complete inventory of cellular devices resulting in devices that could not be located:

	# of Devices Sampled	# of Exceptions	Exception Rate
Active Devices	158	47	30%
Disconnected Devices	32	28	88%
Total	190	75	39%

Cause: A centralized inventory of devices was not maintained by the Information Technology Department. Inventory of the City’s devices were the responsibility of the respective department which generally relied on the data from the online Verizon business account. However, the Verizon data only tracked current active devices and was not managed by the respective department to ensure current device usernames, descriptions and location assignments for accountability.

Additionally, devices returned by employees to be reassigned, disconnected, or disposed were reset to factory settings, dismantled for parts or destroyed without documenting the device’s identification information.

Effect: Without a centralized inventory management system with reliable data, the risk of the inability to efficiently and effectively manage devices increases.

Recommendation

The Information Technology Department should:

1. Complete and document a full inventory of all active devices to ensure existence;
2. Establish a centralized inventory of all devices and track all information necessary for devices to be traced to an individual, a piece of equipment, or a specific location, to include the individual responsible;
3. As the City migrates to the Oracle Cloud ERP system, the small asset management system should be implemented and used to track all City small assets, to include cellular devices;
4. Follow established City standards for properly documenting the surplus and removal of all devices past their usable life cycle; and
5. Establish written guidelines requiring a periodic departmental inventory for device existence.

Management’s Response

We concur with reservations. Management is in agreement with the recommendation, but there are circumstances that could affect its implementation which have to be resolved.

Centralized inventory tracking of wireless/mobile devices will be tracked via Verizon’s database. One dedicated FTE to manage the entire fleet of mobile devices coupled with support/collaboration from departments is key to fulfilling the stated recommendations. The current inventory process will be documented and revised to accomplish items 1, 2 & 5. Full implementation is contingent upon approval of hiring one FTE as well as support/collaboration from departments.

Responsible Party: Chief Information Officer

Implementation Date: December 31, 2022

CONCLUSION

Internal Audit has concluded work on the audit of wireless communication usage. Based upon test work performed, Internal Audit concluded:

1. An opportunity existed for cost savings through increased oversight and accountability of cellular service plans; and
2. A clear system of inventory management is needed to safeguard devices.

Although not included in the findings, an additional opportunity for the City was observed:

- Ensure all qualifying device lines are on the National Security, Public Safety, and First Responder Pricing Plans which allows priority network service with no data slowdowns.

Lastly, Internal Audit identified an area of significant risk that was presented to the Information Technology Department as well as City Senior Management due to the sensitive nature and the security of the City's network:

- Mobile device security protocols, to include the use of two-factor authentication, should be reviewed, strengthened and monitored due to the continued advancements in cellular technology and the importance of safeguarding the City's network.

Although the management responses are included in the audit report, Internal Audit does not take responsibility for the sufficiency of these responses or the effective implementation of any corrective actions.

Internal Audit would like to thank Department personnel for their assistance and numerous courtesies extended during the completion of this audit.

Distribution:

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