

# Department of Information Technology

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LOB #136:

## **TELECOMMUNICATIONS VOICE**

### **Purpose**

The Telecommunications Voice LOB in the Department of Information Technology (DIT) is a discrete, centralized county-wide program responsible for planning, designing, implementing, and managing the County's voice communications solutions and phone services county-wide for all agencies. This portfolio of products and services primarily includes phone systems, intercom systems, voice messaging; voice and video teleconferencing; 9-1-1 Center communications; and cabling, telecommunications circuits and hot lines provisioning including circuits for voice and data, wireless (cell/smart phone) contracts, in-building wireless coverage infrastructure, and Internet pipes.

### **Description**

The Telecommunications Voice LOB, Voice Communications Services (VCS) branch, is a centralized county-wide program established as part of DIT in 1997. It is responsible for planning, designing, implementing, and managing the County's voice communications solutions, phone services, and underlying communications building and sites infrastructure for all agencies. The core responsibility is to manage the enterprise-wide voice communications (phone systems) platform and voice messaging system, including the McConnell Public Safety and Transportation Operations Center (MPSTOC) and 9-1-1 Center communication platforms, communications infrastructure and commercial circuits. In addition, this branch integrates the IVR (Interactive Voice Response) system and performs voice recording for Call Center applications for 20 agencies.

Also supported are intercom systems, voice and video teleconferencing systems and services; and, building wiring and cabling, telecommunications circuits and hot lines provisioning including circuits for voice and data, wireless (cell/smart phone) contracts, in-building wireless coverage infrastructure, Internet pipes, and wireless "hot spots" in Libraries, Rec Centers, and other locations. VCS also supports investigations regarding use of County telecommunications resources and performs traffic studies.

The VCS has sixteen (16) full-time positions - primary staff is located at the Government Center, with a dedicated presence at the McConnell Public Safety and Transportation Operations Center (MPSTOC) supporting the 9-1-1 and MPSTOC administrative systems and common infrastructure. Staff is responsible for the design, planning, implementation, management and support of the voice and data communications networks on a 24x7 basis. This service includes coordinating the provision and maintenance of all electronic (voice and data) communications for Fairfax County government and related agencies; managing and maintaining all communications equipment and services; designing and implementing communication features and applications; planning and managing the installation of new communication equipment and services, and evaluating emerging communications technologies.

The VCS staff also provide critical oversight for all new construction and renovation projects by coordinating technology requirements and design of building communications infrastructure for voice, data, and video including building security systems and wireless points, and developing specifications and supervising contractors with the Department of Public Works and Environmental Services, Department of Housing and Community Development, the Fairfax County Park Authority and the Facilities Management Department. The design, development and project management efforts are performed by telecommunications engineers and analysts using the latest technologies available in order to meet agency needs while aligning with County IT and security standards.

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VCS has a huge task to manage the process for reviewing and approving carrier telecommunications bills, reconciling the inventory of services against the bills from all the activity that occurs monthly in the provisioning of services. The typical carrier processing lag time between new orders and disconnects showing up on bills several months later has been problematic. In FY 2016, DIT outsourced billing management review to a firm that had the ability to run the bills through their data analytics engine that identifies the anomalies and only submits payment advice for the validated services. This is a far more efficient and effective way of handling the cumbersome carrier billing process that many commercial sector companies have gone to instead of doing it themselves. In addition to paying bills, VCS provides information for the charge-back process to County agencies for services rendered.

Services are obtained through a variety of County and state contracts, depending on the specific service requirement and best cost alternative at the time. County and FCPS use each other's contracts and have joined sometimes in contract solicitations. In FY 2016, the County and FCPS worked together on the solicitation for a new wireless services contract. This netted the best available cost with agility built in for new service package offerings so that Fairfax can always have the latest and best pricing instead of being stuck in a long term contact at the original negotiated pricing package.

Services and support are provided to over 16,000 employees located at over 400 county facilities, office and individual equipment locations, including parks, firehouses, group homes, recreation facilities, police stations, SACC centers, health clinics, libraries, governmental centers, maintenance shops, and specialized end-points for sewers, alarm systems, and other utilities, etc. Staff work with agencies to plan installs and conduct moves/rearrangements and changes for office and staff reconfigurations and relocations as necessitated by business requirements. Other duties of the staff include working with vendors to perform research and development scheduled preventive maintenance and coordination of vendor repairs/replacements.

The Fairfax County Enterprise Voice Network was modernized in 2006 replacing the old legacy voice platform through a competitive solicitation process that had reached its usable life and lacked the tools and functionality of modern advancements. The current system platform consists of more than 16,000 telephone sets for County employees and provides county-wide internal communications over the County's private fiber network (I-NET), implemented during FY 2014 and 2015. Transition to the I-Net reduced the overall requirement for Telecom carrier service provider circuits connecting County buildings, thus major cost reductions were achieved and implemented in the FY 2016 budget. Enhancements were added to streamline caller applications for citizens to quickly reach the appropriate agencies, provide solutions for telework and integration of wireless telephones for mobile employees. Additionally, the new voice architecture registers all telephone sets to local public-safety answering point database to determine exact locations of 9-1-1 calls which satisfies Commonwealth of Virginia mandates. In addition to the Internet Protocol (IP) based Voice Network, there are over 4,000 independent analogue telephone lines supporting special purpose industrial equipment required for operation or legal requirements (e.g. elevators, etc.).

The VCS group continues to work with the Technology Infrastructure LOB on enhancements significantly improving access to County information and supporting County technology goals, while enabling greater efficiency and productivity, improving security and reliability, increasing capacity to support ongoing and future applications, and reducing operational and maintenance costs.

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## Benefits

The Telecommunications Voice LOB provides a countywide service that aggregates and leverages telecommunication assets and supporting infrastructure, providing the best overall acquisition, operational and maintenance costs. The centralized program is a key technology component that provides a specific service, but also integrates with the Technology Infrastructure LOB for the convergence of voice, data and video services that will net additional county-wide productivity improvements and cost savings. For example:

- Improved service levels to the public by empowering County employees with the technology to more expeditiously extract information to fulfill County citizen requests;
- Increased public satisfaction with government services and the attractiveness of Fairfax County to prospective businesses and residents by more quickly responding to constituent inquiries or business transactions saving valuable private and corporate resources; and
- Reduced staff time permitting redeployment of staff to higher value-added issues, such as increasing the number of customers served and/or providing improved services at a lower cost to County citizens.

The VCS solutions and services portfolio:

- Provides employees the ability to communicate via telephone to conduct business
- Allows for County employees to telework from home
- Provides teleconferencing services
- Provides caller identification for incoming call and to 9-1-1 Center
- Provides contact center functionality for high volume calls for citizens
- Provides call recording for call centers to ensure quality assurance
- Achieves lower cost circuit costs
- Provides redundancies for reducing system downtime

## Mandates

As of July 2009, the state of Virginia established legislation to regulate 9-1-1 service as it applies to Multi Line Telephone Systems (MLTS) or PBXs (Private Branch Exchanges). Virginia requires enterprises and/or residential MLTS operators to ensure that when a user calls 9-1-1 on their system, ANI (Automatic Number Identification) and ALI (Automatic Location Identification) are provided to the PSAP (Public Safety Answering Point). The County meets this mandate by deployment of Redsky. Redsky provides ANI/ALI to the local PSAP which provides the exact location of the calling party. Also, the County meets the mandate for the hearing impaired through either TTY devices or the Virginia Relay Services, 711.

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## Trends and Challenges

The trend in the area of telecommunications is the transition from proprietary voice only system architectures to using industry standard software enabled functionality on technology industry standard server platforms, and convergence over a data network of voice and data messaging services. Through the investments already made, the County is positioned well and is in the process of integrating the voice and Microsoft messaging environments for a seamless, uniformed communications capability. Plans include a unified communications architecture for integration with the County's broadband data network and wireless carrier services so that agencies and users can access data and video through a variety of mobile devices securely – anywhere, and will also support use of personally owned devices as appropriate. (See Fairfax County IT Plan Section 2 for more information). The strategy to integrate wireless will also result in a reduction of desktop phones for some workspaces. The strategy will also further consolidate server infrastructure support. Another industry trend is for 'cloud' based telephony services. DIT is assessing next generation voice cloud services as a potential option at the next system refresh cycle.

Challenges include:

- Keeping pace with technological advancements and the resulting lifecycle upgrades as the industry changes rapidly
- Regulatory changes affecting the carrier market and related mandates
- The ability to drive down recurring costs without loss of functionalities
- Maintenance-related issues as more County facilities are added to the network
- Transitioning and integrating wireless applications and devices
- Transitioning required skills
- Next Generation 9-1-1

## Resources

Category	FY 2014 Actual	FY 2015 Actual	FY 2016 Adopted
<b>LOB #136: Telecommunications Voice</b>			
<b>FUNDING</b>			
<u>Expenditures:</u>			
Compensation	\$1,435,832	\$1,383,559	\$1,323,543
Operating Expenses	5,876,709	6,659,361	5,931,066
Work Performed for Others	(6,262,804)	(6,119,374)	(6,791,873)
<b>Total Expenditures</b>	<b>\$1,049,737</b>	<b>\$1,923,546</b>	<b>\$462,736</b>
General Fund Revenue	\$0	\$0	\$0
<b>Net Cost/(Savings) to General Fund</b>	<b>\$1,049,737</b>	<b>\$1,923,546</b>	<b>\$462,736</b>
<b>POSITIONS</b>			
Authorized Positions/Full-Time Equivalents (FTEs)			
<u>Positions:</u>			
Regular	16 / 16	16 / 16	16 / 16
<b>Total Positions</b>	<b>16 / 16</b>	<b>16 / 16</b>	<b>16 / 16</b>

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## Metrics

Metric Indicator	FY 2013 Actual	FY 2014 Actual	FY 2015 Actual	FY 2016 Estimate	FY 2017 Estimate
Number of Service Tickets	3,554	3,742	3,755	3,800	3,800
Percentage of Service Tickets Completed on Time	96%	95%	95%	95%	95%
Number of Repair Tickets	2,641	2,800	3,100	3,100	3,100
Percentage of Repair Tickets Completed on Time	96%	96%	95%	95%	95%
Telecommunications Cost	\$3,141,269	\$2,717,551	\$2,102,060	\$1,685,000	\$1,600,000

The number of service and repair orders are largely stable with slight increases resulting from more staff integrating to the Avaya platform. During the past five years there were more than 4,500 new telephones added to the network. Service repairs include applications that are new to staff such as caller ID, call recording, system upgrades and patches, system recording tools, etc. In addition to service and repair orders, VCS received calls for instructions on directions for self-help menus such as voicemail setup and calls for proactive monitoring from Avaya's network operations center.

Since 2011, VCS conducted surveys and pulled data from the Infra ticketing system. This data shows that an average request for service and repair was completed on time in 95 percent of cases in FY 2015.

The transition from traditional circuits to SIP trunking provided savings toward recurring costs on the Avaya enterprise system. The reduction involved transitioning from Verizon to Cox and taking advantage of better rates for other traditional dial tone services that are not on the enterprise system. Benefits include:

- Lower cost for services
- Lower repairs for single data circuits than individual circuits at each site
- Redundancy built into service provider and county-owned network