

2018-20 Executive Progress Report

Commonwealth of Virginia
Secretary of Public Safety and Homeland Security
Department of Forensic Science

At A Glance

The Department of Forensic Science's mission is to provide laboratory services in criminal matters in the Commonwealth of Virginia, support the criminal justice system with quality and timely services, and advance the understanding of forensic science in order to promote public safety.

Staffing 303 Salaried Employees, 0 Contracted Employees, 326 Authorized, and 29 Wage Employees.

Financials Budget FY 2019, \$49.52 million, 95.87% from the General Fund.

Trends Legend ↑ Increase, ↓ Decrease, → Steady

Key Perf Areas ↓ Average turnaround time for controlled substances cases

↑ Average turnaround time for DNA cases

Productivity → Average DNA Data Bank operational cost per offender sample processed

Legend ↑ Improving, ↓ Worsening, → Maintaining

For more information on administrative key, and productivity measures, go to www.vaperforms.virginia.gov

Background and History

Agency Background Statement

The Department of Forensic Science (DFS) supports law enforcement and the criminal justice system through the performance of forensic analysis of crime scene evidence and presentation of the results of the analysis through reports, consultations, and expert witness testimony in courts of law.

In 1970, a survey by the International Association of Chiefs of Police demonstrated a need for a statewide forensic laboratory system in Virginia. In 1972, an act of the General Assembly created the Division of Consolidated Laboratory Services (DCLS) within the Department of General Services (DGS). DCLS included a Bureau of Forensic Science that absorbed the Commonwealth's existing drug and toxicology laboratories, in addition to providing other forensic services. In 1990, the rapidly expanding Bureau was elevated to Division status within DGS. In 1996, the Division was transferred to the Department of Criminal Justice Services (DCJS). Finally, in 2005, the Division was elevated to Department status under the Governor's Secretary of Public Safety (now the Secretary of Public Safety and Homeland Security).

Major Products and Services

The Department of Forensic Science (DFS) is a nationally accredited forensic laboratory system, established by Virginia law, to provide forensic laboratory services to the Commonwealth's state and local law enforcement agencies, medical examiners, Commonwealth's Attorneys, fire departments, and state agencies in the investigation of any criminal matter. By law, DFS provides services to federal investigatory agencies to the extent its resources allow. DFS scientists provide technical assistance and training, evaluate and analyze evidence, interpret results, and provide expert testimony related to the analyses of physical evidence recovered from crime scenes and submitted for examination. DFS also provides evidence collection kits (at no charge) to law enforcement and medical personnel to facilitate proper collection and submission of certain types of evidence for laboratory examination.

DFS's Forensic Training Section operates the Virginia Forensic Science Academy (Academy). The Academy is a nine-week school of crime scene technology that provides classroom instruction by qualified forensic experts, evidence collection demonstrations, and numerous practical exercises in simulated crime scenes. The Forensic Training Section also offers and facilitates numerous short courses that allow DFS to reach a greater

number of law enforcement officers and jurisdictions.

The DFS Breath Alcohol Section provides (at no charge) training, equipment, supplies, and laboratory support to local, state, and/or federal law enforcement agencies throughout Virginia that are enforcing Commonwealth of Virginia Driving Under the Influence statutes (e.g., § 18.2-266 and § 18.2-266.1). In addition to training and licensing breath alcohol instrument operators, the Department certifies each evidential breath test instrument for accuracy at least once every six months.

Finally, DFS has established and maintains a DNA (deoxyribonucleic acid) testing program in accordance with Article 1.1 (§ 19.2-310.2 et seq.) of Chapter 18 of Title 19.2. DFS analyzes each sample of blood, saliva or tissue taken for DNA to determine identification characteristics specific to the person.

Customers

Customer Summary

The DFS customer base is dictated by the following sections in the Code of Virginia:

§ 9.1-1101 – Provide forensic laboratory services to law enforcement agencies, medical examiners, Commonwealth's Attorneys, and fire departments throughout the Commonwealth in any criminal matter and provide laboratory services, research, and scientific investigations for agencies of the Commonwealth as needed. The Department shall provide such services to any federal investigatory agency within available resources.

§ 9.1-1104 – Perform court ordered testing requested by the defense.

Customer Table

Predefined Group	User Defined Group	Number Served Annually	Potential Number of Annual Customers	Projected Customer Trend
State Agency(s),	State law enforcement agencies	13	13	Stable
State Agency(s),	Office of the Chief Medical Examiner	4	4	Stable
Local or Regional Government Authorities	Sheriff's offices and local police departments	310	310	Stable
Organization	Other law enforcement agencies (e.g., private police departments)	50	50	Stable
Federal Agency	Federal law enforcement agencies	15	15	Stable
Local or Regional Government Authorities	Offices of Commonwealth's Attorneys	120	120	Stable
Local or Regional Government Authorities	General and Juvenile & Domestic Relations District Courts (in 32 districts)	209	209	Stable
Local or Regional Government Authorities	Circuit courts (in 31 circuits)	120	120	Stable

Finance and Performance Management

Finance

Financial Summary

The Department of Forensic Science (DFS) is primarily funded through the general fund of the Commonwealth, although the agency has consistently obtained grant funds to cover between three and seven percent (3% - 7%) of operating expenses. Overall, the DFS operating funds are allocated in the following manner:

70% Personnel expenses – salaries and fringe benefit costs for all Department employees;

13% Laboratory expenses – all items, other than personnel, directly related to performing scientific analysis such as scientific equipment, gases, chemicals, and other supplies;

11% Facilities expenses – direct costs such as utilities, repairs, service contracts, equipment and supplies for operating and maintaining the laboratory buildings;

5% Administrative expenses – costs such as information technology, office supplies, postage, and other necessary items that are not directly related to scientific analysis; and

1% Travel expenses – primarily costs related to court travel and some mandatory training.

Fund Sources

Fund Code	Fund Name	FY 2019	FY 2020
01000	General Fund	\$45,818,010	\$46,173,510
10000	Federal Trust	\$2,043,270	\$2,043,270

Revenue Summary

DFS revenue is comprised mostly of federal grant funds that are obtained to support overlapping federal and state initiatives for which state funding is not available. A very small amount of revenue is earned each year by the sale of surplus equipment through the state surplus property program.

Performance

Performance Highlights

An important measure of how DFS is meeting its obligations to the criminal justice system and the Commonwealth's citizens is the turnaround time (TAT) from receipt of evidence to issuance of the case examination report (Certificate of Analysis). When Certificates of Analysis are not available in a timely manner, investigations may be delayed, court cases may have to be continued, and cases may even be dismissed if the speedy trial provisions in §19.2-243 of the Code of Virginia are not met.

Both the Controlled Substances and Toxicology Sections are receiving significantly more complex cases due to the current opioid epidemic and the volume of new synthetic compounds. The Forensic Biology Section (DNA) is receiving more physical evidence recovery kits (PERKs) for analysis as a result of the comprehensive PERK legislation enacted July 1, 2016. Also, more complex and time consuming statistical calculations and analysis have been required since 2010 when the DNA quality assurance standards for DNA mixture statistics were revised.

In FY17, DFS received funding for six additional scientists in the Toxicology Section, which was an increase of ~20% for this Section. With this increase in staffing, DFS is now meeting the Toxicology turnaround time (TAT) goal and has reduced the backlog to less than 1,000 cases for the first time in over a decade.

In FY17, DFS received funding for additional examiners and equipment in the Firearms and Toolmarks Section. With this increase in staffing and equipment, DFS is now reducing both the backlog and the average TATs. Given current levels of case receipts and completion, this positive trend is expected to continue.

In FY17 DFS received funding for six additional scientists in the Forensic Biology Section; however, due to staff turnover it took longer than anticipated to increase the number of fully trained and qualified examiners. DFS's capacity now slightly exceeds average case receipts, and the Section is starting to see a decrease in the backlog and average TAT. Also, there are several research projects underway to increase automation and productivity in this Section, which are anticipated to further reduce the backlog and TATs.

Selected Measures

Measure ID	Measure	Alternative Name	Estimated Trend
77830902.001.002	Average turnaround time for controlled substances cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)	Average turnaround time for controlled substances cases	Worsening
778.0002	Average turnaround time for toxicology cases that are analyzed and results reported to the requesting authority (Certificate of Analysis issued)	Average turnaround time for toxicology cases	Improving
77830901.001.002	Average turnaround time for DNA cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)	Average turnaround time for DNA cases	Improving
778.0004	Average Data Bank operational cost per DNA offender sample	Average DNA Data Bank operational cost per offender sample processed	Maintaining
778.0001	Average turnaround time for firearms and toolmarks cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)	Average turnaround time for firearms cases	Improving

Key Risk Factors

The primary risk factor that could prevent the Department from fulfilling its mission is the ability to maintain a sufficient number of qualified scientific personnel. There are three general risks associated with personnel levels as described below:

Funding:

DFS has received funding to fill all of its 326 MEL positions, eight new positions (6 Controlled Substances, 1 Digital and Multimedia Evidence, 1 Forensic Biology research) within the FY19/FY20 biennial budget and six additional Controlled Substances positions by transfer of FY20 funding to FY19. Between filling new positions and general attrition, as of September 2018, 303 of the agency's 326 MEL positions are filled, and the remaining 23 positions are in the process of being filled.

Hiring and Training:

As of September 2018, approximately 7% of DFS's funded positions are in the process of being filled, while approximately 8% of current employees were hired in the past year. In order to fill positions with limited qualified applicants, DFS has developed a process of hiring and training individuals with the necessary educational credentials but without the practical experience.

Maintaining Personnel:

In order to retain trained scientists, DFS utilizes a compensation plan for its scientists that was developed in conjunction with the Department of Human Resource Management, which rewards and encourages staff development.

Approximately 7% of current DFS employees have 30 or more years of service; however, DFS does not expect a significant number of retirements in the remainder of the biennium.

Agency Statistics

Statistics Summary

The information in this section and the values in the table below are for the Fiscal Year that ended June 30, 2018.

The June 2009 United States Supreme Court opinion in the case of *Melendez-Diaz v. Massachusetts* continues to have a significant impact on DFS operations although the number of subpoenas received and number of court appearances have stabilized. For every subpoena received, examiners must log the information and often must spend a significant amount of time coordinating court dates, arranging for travel, and following up with attorneys to ensure their presence is still required. Although the time spent on these administrative tasks is not tracked, time spent out of the lab is tracked and in FY18 DFS examiners spent over 9,500 hours traveling to and appearing in court.

A DNA Data Bank hit occurs when DNA from a crime scene sample is associated with the DNA of an individual (arrestee or convicted offender) or DNA from another case.

Statistics Table

Description	Value
Total number of cases received by all disciplines	61,453
Number of subpoenas to appear in court received	16,399
Number of times personnel appeared in court (available for testimony)	3,859
Number of times expert testimony provided	993
Number of DNA samples processed from arrestees and convicted offenders	17,760
Number of DNA Data Bank hits	781
Number of breath alcohol tests administered by law enforcement personnel	24,937
Number of breath test operators licensed or retrained	3,694
Number of law enforcement that attended training provided or facilitated by the Training Section	570

Management Discussion

General Information About Ongoing Status of Agency

DFS continues to maintain its status as a nationally-recognized leader in the field of forensic science while supporting the criminal justice system and improving the public's understanding of forensic science. DFS continues to pursue new technologies that can provide cost beneficial advances in case processing time and new types of analysis needed by the criminal justice system.

- DFS has expanded its research capabilities in the Toxicology Section to expedite the development of new scientific methods.
- The Forensic Biology Section is in the process of developing and validating a streamlined method utilizing robotics for testing evidence from sexual assault cases to replace the current labor intensive process of identifying spermatozoa through microscopy and testing for seminal fluid through chemical methods.
- DFS has created a new Forensic Scientist NIBIN role in response to the significant increase in firearms submitted for NIBIN (National Integrated Ballistic Information Network) entry. The increase is due to Governor McAuliffe's Executive Order 50 and recommendations from the ATF to law enforcement agencies to submit all firearms for entry into NIBIN.

- DFS has requested funding through a formula grant to conduct a process improvement project in the Controlled Substances Section by contracting with a Lean Six Sigma vendor whose services are tailored specifically to the forensic community for improving case workflows. The project will identify systemic inefficiencies to improve production and process workflows.

DFS continues to reach out to law enforcement, attorneys, judges, and the public to provide information about the Department and to address questions or concerns raised by these groups. DFS continues to see positive results in the awareness of the use and understanding of forensic science in supporting the criminal justice system from this outreach effort.

Information Technology

DFS continues to make significant investments in various information technology products that are specific to the individual scientific disciplines where they are deployed.

DFS currently has two IT initiatives related to Forensic Advantage (FA), its Laboratory Information Management System (LIMS):

- Upgrade to FA version 18, complete the three remaining FA modules as outlined in the original LIMS project scope, and implement these three modules in the current (2018 – 2020) biennium. These modules will support user agencies' ability to log evidence and submit requests for laboratory examination prior to physical submission of evidence, allow user agencies to manage system access for their employees, and allow DFS to issue electronic CoAs (Certificates of Analysis) to all appropriate entities.
- Grant funding has been received to develop and implement a Physical Evidence Recovery Kit (PERK) tracking system. DFS has contracted with its LIMS vendor for the development of this system, which is underway. Once implemented, the system will track PERKs at each step in the process, including their distribution as uncollected kits to the collection sites (e.g., hospitals) through collection, transfer to law enforcement, submission to the laboratory for analysis, and return to the law enforcement agency for storage. All agencies handling kits will be granted access in order to update the status of each kit, and victims may use the system to check the status and location of their kits. By tracking the status of kits entered into the system, DFS will be able to notify stakeholders when collected kits have not been appropriately submitted for analysis.

Workforce Development

All scientific disciplines have a documented training program that allows for certification of examiners. Once certified, examiners may independently handle evidence, perform analyses, issue reports, and provide testimony in court as required. A development plan for scientists allows them to advance through professional achievement and by gaining new knowledge, skills and abilities.

In addition to the development plan for scientists, DFS has an annual goal to provide eight hours of technical continuing education for each scientist and four hours of continuing education to all non-scientist employees. The Department has also implemented mandatory training annually for all supervisors to help provide its managers with the knowledge and skills they need to effectively manage their employees. Legal training is provided annually to address changes in laws and/or results of legal cases that impact DFS.

Physical Plant

DFS owns, operates and maintains four laboratory facilities (Richmond, Norfolk, Manassas, and Roanoke). At each laboratory facility, DFS provides space (at no cost) to house the Department of Health's Office of the Chief Medical Examiner (OCME). At the Norfolk facility, DFS also provides space (at no cost) to the Norfolk Public Health Department and several other smaller government entities.

DFS is in the process of acquiring land in the greater Richmond area in order to build a new facility that will house DFS's Central Laboratory, Director's Office, and Administrative Sections, as well as the OCME's Central Office and agency operations.

Provision of spaces suitable for the safe handling and analyses of both potentially hazardous chemicals and biohazardous materials differentiates laboratories from other types of facilities. Protecting the health and safety of laboratory and building occupants, as well as the integrity of the submitted evidence are always primary concerns. Comfort while wearing personal protective equipment and energy-efficiency are also of considerable importance.

A typical laboratory currently uses five times as much energy and water per square foot as a typical office building. Energy costs associated with operating DFS facilities have been optimized through the use of two energy performance contracts totaling ~\$14 million in order to reduce energy consumption. These are being paid with the savings achieved through reduced energy consumption. An added benefit of these projects is the extended useful lifetime of some major building heating and cooling systems components.

Forensic laboratories and medical examiner facilities are high energy consumers due to a variety of reasons:

- They contain large numbers of containment and exhaust devices;
- They house a great deal of heat-generating equipment;
- Environmental conditions suitable for scientific analyses must be maintained continuously;
- Instrumentation used to analyze irreplaceable evidentiary material requires fail-safe redundant backup systems and uninterrupted power supply (UPS) or emergency power; and
- Continuous operation of large refrigerated spaces for long and short-term storage of human remains to support morgue operations and the state anatomical program.