

# 2016-18 Strategic Plan

## Department of Forensic Science [778]

### Mission

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.

### Vision

Recognized leader in the field of forensic science

### Values

Commitment to:

- Quality
- Integrity
- Impartiality

### Finance

#### Financial Overview

Approximately 95% of DFS operating expenses are paid with general fund dollars. The remaining 5% are paid from federal grants to support overlapping federal and state initiatives for which state funding is not available. Overall, the DFS budget is allocated in the following manner:

67% Personnel expenses – salaries and fringe benefit costs for all Department employees;

12% Laboratory expenses – all items, other than personnel, directly related to performing scientific analysis such as scientific equipment, gases, chemicals, and other supplies;

13% Facilities expenses – direct costs such as utilities, repairs, service contracts, equipment and supplies for operating and maintaining the laboratory buildings;

6% Administrative expenses – costs such as information technology, office supplies, postage, and other necessary items that are not directly related to scientific analysis; and

2% Travel expenses – primarily costs related to court travel and some mandatory training.

#### Biennial Budget

	2017 General Fund	2017 Nongeneral Fund	2018 General Fund	2018 Nongeneral Fund
Initial Appropriation for the Biennium	43,228,212	2,029,930	43,570,743	2,030,144
Changes to Initial Appropriation	-995,673	0	0	0

*(Changes to Initial Appropriation will be 0 when the plan is created. They will change when the plan is updated mid-biennium.)*

### Customers

#### Anticipated Changes to Customer Base

DFS does not anticipate any changes to its customer base.

#### Current Customer List

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 District, Juvenile & Domestic Relations District, and Combined District Courts (32 districts)	209	209	Stable
Local or Regional Government Authorities	Circuit Courts (31 circuits)	120	120	Stable

## Partners

Name	Description
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## Agency Goals

### • Provide accurate and timely forensic services

#### Summary and Alignment

This goal addresses the scientific analysis and examination of evidentiary materials submitted by law enforcement agencies and others that can result in valuable investigative information. The results of the analysis may also be used as evidence in court proceedings. The timeliness of analysis is important to avoid delayed investigations, continuances of court cases, or even dismissed cases if the speedy trial provisions in §19.2-243 of the Code of Virginia are not met.

#### Associated State Goal

Public Safety: Protect the public's safety and security, ensuring a fair and effective system of justice and providing a prepared response to emergencies and disasters of all kinds.

#### Associated Societal Indicator

Crime

#### Objectives

#### » Provide analyses of controlled substances evidence

##### Description

This objective addresses the timely and accurate scientific analyses and examination of evidentiary materials, submitted by law enforcement and other authorized agencies, to determine the presence or absence of: 1) substances classified as "controlled" by the Commonwealth of Virginia, 2) substances specifically defined in the Code of Virginia as prohibited although not "controlled" (e.g. marijuana), and 3) certain substances which are immediate precursors to controlled substances.

##### Objective Strategies

- Retain and recruit qualified forensic scientists
- Investigate for efficacy, develop, validate, and implement new technologies
- Provide professional development opportunities

##### Measures

- ◆ Average turnaround time for controlled substances cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)

#### » Provide body fluid identification and DNA analyses

##### Description

This objective addresses the timely and accurate scientific analyses and examination of evidentiary materials, submitted by law enforcement and other authorized agencies, to determine the presence or absence of body fluids and conduct DNA analysis. The results of the analysis are compared to reference samples from victims and suspects or searched against a database of DNA profiles from convicted offenders, arrestees and unsolved cases in order to provide investigative information to law enforcement.

##### Objective Strategies

- Retain and recruit qualified forensic scientists
- Investigate for efficacy, develop, validate and implement new technologies

- Provide professional development opportunities

Measures

- ◆ Average Data Bank operational cost per DNA offender sample
- ◆ Average turnaround time for DNA cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)

» **Provide toxicological analyses**

*Description*

This objective addresses the timely and accurate scientific analyses of evidentiary materials, submitted by law enforcement and other authorized agencies, to determine: 1) if a substance submitted contains alcohol, 2) the presence or absence of alcohol or other substances that would impair a person's ability to operate a motor vehicle, 3) the presence or absence of substances in a person's system to assist in police investigations, and 4) the presence or absence of substances in post mortem evidence that may have contributed to a person's death.

*Objective Strategies*

- Retain and recruit qualified forensic scientists and toxicologists
- Investigate for efficacy, develop, validate and implement new technologies
- Provide professional development opportunities

Measures

- ◆ Average turnaround time for toxicology cases that are analyzed and results reported to the requesting authority (Certificate of Analysis issued)

» **Provide firearm and toolmark examinations**

*Description*

This objective addresses the timely and accurate scientific analyses and examination of firearm and toolmark evidence submitted by law enforcement and other authorized agencies. Fired ammunition components are compared to any submitted firearms and/or are searched through the National Integrated Ballistic Information Network (NIBIN) in order to provide investigative information and associations between separate criminal investigations.

*Objective Strategies*

- Retain and recruit qualified forensic scientists
- Investigate for efficacy, develop, validate and implement new technologies
- Provide professional development opportunities

Measures

- ◆ Average turnaround time for firearms and toolmarks cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)

» **Provide latent print and impression examinations**

*Description*

This objective addresses the timely and accurate scientific analyses and examination of latent print and impression evidence submitted by law enforcement and other authorized agencies. Latent prints are compared to any submitted known prints of victims and suspects or searched through state and federal fingerprint databases in order to provide investigative information. Impressions are compared to known exemplars submitted to the laboratory.

*Objective Strategies*

- Retain and recruit qualified forensic scientists
- Investigate for efficacy, develop, validate and implement new technologies
- Provide professional development opportunities

Measures

- ◆ Average turnaround time for latent prints and impressions cases that are analyzed and the results reported to the requesting authority (Certificate of Analysis issued)

## » Provide analyses of trace evidence

### *Description*

This objective addresses the timely and accurate scientific analyses and examination of evidentiary materials, submitted by law enforcement and other authorized agencies, including the analyses of explosives, fire debris, general chemical, glass, hairs/fibers, paint, primer residue, and vehicle lamp examinations.

### *Objective Strategies*

- Retain and recruit qualified forensic scientists
- Investigate for efficacy, develop, validate, and implement new technologies
- Provide professional development opportunities

### *Measures*

## » Provide digital and multimedia evidence examinations

### *Description*

This objective addresses the timely and accurate scientific analyses and examination of digital and multimedia evidence submitted by law enforcement and other authorized agencies. Electronic equipment, such as mobile phones, computers and video recorders, are examined with specific files and information provided to investigating agencies.

### *Objective Strategies*

- Retain and recruit qualified forensic scientists
- Investigate for efficacy, develop, validate, and implement new technologies
- Provide professional development opportunities

### *Measures*

## • Provide unbiased testimony in court proceedings

### **Summary and Alignment**

This goal addresses DFS examiners and technical personnel conveying the results of analyses and examinations through clear, objective, balanced, and easily understood reports, consultations and testimony. This goal directly supports the DFS mission of supporting the criminal justice system.

### **Associated State Goal**

Public Safety: Protect the public's safety and security, ensuring a fair and effective system of justice and providing a prepared response to emergencies and disasters of all kinds.

### **Associated Societal Indicator**

Crime

### **Objectives**

## • Advance the understanding of forensic science

### **Summary and Alignment**

This goal addresses the training provided by DFS to law enforcement officers, attorneys, judges, first responders, sexual assault nurse examiners, forensic nurse examiners, medical examiners, and students of forensic science. The training provided by DFS facilitates the ability of law enforcement to properly locate, recognize, document, collect, preserve, package, and submit physical evidence for analysis, as well as conduct breath alcohol testing. DFS training also facilitates the ability of first responders and medical personnel to properly recognize, collect, and preserve biological evidence. By facilitating this knowledge, the quality of objective evidence from which to determine guilt or innocence of criminal suspects is enhanced. This goal directly aligns with the DFS mission of advancing the understanding of forensic science.

### **Associated State Goal**

Public Safety: Protect the public's safety and security, ensuring a fair and effective system of justice and providing a prepared response to emergencies and disasters of all kinds.

### **Associated Societal Indicator**

Crime

### **Objectives**

## » Provide crime scene processing and evidence handling training to law enforcement personnel

### Description

This objective addresses the Forensic Training Section's training of law enforcement personnel as crime scene investigators, which includes the Forensic Science Academy. Consistent approach by state and local law enforcement agencies to the collection and preservation of physical evidence enhances the ability of the Department of Forensic Science to provide optimal scientific support services to the criminal justice system.

### Objective Strategies

- Evaluate and prioritize training courses when developing the annual training plan
- Select students for upcoming Academy sessions six to nine months in advance whenever possible
- Survey law enforcement agencies on their training needs

### Measures

- ◆ Percentage of agencies with active, eligible Forensic Science Academy applicants served during the year

## • Recruit, train, develop and retain qualified scientific staff

### Summary and Alignment

This goal addresses the recruitment, training, development and retention of qualified scientific staff. The Department supports continuing education to maintain skills and expertise of personnel by providing training and access to literature, and encouraging personnel to continually develop and enhance relevant knowledge, skills and abilities.

### Associated State Goal

Public Safety: Protect the public's safety and security, ensuring a fair and effective system of justice and providing a prepared response to emergencies and disasters of all kinds.

### Objectives

## » Recruit and train scientific staff

### Description

This objective addresses the ability of the Department to attract, hire and train scientific staff members to be qualified examiners in their respective disciplines. Forensic Scientist Trainee programs in Forensic Biology, Controlled Substances, and Toxicology Sections average 10 to 12 months for completion. At the conclusion of a training program, trainees will have demonstrated their ability to perform quality analysis and will be promoted from a trainee to a qualified forensic scientist. When an examiner previously qualified by another laboratory comes to DFS, the training period is reduced based on the knowledge of that individual. At a minimum, they are trained in DFS' protocols and practices and must demonstrate their ability to perform quality analysis in compliance with Department protocols and to provide expert testimony on the results of their analysis before they become a DFS qualified forensic scientist and are allowed to perform casework.

### Objective Strategies

- Investigate and develop recruitment and training program management and tracking mechanisms

### Measures

- ◆ Average time to train new forensic scientists in the Forensic Biology, Controlled Substances, and Toxicology Sections

## • Provide exemplary fiscal accountability and transparency of financial data and transactions

### Summary and Alignment

This goal directly supports meeting the agency's fiduciary responsibility when using state and federal funds and resources, as well as ensuring DFS is able to fulfill its mission. The goal deals with developing and maintaining appropriate human resources, following responsible procurement and sound financial management practices, and using technology prudently, all in support of the specific processes for carrying out the Department's mission.

### Associated State Goal

Government and Citizens: Be recognized as the best-managed state in the nation.

### Associated Societal Indicator

Government Operations

### Objectives

• **Provide criminal justice support for enforcement of traffic safety laws, specifically Driving Under the Influence (DUI) cases**

**Summary and Alignment**

This goal addresses the training of law enforcement personnel to operate evidential breath alcohol instruments. The availability of licensed operators is important for the enforcement of traffic safety laws. Sufficient licensed operators are necessary to avoid delayed investigations in DUI cases, continuances of those court cases, or even dismissed cases if licensed operators are not available.

**Associated State Goal**

Public Safety: Protect the public's safety and security, ensuring a fair and effective system of justice and providing a prepared response to emergencies and disasters of all kinds.

**Associated Societal Indicator**

Traffic Fatalities

**Objectives**

» **Provide training on the operation of evidential breath alcohol instruments to law enforcement**

*Description*

This objective addresses the Breath Alcohol Section's training of law enforcement personnel in the operation of evidential breath alcohol instruments.

*Objective Strategies*

- Retain and recruit qualified forensic scientists to maintain breath alcohol instruments and train law enforcement
- Provide sufficient training opportunities for new and licensed breath alcohol operators
- Investigate new strategies to provide training

*Measures*

- ◆ Number of new and renewing breath alcohol operators trained and licensed

## 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' 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 testing program in accordance with Article 1.1 (§ 19.2-310.2 et seq.) of Chapter 18 of Title 19. DFS analyses each sample of blood, saliva or tissue taken for DNA (deoxyribonucleic acid) to determine identification characteristics specific to the person. DFS also provides the most current information submitted to the DataBank, on a weekly basis, to the Local Inmate Data System (LIDS), including removal of persons no longer eligible to be in the DataBank.

## 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.

As of June 30, 2016, customers were waiting an average of 16 to 76 days longer than DFS's stated TAT goals, which is between 36% and 157% longer than the specified goals. Short term goals have been re-established so that improvements can be measured from current baselines. Some

long term goals also have been re-established in order to reflect what can be reasonably expected given anticipated resources and case submissions.

DFS was not able to meet its TAT goals during the previous biennium due to a combination of factors beyond the agency's control. DFS has received funding for additional scientific personnel in order to address the unacceptably high TATs and expects significant improvements during this biennium as a result. However, while these individuals are being hired and trained, delayed TATs for several disciplines are expected to continue before they ultimately improve.

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 Toxicology Section is also receiving more requests from the OCME in order to support their Agency's mission. 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.

## Staffing

Authorized Maximum Employment Level (MEL)	318
Salaried Employees	290
Wage Employees	23
Contracted Employees	0

## 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:

Statewide budget reductions had a significant impact on DFS staffing levels. In FY08, DFS had an average of ~295 classified employees. In FY10, the average number of classified employees was reduced to ~270 as a result of the various budget cuts. Since that time, due to a combination of fewer scientists and increases in the numbers and types of certain cases being received by DFS, TATs have reached unacceptably high levels. Therefore, despite additional reductions, DFS received new funding to fill specific scientific positions. The net result of the funding changes is that, as of April 2017, DFS has 291 filled classified positions.

### Hiring and Training:

As of April 2017, approximately 7% of DFS' 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 developed in conjunction with the Department of Human Resource Management, which rewards and encourages staff development.

Approximately 5% 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.

## 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 is expanding 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 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 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 three IT initiatives related to Forensic Advantage (FA), its Laboratory Information Management System (LIMS):

- Upgrade to FA version 16.2, complete the three remaining FA modules as outlined in the original LIMS project scope, and implement these three modules in the current (2016 – 2018) biennium. These modules will support user agencies' ability to log evidence and submit requests for laboratory information 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 procure a mechanism that will provide electronic toxicology results from DFS to the Office of the Chief Medical Examiner (OCME). This will be developed by the current LIMS vendor to provide an electronic file that the OCME can import into their computer system. The ability for this to be developed and implemented is only possible once the final modules described above have been implemented. This interface will reduce or eliminate transcription errors possible in the current process and will allow for a faster flow of data from the OCME to the Department of Motor Vehicles (DMV) on fatal motor vehicle crashes.
- 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 of the analysis 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.

### **Estimate of Technology Funding Needs**

#### **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. Each plan also has defined knowledge, skills and abilities that must be demonstrated in order to advance. Every scientist is evaluated annually against the criteria in this plan.

In addition to the development plans for each of the scientific disciplines, 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.

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
- Continuous operation of large refrigerated spaces for long and short-term storage of human remains to support morgue operations and the state anatomical program

**Supporting Documents**

**Title**

**File Type**

**Biological Analysis Services [30901]****Description of this Program / Service Area**

This service area consists of the Forensic Biology Section, the Mitochondrial DNA Section, and the DNA Data Bank Section. The Forensic Biology and Mitochondrial DNA Sections perform scientific analysis and examination of evidence as requested by state and local law enforcement agencies, medical examiners, and prosecutors, and as ordered by a court upon request of the defense. This includes laboratory examination, reporting the results, and, as required, providing testimony in courts of law. The DNA Data Bank Section maintains a DNA Data Bank as required by the Code of Virginia.

**Mission Alignment**

This service area directly supports the Department's mission of providing laboratory services, supporting the criminal justice system, and advancing the understanding of forensic science through its products and services.

§ 9.1-1101. Powers and duties of the Department

§ 9.1-903. Registration procedures

§ 19.2-11.8. Submission of physical evidence recovery kits to the Department

§ 19.2-11.10. Expungement of DNA profile

§ 19.2-270.5. DNA profile admissible in criminal proceeding

§ 19.2-310.2. Blood, saliva, or tissue sample required for DNA analysis upon conviction of certain crimes; fee

§ 19.2-310.2:1. Saliva or tissue sample required for DNA analysis after arrest for a violent felony

§ 19.2-310.3. Procedures for withdrawal of blood, saliva or tissue sample for DNA analysis

§ 19.2-310.3:1. Procedures for taking saliva or tissue sample for DNA analysis

§ 19.2-310.4. Procedures for conducting DNA analysis of blood, saliva or tissue sample

§ 19.2-310.5. DNA data bank

§ 19.2-310.6. Unauthorized uses of DNA data bank; forensic samples; penalties

§ 19.2-310.7. Expungement when DNA taken for a conviction

§ 19.2-327.1. Motion by a convicted felon or person adjudicated delinquent for scientific analysis of newly discovered or previously untested scientific evidence; procedure

**Products and Services****Description of Major Products and Services**

The Forensic Biology Section performs scientific analysis and examination of submitted evidence to determine the presence or absence of body fluids and conduct DNA analysis. The results of the analyses are compared to reference samples from victims and suspects or searched against a database of DNA profiles from convicted offenders, arrestees and unsolved cases in order to provide investigative information to law enforcement. This Section also provides specialized DNA testing, which includes Y-STR analysis and familial DNA searching.

The Mitochondrial DNA Section performs scientific analysis and examination of submitted evidence, often human skeletal remains. The results of the analysis are compared to reference samples or searched in DNA databases in an attempt to identify the deceased individual.

The Forensic Biology and Mitochondrial DNA Sections both provide the following products and services:

- Issue Certificates of Analysis (the results of examination and scientific analysis, including advanced statistical testing) and provide explanation of the examinations/analyses and the results when requested
- Provide expert witness testimony in courts of law in addition to pre-trial consultations with attorneys for the Commonwealth and the defense
- Train medical personnel, law enforcement, attorneys, etc. in the recognition, collection and preservation of biological evidence and the use of forensic results in investigations and trials

Develop and maintain evidence collection resources (e.g. victim physical evidence recovery kits (PERKs), suspect PERKs, and buccal DNA collection kits) for distribution to law enforcement and medical facilities.

The DNA Data Bank Section maintains a DNA Data Bank as required by the Code of Virginia, which includes conducting DNA analysis of samples

from convicted offenders and certain arrestees for inclusion in state and national databases.

### **Anticipated Changes**

The Forensic Biology Section is in the process of developing and validating a streamlined method for testing evidence from sexual assault cases. The method, which will include testing of samples for male DNA followed by extraction and testing of the DNA with robotics, will replace the current labor intensive process of identifying spermatozoa through microscopy and testing for seminal fluid through chemical methods. This will further establish a sustainable, automated and streamlined process to build internal capacity to test more sexual assault cases in a timely fashion.

Computer programs that calculate statistics for DNA mixtures will continue to be evaluated for potential implementation. These statistical calculations will be required on more samples giving the customers an indication of how common or rare a DNA profile would be expected to be found in the population.

### **Factors Impacting**

DFS has a grant funded contract with a private laboratory for the outsourced testing of PERKs identified through an inventory conducted in 2015 of unsubmitted PERKs still in the custody of law enforcement (kits collected but not submitted prior to July 1, 2014). The grant also funds overtime for DFS employees to conduct the technical review of the private laboratory's data, upload eligible profiles to the Data Bank for searching, and issue any resulting hit reports. A second grant has been obtained to pay for the outsourced testing of unsubmitted kits (kits collected but not submitted between July 1, 2014 and June 30, 2016). The use of overtime by staff with these grant funds may prevent the use of overtime to assist with the timely completion of regular casework.

Legislative changes, which went into effect July 1, 2016, mandate the submission of evidence from sexual assault cases for DNA analysis, with limited exceptions. This is expected to result in an approximately 10% increase in overall case submissions to the Forensic Biology Section. The analyses of evidence from sexual assault cases often involve complex mixtures of DNA that require more time-consuming statistical calculations. DFS has received funding for six additional forensic scientists in the Forensic Biology Section to address these anticipated increases.

In accordance with federal requirements, in May 2017, the Forensic Biology Section implemented new DNA typing chemistries that increase the number of areas of DNA tested from 16 to 24, which typically allows for greater discrimination for sample comparisons. However, more areas of DNA tested will also require more time to interpret and review the data.

The Virginia State Crime Commission announced that in 2017 it plans to study "DNA Databank: Expansion of Misdemeanor Crimes". An increase in the misdemeanor offenses with Data Bank eligibility will result in additional costs for laboratory supplies and may require additional instrumentation and personnel.

### **Financial Overview**

This service area receives the majority of the federal funds obtained by the agency. Therefore, only 80 to 85 percent of the operating expenses for this service area are paid with general fund dollars. The remaining expenses are funded with federal grants that support overlapping federal and state initiatives for which state funding is not available.

#### Biennial Budget

	<b>2017 General Fund</b>	<b>2017 Nongeneral Fund</b>	<b>2018 General Fund</b>	<b>2018 Nongeneral Fund</b>
Initial Appropriation for the Biennium	11,132,455	1,747,130	11,153,362	1,747,130
Changes to Initial Appropriation	-157,152	0	0	0

### **Supporting Documents**

**Title** **File Type**

**Chemical Analysis Services [30902]****Description of this Program / Service Area**

This service area consists of the Controlled Substances Section and the Trace Evidence Section. These sections perform scientific analysis and examination of evidence as requested by state and local law enforcement agencies, medical examiners, and prosecutors, and as ordered by a court upon request of the defense. This includes laboratory examination, reporting the results, and, as required, providing testimony in courts of law.

**Mission Alignment**

This service area directly supports the Department's mission of providing laboratory services, supporting the criminal justice system, and advancing the understanding of forensic science through its products and services.

§ 9.1-1101. Powers and duties of the Department

§ 19.2-188.1. Testimony regarding identification of controlled substances

**Products and Services****Description of Major Products and Services**

The Controlled Substances Section provides scientific analysis and examination of submitted evidence to determine the presence or absence of:

- substances classified as “controlled” by the Commonwealth of Virginia;
- substances specifically defined in the Code of Virginia as prohibited although not “controlled” (e.g. marijuana); and
- certain substances which are immediate precursors to controlled substances.

The Trace Evidence Section provides the following scientific analysis and examination services:

- Explosives analysis – to the extent possible, a determination of construction, ignition/detonation source, origin of materials and the function of the device is made
- Fibers analysis – the examination of evidence submitted for fiber identification and/or comparison to known items
- Fire debris analysis – the examination of evidence for the presence or absence of ignitable liquids
- General chemical analysis – the physical and/or chemical analysis of unknown materials for identification and comparison purposes
- Glass analysis – the comparison of the physical and/or optical properties of known and questioned glass sources
- Hair screening – the microscopic examination of hairs to determine whether they originated from a human and, if so, whether they are suitable for nuclear DNA testing
- Paint analysis – the microscopic examination of paint evidence for color, texture, and layer structure in order to ascertain probable origin
- Primer residue – the analysis of evidence submitted to determine if an individual had primer (gunshot) residue on their hands
- Vehicle lamps analysis – the examination of evidence submitted to determine if the lamp was “on” or “off”, which may indicate if a vehicle that was in an accident had their lights on

The Trace Evidence section also develops and maintains primer (gunshot) residue evidence collection resources for distribution to law enforcement.

Both the Controlled Substances and Trace Evidence Sections also provide the following products and services:

- Issue Certificates of Analysis (the results of scientific analysis and examination) and provide explanation of analyses/examinations and the results when requested
- Provide expert witness testimony in courts of law in addition to pre-trial consultations with attorneys for the Commonwealth and defense
- Train law enforcement, attorneys, etc., in the recognition, collection, preservation, and handling of evidence and the use of forensic results in their investigations, and trials

**Anticipated Changes**

DFS anticipates that submissions containing novel research chemicals, synthetic opioids, and cannabimimetic agents will continue to impact Controlled Substances Examiners statewide.

The Trace Evidence Section will begin offering an additional service, spring of 2017, to assist in clandestine laboratory investigations. This new service will allow identification of lithium, an ingredient commonly used in the production of methamphetamine.

### **Factors Impacting**

Clandestine laboratory submissions have recently indicated a slight decline from 2015/2016 levels; however, DFS continues to receive approximately 12 clandestine laboratory cases per month.

Since 2015, submission of cannabimimetic agents, synthetic opioids and research chemicals has remained steady and continues to require additional analysis time to process and identify closely related compounds. In addition, examiners must determine whether these new compounds are scheduled via structural class, analogues, or the Board of Pharmacy expedited process. In response to the increasingly lethal synthetic opioids that are being submitted to the laboratory, DFS has implemented expanded environmental controls, personal protective equipment and safety training for examiners. These additional safety precautions add time to the analytical process.

### **Financial Overview**

This service area is funded almost entirely through the general fund. A limited amount of federal funding has been obtained by the agency to use for continuing education in all of the service areas.

#### Biennial Budget

	<b>2017 General Fund</b>	<b>2017 Nongeneral Fund</b>	<b>2018 General Fund</b>	<b>2018 Nongeneral Fund</b>
Initial Appropriation for the Biennium	13,488,683	55,300	14,043,669	55,300
Changes to Initial Appropriation	-339,898	0	-5,804,479	-55,300

### **Supporting Documents**

**Title** **File Type**

**Toxicology Services [30903]****Description of this Program / Service Area**

This service area consists of the Toxicology and Breath Alcohol Sections. These Sections provide scientific support to the criminal justice system for crimes where alcohol use may be implicated. The Toxicology Section also provides scientific analysis and examination of evidence as requested by state and local law enforcement agencies, medical examiners, and prosecutors, and, as ordered by a court upon request of the defense. This includes laboratory examination, reporting the results, and, as required, providing testimony in courts of law.

**Mission Alignment**

This service area directly supports the Department's mission of providing laboratory services, supporting the criminal justice system, and advancing the understanding of forensic science through its products and services.

§ 9.1-1101. Powers and duties of the Department

§ 18.2-267. Preliminary analysis of breath to determine alcoholic content of blood

§ 18.2-268.1. Chemical testing to determine alcohol or drug content of blood; definitions

§ 18.2-268.2. Implied consent to post-arrest testing to determine drug or alcohol content of blood

§ 18.2-268.6. Transmission of blood samples

§ 18.2-268.7. Transmission of blood test samples; use as evidence

§ 18.2-268.9. Assurance of breath-test validity; use of breath-test results as evidence

§ 18.2-268.10. Evidence of violation of driving under the influence offenses

§ 18.2-269. Presumptions from alcohol or drug content of blood

**Products and Services****Description of Major Products and Services**

The Toxicology Section analyzes body fluids and tissues for the presence and concentrations of alcohol, drugs, and other potential poisons. Support is provided to Medical Examiners to assist in determining cause and manner of death, and to law enforcement agencies investigating crimes where alcohol and/or drug use may be indicated, such as DUI/DUID and drug facilitated sexual assaults.

Other products and services provided by the Toxicology Section include:

- Issuing certificates of analysis (the results of scientific analysis and examination) and explaining the results and examination process when requested
- Providing expert witness testimony in courts of law and pre-trial consultations with attorneys for the Commonwealth and the defense
- Developing and maintaining evidence collections kits for distribution to law enforcement and medical examiners

The Breath Alcohol Section ensures that statewide quality assurance and operational standards are followed by the Commonwealth's law enforcement agencies when administering breath alcohol tests. This section provides the following products and services:

- Breath test instruments including maintenance, repair, supplies, and certification for accuracy
- Training and licensing of breath test instrument operators for the evidential breath analysis to determine the alcohol content of blood
- Expert witness testimony in courts of law and pre-trial consultations with attorneys for the Commonwealth and the defense
- Processing Subpoenas Duces Tecum and Freedom of Information Act (FOIA) requests for records of breath tests and instrumentation
- Web access to breath test records, instrument records, operator records and statistical reports
- Training attorneys and law enforcement personnel in the proper use of breath alcohol instruments and the meaning/significance of breath alcohol test results in trials

**Anticipated Changes**

DFS will offer web-based training opportunities for a limited number of breath alcohol operators that are currently active and have completed a

minimum number of tests.

The current breath testing instrument, Intox EC/IR II, utilized in Virginia has been in service for approximately nine years. DFS will need to either upgrade or replace these instruments within a few years. If the instruments are replaced, Breath Alcohol Section staff will need to dedicate extensive time and effort in training and licensing over 6,000 breath alcohol test operators.

### **Factors Impacting**

Since 2014, there has been an increase in the distribution and usage of heroin, fentanyl, and fentanyl analogs. The increase in overdose cases related to these compounds significantly increases the workload on the Toxicology Section due to the complexity of analysis for novel fentanyl analogs and other synthetic opioids.

In FY17, the Department received funding for six new Toxicology Forensic Scientists, which have been filled and are currently in training. The full implementation of these new positions will have a positive impact on reducing case turnaround times (TAT) and meeting new or expanded requests from the OCME.

DFS has also added a research scientist position to assist in the development and validation of new toxicology methods. This position will help to reduce the time required to develop new methods and further streamline processes in the Toxicology Section.

### **Financial Overview**

The Toxicology and Breath Alcohol Sections have traditionally been funded almost entirely through the general fund. After the loss of general funds to pay for lodging and per diem expenses of law enforcement officers attending Breath Alcohol operator training, DFS applied for and received grant funding through the Virginia Department of Motor Vehicles (DMV) to cover those costs. The Breath Alcohol Section has also been awarded grant funds through DMV to cover the cost of additional personnel, and upgrades to the Forensic Advantage Breath Alcohol Database in order to provide online access to instrument and operator records. As of FY17, grant funds through DMV have been expanded to cover the cost of four new part-time Forensic Laboratory Specialists in Toxicology. This grant funding is contingent upon yearly availability and approval of funds by the Virginia DMV.

#### Biennial Budget

	<b>2017 General Fund</b>	<b>2017 Nongeneral Fund</b>	<b>2018 General Fund</b>	<b>2018 Nongeneral Fund</b>
Initial Appropriation for the Biennium	0	0	0	0
Changes to Initial Appropriation	0	0	6,822,248	220,000

### **Supporting Documents**

**Title** **File Type**

## Physical Evidence Services [30904]

### Description of this Program / Service Area

This service area consists of the Digital & Multimedia Section, Firearms & Toolmarks Section, and Latent Prints & Impressions Section. These sections perform scientific analysis and examination of evidence as requested by state and local law enforcement agencies, medical examiners, and prosecutors, and as ordered by a court upon request of the defense. This includes laboratory examination, reporting the results, and, as required, providing testimony in courts of law.

### Mission Alignment

This service area directly supports the Department's mission of providing laboratory services, supporting the criminal justice system, and advancing the understanding of forensic science through its products and services.

§ 9.1-1101. Powers and duties of the Department

### Products and Services

#### Description of Major Products and Services

The Digital & Multimedia Evidence (DME) Section provides forensic services encompassing the preservation, acquisition, processing and analysis of evidence in an analog or digital format.

- Computer analysis – the examination and analysis of electronic information stored on a wide variety of computer, mobile and digital storage devices. This includes using advanced methods to acquire information from damaged and/or secured devices.
- Video analysis – the examination, repair (if applicable) and clarification of analog or digital video recordings for the purpose of improving the visual appearance of specific features within the video or the overall video recording.

The Firearms & Toolmarks Section provides scientific analysis and examination of firearms, ammunition, ammunition components, tools, and toolmarks.

- Firearm analysis – the examination of firearms for operability, physical characteristics, manufacturer, model, and serial number.
- Serial number restoration – the restoration of damaged or obliterated serial numbers for firearms tracing.
- Ammunition and ammunition components analysis – the examination of markings on cartridges or shotshell cases to determine if they were fired from a single weapon or multiple weapons, or if they were fired from a specific firearm when submitted; this may include amicroscopic comparison of ammunition components in an attempt to associate a particular firearm as having fired the components.
- Distance determination – the examination of clothing or other materials for the presence of burnt, partially burnt and un-burnt gunpowder, vaporous lead and particulate metals in order to determine the approximate distance the muzzle of a firearm was from an object at the time of firing.
- National Integrated Ballistics Information Network (NIBIN) – the entry and database searching of digital images of the markings on cartridges and shotshell cases recovered from crime scenes or test fires obtained from submitted firearms to potentially link different crimes together.
- Tool and toolmark analysis – the determination of the source of a toolmark.

The Latent Prints & Impressions Section performs scientific analysis and examination of fingerprints, palm prints, and shoe and tire impressions.

- Latent print analysis – the development and recovery of latent prints from items of evidence, comparison of the latent prints to known exemplars and database searches for potential latent print matches.
- Automated Fingerprint Identification Systems (AFIS) – the entry and database searching of latent prints. Where identification cannot be effected, the latent print may be registered in the unsolved latent database.
- Shoe and tire impressions analysis – the comparison of impressions from crime scenes to known exemplars in order to determine if sufficient individual characteristics are present for a positive identification between the source and impression to be made.

All three sections in this service area also provide the following products and services:

- Issue Certificates of Analysis (the results of examination and scientific analysis) and provide explanation of the examinations/analyses and the results when requested

- Provide expert witness testimony in courts of law in addition to pre-trial consultations with attorneys for the Commonwealth and the defense
- Train law enforcement, attorneys, etc., in the recognition, collection, preservation, and handling of evidence and the use of forensic results in their investigations and trials

**Anticipated Changes**

DFS does not anticipate any changes to the products or services provided by this service area.

**Factors Impacting**

The DME Section only has five full-time classified employees, which limits the volume of casework that can be completed. The hardware and software submitted as evidence to this section are continuously changing, requiring constant upgrades to the tools and technology used for analysis, as well as, the need for updated education and training of the DME examiners. Finally, this section has a large backlog of cases but current case submissions equal the current capacity resulting in long turnaround times of submitted evidence.

The focus on criminal activity involving firearms has resulted in a significant increase of case submissions to the Firearms and Toolmarks section and a corresponding increase in the case turnaround times. A majority of the additional cases are limited to NIBIN entry. DFS was able to obtain a small amount of one-time grant funding, and both one-time and ongoing general funds, to purchase NIBIN equipment in order to have sufficient capacity for these cases at all four laboratories. DFS also obtained on-going general funds for the addition of scientific personnel in order to allow for timely investigative results to be delivered to law enforcement agencies.

**Financial Overview**

This service area is funded almost entirely through the general fund. A limited amount of federal funding has been obtained by the agency to use for continuing education of staff in each of the disciplines covered by this service area.

Biennial Budget

	<b>2017 General Fund</b>	<b>2017 Nongeneral Fund</b>	<b>2018 General Fund</b>	<b>2018 Nongeneral Fund</b>
Initial Appropriation for the Biennium	8,946,432	58,599	8,697,251	58,599
Changes to Initial Appropriation	-200,609	0	0	0

**Supporting Documents**

**Title** **File Type**

**Training Services [30905]**

**Description of this Program / Service Area**

This service area consists of the Forensic Training Section, which operates the Forensic Science Academy and offers various short courses aimed at teaching law enforcement personnel about the various services offered by the Department and how to properly locate, recognize, document, collect and submit crime scene evidence in a manner that preserves it for future forensic analyses. By combining crime scene techniques and laboratory capabilities, law enforcement personnel are not only able to properly identify and handle evidence from crime scenes, they are able to limit initial evidence submissions to the most probative evidence resulting in more efficient and effective operations.

**Mission Alignment**

This service area directly supports the Department's mission of providing laboratory services, supporting the criminal justice system, and advancing the understanding of forensic science through its products and services.

§ 9.1-1101. Powers and duties of the Department

§ 9.1-1103. Forensic Science Academy

**Products and Services**

**Description of Major Products and Services**

The Forensic Training Section provides on-going training of law enforcement personnel in crime scene processing and evidence handling. Consistent approach by state and local law enforcement agencies in the collection and preservation of physical evidence enhances the ability of the Department to provide optimal scientific support services to the criminal justice system. Law enforcement personnel receive training in the recognition, documentation, collection, preservation, and handling of physical evidence through:

- The Forensic Science Academy (FSA), a nine-week program providing classroom instruction by forensic experts, evidence collection demonstrations, and numerous practical exercises in simulated crime scenes
- Continuing education for the FSA alumni
- Short courses and workshops addressing current trends, as well as, providing basic and advanced technical instruction

**Anticipated Changes**

Currently, there are no anticipated changes in this service area.

**Factors Impacting**

This service area only has three full-time classified employees, which limits the number of Forensic Science Academy sessions and short courses that can be offered each year. A one-time grant was received in FY17 that has allowed DFS to purchase training equipment and to hire a temporary part-time trainer for this section. The grant funds are allowing for the addition of a third Forensic Science Academy session in CY 2017 without reducing or negatively affecting the number of short courses offered. The additional session will result in a 22% increase in the number of agencies served that had active, eligible candidates for the Forensic Science Academy in CY17.

**Financial Overview**

This service area has traditionally been funded exclusively by the general fund, which limits staffing and the number of training opportunities that can be offered. Limited general funds also mean that no financial assistance is available for Forensic Science Academy students, who must rely on their agencies to fund the nine weeks of travel, lodging, and per diem expenses.

Biennial Budget

	2017 General Fund	2017 Nongeneral Fund	2018 General Fund	2018 Nongeneral Fund
Initial Appropriation for the Biennium	1,690,791	164,700	1,690,791	164,700
Changes to Initial Appropriation	-84,810	0	-1,017,769	-164,700

**Supporting Documents**

**Title** **File Type**



## Administrative Services [30906]

### Description of this Program / Service Area

This service area provides the overall direction and management of the agency. It also provides all support services to the agency such as lab safety, facility operation and maintenance, information technology, legal resources, human resources, grant administration, purchasing, accounts payable, financial reporting and budgeting.

### Mission Alignment

This service area directly aligns with DFS' mission by providing overall management and direction of the Department and the support necessary to accomplish its objectives.

§ 9.1-1100. Department of Forensic Science created; Director

§ 9.1-1101. Powers and duties of the Department

### Products and Services

#### Description of Major Products and Services

Agency Management and Direction - responsible for strategic planning, continuity of operations planning, agency funding, budgeting / resource allocation, and policy alignment; coordinate and process responses to subpoenas duces tecum, discovery motions, and FOIA requests; provide legal advice to the agency, as well as, training and guidance to agency staff, attorneys, judges, medical examiners, legislators, and law enforcement; and provide administrative support and resources for the Forensic Science Board and the Scientific Advisory Committee.

Facility Management – responsible for the operation, maintenance, and security of the four laboratory buildings which house DFS operations, Office of the Chief Medical Examiner operations, and certain other programs of the Department of Health; and oversee and manage routine construction or renovation performed within a DFS facility, including working with the Department of General Services (DGS) to obtain all necessary permits and approvals.

Human Resources – ensure agency compliance with Federal and State employment laws, as well as policies issued by the Department of Human Resource Management (DHRM); and assist agency personnel in the areas of: recruitment, employee benefits, employee relations, performance management training and administration.

Procurement Services – procure goods and services in support of the agency's mission while ensuring agency compliance with applicable procurement laws and regulations; administer the Small Purchase Charge Card (SPCC) program; develop and administer the agency's SWaM Plan to maximize usage of small, women and minority owned businesses; serve as Agency Security Officer for the State's Procurement System (eVA) and train agency personnel on the proper and efficient use of eVA; oversee surplus property disposal for the agency; and perform Transportation Officer duties in accordance with Fleet Management guidelines.

Information Technology – ensure agency compliance with all state, federal, and agency specific information technology laws and regulations, as well as related policies and procedures; serve as agency liaison with the Virginia Information Technology Agency (VITA) and the IT Partnership; provide application support for agency specific applications; provide hardware, software, and firmware support for assets specifically used for scientific analysis and examination; and manage computer security.

Financial Management – perform accounts payable and accounts receivable duties in compliance with the Commonwealth Accounting Policies and Procedures (CAPP) Manual; certify the accuracy of all agency payrolls; perform Security Officer duties for central agency systems; ensure proper internal controls are in place, documented, and functioning as intended in order to protect Commonwealth assets; ensure all assets and liabilities are properly recorded in the Commonwealth's financial statements; prepare and submit monthly and annual financial reports; develop and monitor agency budgets; prepare and submit decision packages to DPB; and monitor and report capital outlay expenses and prepare necessary capital outlay progress forms and reports for DGS.

#### Anticipated Changes

DFS does not anticipate any changes to the products or services provided by this service area.

#### Factors Impacting

There are numerous state and federal entities that promulgate laws, regulations, policies, procedures, and reporting requirements that DFS must follow. There are also numerous entities that perform audits or reviews of our operations to ensure that we are complying with each of these mandates.

### Financial Overview

This service area is funded almost entirely through the general fund.

Biennial Budget

	<b>2017 General Fund</b>	<b>2017 Nongeneral Fund</b>	<b>2018 General Fund</b>	<b>2018 Nongeneral Fund</b>
Initial Appropriation for the Biennium	7,969,851	4,201	7,985,670	4,415
Changes to Initial Appropriation	-213,204	0	0	0

**Supporting Documents**

**Title** **File Type**