



FY 2015 PERFORMANCE PLAN

Department of Forensic Sciences

MISSION

The mission of the Department of Forensic Sciences (DFS) is to produce high quality, timely, accurate, and reliable forensic science with the use of the best available technology and practices, unbiased science, and transparency with the overall goal of enhancing public health and safety.

SUMMARY OF SERVICES

DFS provides independent analysis of evidence and samples submitted by agencies within the District of Columbia and its federal neighbors. The Forensic Science Laboratory Division analyzes evidence submitted from criminal cases, including DNA, fingerprints, firearms, materials, and digital evidence. The DFS also provides expert witness testimony in defense of their analytical reports in the District's courts of law. The Public Health Laboratory Division provides diagnostic and analytical testing for biological pathogens and chemical agents from clinical, environmental, or food sources and provides emergency response testing. The Crime Scene Sciences Division provides the collection, analysis, processing, and preservation of evidence found at crime scenes in the District. The DFS Directorate supports the work of the entire agency through strategic direction, training, quality assurance, research, recruitment and hiring of personnel, information technology, data management, fleet management, procurement, and other administrative support services. The Scientific Advisory Board provides guidance by providing peer review to ensure that scientifically valid protocols are developed, followed, and updated.

PERFORMANCE PLAN DIVISIONS

- Forensic Science Laboratory Division
- Public Health Laboratory Division
- Crime Scene Sciences Division
- Directorate Operations & Agency Management
- Science Advisory Board



AGENCY WORKLOAD MEASURES

Measure ¹	FY 2012 Actual	FY 2013 Actual ²	FY 2014 YTD ³
FSL Cases submitted⁴	8173	6130	2638
Digital Evidence	n/a	n/a	n/a
DNA	330	655	261
Fingerprints	5726	3218	1252
Firearms ⁵	2117	1137	297
Test fires ³	Unk	1775	828
Materials Analysis	n/a	n/a	n/a
FSL Database entries			
DNA	n/a	74	48
Fingerprints	n/a	215	325
Firearms	n/a	138	1205
FSL Database hits			
DNA	n/a	60	110
Fingerprints	n/a	97	122
Firearms	n/a	16	60
PHL Samples submitted	531	2775	4177
PHL Tests conducted	948	2887	3593
Immunology/Virology	217	1524	844
Clinical chemistry	0	0	1
Microbiology	370	711	1423
Molecular biology	361	652	1325
CSS Scenes processed	n/a	n/a	215
CSS Items processed	n/a	n/a	1016
CSS Autopsies processed	n/a	n/a	185
CSS Vehicles processed	n/a	n/a	117
DFS Requests for information (FOIA)	0	1	3

¹ Hours spent in pre-trial, waiting to testify, and testifying were not a significant fraction of work time and are no longer reported as a performance metric. This is due to the nature of working with Federal prosecutors in District courts with District policing; the overlapping nature of jurisdictions results in a lower-than-average requirement for forensic testimony.

² FY14 is first year PHL Clinical Chemistry is offered as a service.

³ Through June 2014.

⁴ For FY12, previous MPD-generated values were adjusted to meet FORESIGHT definitions and, therefore, are approximately comparable with values going forward.

⁵ Prior to FY13, test fires (operational examination of a firearm) were not separated from firearms casework measures and are assumed to be combined in FY11 and FY12.



Forensic Sciences Laboratory Division

SUMMARY OF SERVICES

The Forensic Science Laboratory (FSL) Division provides independent scientific examinations and analysis to stakeholders submitting physical evidence in criminal cases, providing these services to District governmental agencies and neighboring Federal agencies. The FSL currently provides examinations for biological samples (DNA and fingerprinting), chemical and materials samples (coatings, glass, textiles, composites), and physical samples (firearms and digital evidence). The FSL works with public attorneys—prosecution and defense—as well as the courts and allied criminal justice agencies to serve and improve scientific information for public safety. This division contains the following activities:

- Forensic Biology Unit – provides analysis of blood and other tissue samples for identification.
- Latent Fingerprint Unit – provides analysis of fingerprints for identification.
- Firearms Unit – provides analysis of firearms and ammunition.
- Digital Evidence Unit – will provide analysis of electronic devices and other sources of electronic information.
- Materials Analysis Unit – will provide analysis of materials, such as coatings (paints), glass, textiles, and composites (like plastics and duct tape) for classification, comparison, and sourcing.

Measures relating to the FSL are taken from the FORESIGHT Project⁶, a federally-funded process of measuring and comparing the effectiveness and efficiency of forensic laboratories worldwide. FORESIGHT has over 85 participating laboratories around the world and constitutes a *de facto* global standard for assessing forensic laboratories and their processes. Using direct quantitative measures and ratios, FORESIGHT provides robust key performance indicators (KPIs) for forensic laboratories⁷. Where comparisons are made, the FORESIGHT values are the mean (mathematical average value).

OBJECTIVE 1: Improve forensic laboratory services to stakeholders.

INITIATIVE 1.1: Improve the effectiveness and efficiency of the Division.

Effectiveness is the attainment of a desired outcome; efficiency is the time and effort used to produce that outcome. Several KPIs are calculated for each Unit within the FSL Division:

- Turnaround time (in days)
- Reports per FTE (full-time employee)
- Number of quality-based corrective actions (QCARs)
- Number of preventative corrective actions (PCARs)

⁶ Houck, M., et al. 2009. “FORESIGHT: A business approach to improving forensic science services,” *Forensic Science Policy and Management* 1(2): 85-95.

⁷ Speaker, P. J. 2009. “Key Performance Indicators and Managerial Analysis for Forensic Laboratories,” *Forensic Science Policy & Management* 1(1): 32-42, and Speaker, P. J. 2009. “The Decomposition of Return on Investment for Forensic Laboratories,” *Forensic Science Policy & Management* 1:2: 96-102.



These KPIs will be improved through reduction of waste (time, materials, effort, re-work), adjustments to processes to streamline steps taken to completion, and adoption of new methods, processes, or concepts to increase efficiency of forensic laboratory services. Effectiveness will be improved because, as waste is reduced, more cases, items, and samples can be processed and analyzed by the same number of staff using set resources. Target values are shown in the table below and, unless otherwise specified, are the average FORESIGHT values for that measure. Completion date: **September 30, 2015.**

INITIATIVE 1.2: Develop an automated workflow to process all known DNA samples.

Validate and operationalize current instrumentation and equipment to allow for the unattended analysis of an estimated 2,000 to 3,000 known samples of DNA per year in casework. **Completion date: September 30, 2015.**

INITIATIVE 1.3: Implement Sexual Assault Kit Project.

Funded by the DC Office of Victims Services to hire two dedicated DNA analysts to focus on processing all sexual assault kits for DNA analysis, and support staff to provide research and required internal reports. Implementation includes full staffing, developed process flow, and entering eligible results into the Combined DNA Index System (CODIS). **Completion date: September 30, 2015**

OBJECTIVE 2: Develop new forensic services to improve scientific information for public safety.

INITIATIVE 2.1: Staff the Materials Analysis Unit to its full complement.

DFS is shifting the focus from the historical concept of “trace evidence” to that of “materials analysis” and renaming the Trace Evidence Unit as the Materials Analysis Unit (MAU). The emphasis will be on those manufactured materials that have a significant industrial basis to them, such as coatings and paints, glass, textiles, and composite materials (plastics and duct tape, for example). This will provide DFS scientists with a foundation and support for the analysis of these materials, leveraging the forensic methods on the groundwork laid by the industry that made the goods being analyzed. *This is a conceptual shift that has not been undertaken by any forensic laboratory elsewhere in the world* and is in keeping with DFS’ intended leadership as a “science first” organization. This includes staffing the unit, writing standard operating procedures for materials to be analyzed, and the instrumentation required. Once the SOPs have been validated on known samples and mock cases for accuracy and precision, the SOPs will be vetted through the DFS quality system. Notification to DFS stakeholders that the Materials Analysis Unit is operational will commence once SOPs have been vetted. Once cases are submitted, the same measures for effectiveness and efficiency as the other Units will be applied. **Completion date: September 30, 2015.**



INITIATIVE 2.2: Identify and provide topical training to Stakeholders.

Topical training will be identified and offered to stakeholders to limit and mitigate the disruption of new and improved services offered by DFS. **Completion date: September 30, 2015.**

INITIATIVE 2.3: Operationalize the Digital Evidence Unit.

The ubiquity of digital devices in everyday life leads naturally to their use in and as an object of criminal activity. Digital evidence is becoming a commonplace type of analysis and key to criminal investigations and forensic analysis. The DFS has created a Digital Evidence Unit (DEU) to process, analyze, and report on information and evidence from digital devices, such as cell phones, tablet computers, personal computers, and other digital computers or storage devices involved in criminal activity. *This is a new service start-up for DFS' stakeholders and the District.* This includes staffing the unit, writing standard operating procedures for materials to be analyzed, and the instrumentation required. Once the SOPs have been validated on known samples and mock cases for accuracy and precision, the SOPs will be vetted through the DFS quality system. Upon completion, the Unit will accept new cases. **Completion date: September 30, 2015.**

KEY PERFORMANCE INDICATORS: Forensic Sciences Laboratory Division

Measure	FY 2013 Actual	FY 2013 Target	FY 2014 YTD	FY 2015 Projection	FY 2016 Projection	FY2017 Projection
FSL Turnaround time⁸						
Digital Evidence ⁹	n/a	n/a	n/a	n/a	n/a	n/a
DNA ¹⁰	73	95	91	68	60	50
Fingerprints ¹¹	103	45	136	40	35	30
Firearms ¹²	95	62	168	60	60	55
Test Fires	2.5	1	5.6	1	1	1
Materials Analysis ¹³	n/a	n/a	n/a	90	90	90
FSL Reports per FTE						
Digital Evidence	n/a	n/a	n/a	64	60	60
DNA ¹⁴	92	82	59	90	95	100
Fingerprints ¹⁵	115	310	53	340	350	350
Firearms ¹⁶	16	119	41	130	130	130
Test Fires	18	18	8	20	20	20
Materials Analysis ¹⁷	n/a	n/a	n/a	40	45	45

⁸ In FORESIGHT terms, Turnaround time is measured as the time in days from receipt of evidence to the issuance of a report in a case.

⁹ FORESIGHT AVERAGE IS 44

¹⁰ FORESIGHT AVERAGE IS 68

¹¹ FORESIGHT AVERAGE IS 45

¹² FORESIGHT AVERAGE IS 62

¹³ FORESIGHT AVERAGE IS 93

¹⁴ FORESIGHT AVERAGE IS 82

¹⁵ FORESIGHT AVERAGE IS 310

¹⁶ FORESIGHT AVERAGE IS 119

¹⁷ FORESIGHT AVERAGE IS 40



Public Health Laboratory Division

SUMMARY OF SERVICES

The Public Health Laboratory (PHL) Division provides testing of biological and chemical samples that relate to public health and safety, such as infectious diseases, hazardous chemicals, or biological contamination, up to and including bio- or chemical terrorist attacks. The PHL routinely liaises with the Centers for Disease Control and the Association of Public Health Laboratories, representing the national capital region as the laboratory of record. This division provides the following activities:

- Microbiology Unit – provides analyses of microbial pathogens that are infectious to people, such as diseases or food-borne illnesses.
- Chemistry Unit – provides analyses for the presence of toxins and heavy metals.
- Molecular Biology Unit – provides the analysis of DNA to identify infectious organisms or biological threats (bio-terrorism).
- Virology Unit – tests for outbreaks of virus-based diseases, like West Nile and influenza.
- Accessioning Unit – Sample acceptance, accounting, and transfer.

OBJECTIVE 1: Improve the effectiveness and efficiency of public health laboratory services.

INITIATIVE 1.1: Develop and apply FORESIGHT-like measures to the PHL.

Much of the testing done in PHL is similar to that done in FSL; therefore, the FORESIGHT process used for FSL should translate well to the PHL platform. DFS is working with the Association of Public Health Laboratories (APHL) and the Centers for Disease Control (CDC) to establish FORESIGHT measures for PHL with the ultimate goal of establishing these as national standards for comparative metrics. This is an on-going process. **Completion date: September 30, 2015.**

INITIATIVE 1.2: Outreach to District hospitals for awareness of PHL services.

This initiative is a communication and marketing effort to expand awareness of the PHL testing and service capabilities available to District hospitals. Many, if not all, of the hospitals have slowly moved to private testing vendors outside the District; the PHL can replicate all necessary testing in the District, either at no fee or through a revenue-generating structure (to be determined). PHL is a central component to the health of the District's citizens and should be utilized routinely by our hospitals. The initiative will consist of informal meetings, formal presentations, distribution of information, social media, and other forums to educate hospital staff and leadership about PHL's capabilities. The goal is to estimate the amount of testing required by the hospitals and to capture at least 25% of it in PHL. **Completion date: September 30, 2015.**

INITIATIVE 1.3: Special Projects to Develop New Services.

PHL is poised to strategically provide services previously not offered to stakeholders. These services include newborn screening of babies, HIV/AIDS testing, sexually transmitted disease testing, new and emerging infectious diseases (like MERS), among others. These projects will require research to provide the operational plan, capital



budgets, ongoing costs, and potential funding streams for transitioning developed projects to actual services offered by PHL. This is an on-going process. **Completion date: September 30, 2015.**

OBJECTIVE 2: Shift operational aspects to conform to agency-wide systems.

INITIATIVE 2.1: Shift from current laboratory information management system to agency-wide system.

The PHL currently uses a limited system for laboratory information management (LIMS) that only handles PHL's information and does not connect to any other system in DFS. PHL is coordinating through the DFS Deputy Director for Information Technology (DD-IT) to transition from its current platform to the DFS agency-wide system; the transition will need to occur in a way that does not impede PHL's current performance or information needs. Workflow diagrams, category definitions, process maps, and future needs will be clarified and communicated to the DD-IT and the other Division Directors to begin to integrate the PHL process into the larger DFS effort. This is an on-going effort. **Completion date: September 30, 2015.**

INITIATIVE 2.2: Integrate all PHL testing into DFS quality program

PHL and FSL seek accreditation through two different processes; the PHL work conforms to its own profession's quality standards. PHL will continue to integrate all of its testing procedures into the DFS quality program by identifying common testing across divisions, simplifying paperwork and reporting, and aligning its practices to international quality standards (ISO 17025). Successful completion is measured by an application submission by the deadline. **Completion date: September 30, 2015.**

INITIATIVE 2.3: Integrate PHL accessioning (sample intake) into CSS evidence intake processes.

PHL currently accepts samples for testing ("accessioning" in public health laboratory parlance) through its own personnel and processes. As the DFS transitions to the responsibilities of crime scene response and evidence intake, PHL will work with the DFS Central Evidence Unit (CEU) to integrate PHL's intake process and merge it with CEU's, providing a single intake process and location for all material to be analyzed at DFS. This will assist with INITIATIVE 2.2 by simplifying paperwork, reducing the number of active forms, and enhancing the evidence handling ("chain of custody") procedures for the entire agency. Accessioning will occur at the Central Evidence Unit (CEU) by the deadline. **Completion date: September 30, 2015.**

INITIATIVE 2.4: Develop a Cooperative Agreement with BioWatch Program.

PHL will continue to work with the Department of Homeland Security's BioWatch program, providing facilities and support as appropriate and available, and negotiate a cooperative agreement. A successful cooperative agreement will allow the DFS to directly manage the program for the Department of Homeland Security. This is an on-going effort. **Completion date: September 30, 2015.**



KEY PERFORMANCE INDICATORS: Public Health Laboratory Division

Measure	FY 2013 Actual	FY 2013 Target	FY 2014 YTD	FY 2015 Projection	FY 2016 Projection	FY2017 Projection
PHL Tests per FTE	2558	3000	3994	4100	4500	4500
PHL Successful competency tests	100%	100%	100%	100%	100%	100%
PHL Hospital Tests Performed	9468	NA	17176	NA	NA	NA
Samples Analyzed within TAT	90%	95%	95%	95%	95%	98%

¹⁸ PHL performs confirmatory testing of specimens of public health significance for nine (9) District Hospitals within the District of Columbia. (e.g. Sibley Memorial Hospital, Georgetown University Hospital, George Washington University Hospital, United Medical Center, Providence Hospital, Howard University Hospital, National Children's Center, Veterans Administration Medical Center, and Washington Hospital Center.)

¹⁹ TAT is dependent upon the type of investigation that is being conducted by the PHL laboratory, and varies from 4 hours in emergency response testing to 2 weeks in epidemiologic confirmatory typing of referred pathogens.



Crime Scene Sciences Division

SUMMARY OF SERVICES

The Crime Scene Sciences (CSS) Division consists of highly trained civilian scientists who will transition responsibilities for crime scene response and evidence handling and processing in the District from the Metropolitan Police Department (MPD). The goal is to provide additional science at the scene, to generate forensic intelligence—backed by science—early in the investigation, and to process and track evidence for immediate and future analysis. Transition of responsibilities from MPD and staffing this Division is on-going and dependent on full funding. This Division includes the following activities:

- Crime Scene Sciences Unit; and
- Central Evidence Unit

OBJECTIVE 1: Improve evidence handling and processing at crime scenes and in the Consolidated Forensic Laboratory.

INITIATIVE 1.1: Simplify and unify intake of items for analysis.

This initiative involves the reduction of paperwork—both in terms of amount and repetitive or redundant forms—and simplification of workflow to take in items for analysis by the DFS. The emphasis will be on facilitating the intake experience for submitters with the goal of it being as easy or easier than a normal retail transaction, integrating documentation into the process for ease of completion, retention, and retrieval, and unification of processes so that the intake experience is the same regardless of agency, items, or other parameters. The Central Evidence Unit process will be mapped, edited, and operationalized to provide seamless transfers and documentation. **Completion date: September 30, 2015.**

INITIATIVE 1.2: Enhance evidence processing.

Develop and deploy an appropriate palette of evidence processing methods for the range of submitted items from crime scenes based on the testing done in FSL. These methods are scientifically based, recognized standards, and validated using known materials. The number and types of methods will be determined by stakeholder needs, evidence types, and intended testing. **Completion date: September 30, 2015.**

KEY PERFORMANCE INDICATORS: Crime Scene Sciences Division

Measure	FY 2013 Actual	FY 2013 Target	FY 2014 YTD	FY 2015 Projection	FY 2016 Projection	FY2017 Projection
CSS Response time ¹⁹	n/a	n/a	n/a	n/a	n/a	n/a
CSS Turnaround time ²⁰	n/a	n/a	n/a	n/a	n/a	n/a
CSS Reports per FTE	n/a	n/a	n/a	n/a	n/a	n/a

²⁰ Response time for CSS is the time in minutes from when DFS is notified that services are requested by a stakeholder to arrival at the scene.

²¹ Turnaround time is the same as for FSL and is measured as the time in days from receipt of evidence (for CSS, collection at the scene) to the issuance of a report in a case (results of processing or analysis).



Directorate Operations & Agency Management

SUMMARY OF SERVICES

Directorate Operations and Agency Management – provides for administrative support and the required tools to achieve operational and programmatic results. This division is standard for all agencies using performance-based budgeting. This division also contains the following activities that support the entire agency:

- Quality – ensures that DFS produces products that are fit for stakeholders’ purposes and that fitness is maintained or improved; maintains ISO 17025 accreditation for the agency
- Training & Development – provides training curriculum to DFS employees to ensure professional development, maintaining skill sets, meets standards of excellence, and high quality, accurate, and reliable services;
- Information Technology – provides agency-wide support on information technology systems and to enhance DFS services through the most appropriate technology available.

OBJECTIVE 1: Achieve and Maintain Accreditation under International Standards of Operation (ISO) 17025²¹.

INITIATIVE 1.1: Maintain accreditations for FSL and PHL.

Currently, FSL is accredited under ISO/IEC 17025; PHL is accredited via a number of agencies, including Centers for Disease Control, Association of Public Health Laboratories, Clinical Laboratory Improvement Act, and DSAT. This is an on-going effort. **Completion date: September 30, 2015.**

INITIATIVE 1.2: Prepare Units and Divisions for accreditation as they become operational.

This includes identifying units and divisions for accreditation, developing a timeline and plan for achieving accreditation. For FSL, this will include the Digital Evidence Unit and the Materials Analysis Unit. For the remainder of the agency, both PHL and CSS divisions will be brought under ISO 17025. External recognition is conducted by one or more ISO approved vendors. **Completion date: September 30, 2015.**

INITIATIVE 1.3: DFS Customer Service.

In FY15, DFS will enhance the agency customer service by collecting feedback from stakeholders and customers and analyzing the information to improve the DFS management system, testing activities, and customer service. Paper and electronic forms have been created to assist in the collection of data. Two Stakeholder Advisory Council meetings and four Science Advisory Board meetings are held annually. **Completion date: September 30, 2015.**

²² Accreditation is an external recognition that an agency meets certain standards of quality and process. Accreditation is comprehensive, including the entirety of operations, from administration to documentation to policies to protocols to staff and even signage.



OBJECTIVE 2: Provide positive workplace environment for employees.

INITIATIVE 2.1: Expand medical surveillance program.

This program, which employees may opt out of, provides medical oversight for health and safety issues related to specific job duties in the laboratories. This initiative will focus on increasing participation in the program. **Completion date: September 30, 2015.**

INITIATIVE 2.2: Safety Level 1 and 2 training programs.

Employees working in the CFL must complete safety Level 1 training and annual training; those working with biohazards or other hazardous materials must complete Level 2 training each year. Additional safety training opportunities are offered as available and as necessary. **Completion date: September 30, 2015.**

INITIATIVE 2.3: Provide training curriculum to DFS employees to ensure professional development.

In FY15, DFS will continue to offer beginning and master classes for basic skills, including communication, scientific writing, and management of science. This initiative focuses on developing employee skill sets to help foster a positive work environment. This is an on-going effort. **Completion date: September 30, 2015.**

OBJECTIVE 3: Implementation of a laboratory information management system (LIMS) to provide seamless accountability and tracking of evidence from receipt to return for all DFS services.

INITIATIVE 3.1: Develop agency LIMS architecture and concept of operations

This includes developing evidence receiving and digital evidence lab requirement and process flow, review and refine agency lab requirements and process flows, deployed test environment for LIMS development, deploy evidence receiving module, and develop beta DNA LIMS capability. This is a multi-year effort. **Completion date: September 30, 2015.**

KEY PERFORMANCE INDICATORS: Directorate Operations & Agency Management

Measure	FY 2013 Actual	FY 2013 Target	FY 2014 YTD	FY 2015 Projection	FY 2016 Projection	FY2017 Projection
DFS Quality corrective action reports	64	90	19	21	20	19
DFS Quality preventative action reports	4	15	0	3	2	2
DFS Number of complaints	1	5	1	1	1	1