

FORENSIC SCIENCE OVERSIGHT BOARD

December 2019 Report



1. Forensic Science Oversight Board Members

Seat	Member	Appointed By	Term Begins	Term Ends
Undersecretary of Forensic Science	Undersecretary Kerry Collins	Ex Officio		
Forensic Science Expert	Ms. Sabra Botch-Jones	Governor	2/12/2019	2/12/2021
Forensic Laboratory Management Expert 1	Dr. Robin Cotton	Governor	1/23/2019	1/23/2022
Forensic Laboratory Management Expert 1	Professor Timothy Palmbach	Governor	2/5/2018	2/5/2021
Cognitive Bias Expert	Dr. Itiel Dror	Governor	2/14/2018	2/14/2021
Statistics Expert 1	Ms. Gina Papagiorgakis	Governor	1/15/2019	1/15/2023
Statistics Expert 1	Mr. Clifford Goodband	Governor	2/27/2019	2/27/2020
Academia, Research Involving Forensic Science	Dr. Ann Marie Mires	Governor	1/23/2019	1/23/2022
Clinical Quality Management Expert	Ms. Lucy A. Davis	Governor	2/22/2019	2/22/2020
MA District Attorneys Association Nominee	Adrienne Lynch, Esq.	Governor	1/16/2019	1/16/2023
Attorney General Nominee	Assistant AG Nancy Rothstein ¹	Governor	10/31/2019	9/21/2022
Committee for Public Counsel Services Nominee	Anne Goldbach, Esq.	Governor	12/7/2018	12/7/2022
MA Association of Criminal Defense Lawyers Nominee	Lisa Kavanaugh, Esq.	Governor	1/23/2019	1/23/2022
New England Innocence Project, Inc. Nominee	Judge Nancy Gertner	Nominee	3/28/2019	3/28/2020

¹ Assistant AG Gina Kwon originally was nominated by the Attorney General to fill this seat. After a promotion in October 2019, she resigned and Attorney Nancy Rothstein was subsequently nominated to fill her seat for the remainder of her term through September 1, 2022.

2. Executive Summary

Pursuant to Section 9 of Chapter 69 of the Acts of 2018, *An Act Relative to Criminal Justice Reform* (hereinafter “The Criminal Justice Reform Act”), the Forensic Science Oversight Board (hereinafter “the FSOB”) was established to “have oversight authority over all commonwealth facilities engaged in forensic services in criminal investigations” and to “provide enhanced, objective, and independent auditing and oversight of forensic evidence used in criminal matters, and of the analysis, including the integrity of such forensic analysis performed in state and municipal laboratories.”

Subsection (c) of The Criminal Justice Reform Act requires that “[n]ot more than six months following the appointment of its membership, the FSOB shall conduct a comprehensive audit of the facilities and practices being utilized for criminal forensic analysis in the Commonwealth and the operation and management of the Massachusetts state police crime laboratories.” The audit shall include, but not be limited to, the following:

- (i) evaluating the capabilities of the state police crime laboratory and its ability to process evidence necessary to comply with the Massachusetts general laws;
- (ii) the condition and accuracy of testing equipment;
- (iii) the handling processing, testing and storage of evidence by such facilities;
- (iv) establishing professional qualifications necessary to serve as the head of the state police crime laboratory;
- (v) the licensure and oversight of laboratory personnel;
- (vi) determining the proper entity to control the crime laboratory and whether it would be appropriate to transfer such control to another executive agency or to an independent executive director;
- (vii) the feasibility of creating a board to select an independent executive director of the crime laboratory; and
- (viii) setting term limits and reappointment standards applicable to the head of the state police crime laboratory.²

² See Section 9(c) of Chapter 69 of the Acts of 2018 “*An Act Relative to Criminal Justice Reform*”

The FSOB is also charged with: creating a process by which the scientific validity of a forensic science technique or analysis commonly used in criminal matters shall be investigated; developing, implementing and periodically reviewing a system for forensic laboratories to report professional negligence or misconduct; actively engaging stakeholders in the criminal justice system in forensic development initiatives and recommending ways to improve education and training; and developing, implementing, and periodically reviewing a system to evaluate laboratory education and professional licensing processes.³

Although The Criminal Justice Reform Act only requires the FSOB to meet quarterly, the FSOB has taken the initiative to hold monthly meetings for up to six hours at a time since convening in May of 2019. From its initial meetings, the FSOB participated in lengthy discussions on how to tackle its mandate. Immediately, the FSOB realized that they would need to meet monthly and that two hours was not sufficient to accommodate its agenda items. As a result, the FSOB voted to extend the length of each meeting to four hours, then ultimately to six. Given the six month statutory deadline set forth in subsection 9(c), the FSOB chose to focus all of its attention on the audit.

The following report contains the FSOB's findings of its audit pursuant to subsection 9(c) and corresponding recommendations. As set forth herein, the FSOB is only able to produce findings as to sections i-iii and v of subsection 9(c) at this time. Also included in this report is an overview of the FSOB's audit over the past six months which led to the final conclusions and recommendations set forth in this report.

The FSOB's work to date has been focused on the Massachusetts State Police Crime Laboratory (hereinafter "MSPCL") only.⁴ The members decided to develop parameters for their reviews and once established, those parameters will be used in their evaluation of the other forensic service providers. It is the opinion of the FSOB that, to the extent that their mandate includes an audit or assessment of forensic evidence from the medical examiner's discipline, the legislature should expand the composition of the FSOB to include a board certified forensic pathologist who can bring his/her expertise on this issue to the audit.

Going forward, the FSOB intends to discuss the other, non-audit, activities outlined in the Criminal Justice Reform Act.

³ See Section 9(d)-(g) of Chapter 69 of the Acts of 2018 "*An Act Relative to Criminal Justice Reform*"

⁴ Because the state lab was the one forensic science service provider named in the statute, it was audited first. As set forth later herein, it is anticipated that this process will be applied to other agencies and entities performing forensic science services in criminal cases in the Commonwealth.

3. FSOB AUDIT

The FSOB conducted its preliminary audit of the MSPCL over the past six months. Information used in conducting this preliminary audit included PowerPoint presentations from various experts, document review, in depth Board discussion, Question and Answer sessions with lab personnel, and a site visit to the MSPCL in Maynard, Massachusetts. The FSOB early on concluded that many of the requirements set forth in subsection 9(c) are not traditionally included in conventional audits of crime laboratories. The FSOB thus worked on determining how it would evaluate the criteria set forth in the statute. After reviewing the audit requirements set forth in subsection 9(c) and comparing those requirements to existing crime laboratory accreditation assessment documents, the FSOB developed its own unique audit process to comply with the statute.

Below is a summary of the FSOB's preliminary audit process of the MSPCL which the FSOB intends to refine and use as a blueprint for future audits of the remaining forensic facilities in the Commonwealth. Although the FSOB has conducted this partial audit based on some of the statutory requirements, other requirements remain to be addressed.

I. IDENTIFYING FORENSIC SERVICE PROVIDERS

The FSOB initially discussed which forensic service providers located in the Commonwealth should be audited. It is important to note that presently there is no comprehensive list of forensic service providers in Massachusetts. Therefore, the FSOB began by compiling a full list of all accredited public forensic laboratories in the Commonwealth. The FSOB also sent questionnaires to the Massachusetts District Attorney Association (MDAA), the Massachusetts Chiefs of Police Association (MCOPA)⁵, and the Committee for Public Counsel Services to determine where forensic services are performed in the Commonwealth.

The following is a list of forensic service providers the FSOB has compiled to date⁶:

- Acushnet Police Department
- Andover Police Department
- Auburn Police Department
- Barnstable Police Department
- Bentley University Police Department
- Boston Police Department*
 - Firearms Analysis Unit*

⁵ The FSOB sent a questionnaire to over five hundred police departments including college and university campus police departments. The FSOB received 127 responses. Out of the 127, the list included herein represents those that indicated they perform forensic services. Going forward, the FSOB intends to seek responses from the remaining police departments.

⁶ (* indicate accredited laboratories)

- Crime Lab*
 - Latent Print Unit*
- Burlington Police Department
Cambridge Police Department Crime Scene Services*
Carlisle Police Department
Chelsea Police Department
Concord Police Department
Dalton Police Department
Dudley Police Department
Easthampton Police Department
Framingham Police Department
Gill Police Department
Groton Police Department
Hudson Police Department
Lancaster Police Department
Lawrence Police Department
Lexington Police Department
Lincoln Police Department
Lynn Police Department
Marshfield Police Department
Massachusetts State Police Crime Lab
- Maynard*
 - Boston*
 - Bourne*
 - Danvers*
 - Lakeville*
 - Springfield*
 - Sudbury*
 - Worcester*
- Medford Police Department
Melrose Police Department
Milford Police Department
Milton Police Department
Monson Police Department
Monterey Police Department
Natick Police Department
North Reading Police Department
Pittsfield Police Department
Plymouth County Sheriff's Department Bureau of Investigation
Rockport Police Department
Salem Police Department
Salem State University Police
Saugus Police Department

Sherborn Police Department
Somerville Police Department
Southampton Police Department
Southborough Police Department
Southbridge Police Department
Spencer Police Department
Springfield Police Department
Stockbridge Police Department
Stoneham Police Department
Sudbury Police Department
Taunton Police Department
Tewksbury Police Department
UMass Lowell Police Department
UMass Medical School Drugs of Abuse*
Watertown Police Department
Wayland Police Department
Webster Police Department
Wellesley Police Department
West Boylston Police Department
West Brookfield Police Department
West Springfield Police Department
Weston Police Department
Weymouth Police Department
Wilbraham Police Department
Williamsburg Police Department
Winchendon Police Department
Winchester Police Department
Worcester Police Department
- Crime Scene Unit*
- Latent Print Unit*

The FSOB ultimately chose to begin its work by auditing the MSPCL, because The Criminal Justice Reform Act specifically references the MSPCL. Audits of the additional forensic service facilities in the Commonwealth will occur after the FSOB completes its audit of the MSPCL. Prioritizing the MSPCL also aligned with the statutory language, which specifically references the MSPCL in five of the eight subsections of 9(c), namely:

- (i) evaluating the capabilities of the state police crime laboratory and its ability to process evidence necessary to comply with the Massachusetts general laws;

(iv) establishing professional qualifications necessary to serve as the head of the state police crime laboratory;

(vi) determining the proper entity to control the crime laboratory and whether it would be appropriate to transfer such control to another executive agency or to an independent executive director;

(vii) the feasibility of creating a board to select an independent executive director of the crime laboratory; and

(viii) setting term limits and reappointment standards applicable to the head of the state police crime laboratory.

II. DETERMINING SCOPE

As the FSOB began determining how to conduct the audit, the FSOB first focused on reviewing existing accreditation assessment processes and associated documents for the MSPCL. The FSOB concluded these documents would partially satisfy the areas of inquiry listed above as to (i), (iv), (vi) – (viii). However, the FSOB determined that these documents did not address all of the requirements identified by the statute. Thus, a further discussion of areas of inquiry beyond those that are covered by the existing accreditation assessment documents was necessary.

Two Board Members with relevant expertise in these areas provided presentations to the FSOB to aid the FSOB in determining the scope of the audit. The presentations are included herein as **Appendix A**.

1. Presentation by Lucy Davis, lead assessor for ANSI National Accreditation Board (ANAB) on accreditation and existing ISO/IEC 17025, ISO/IEC 17020 and FBI Quality Assurance Standards, in general, and as they relate to the FSOB’s audit requirements set forth in 9(c).⁷
2. Presentation by Dr. Itiel Dror on how cognitive bias and human factors can affect forensic analysis. The FSOB voted that cognitive bias and human factors are important elements, and Dr. Dror identified five areas for further consideration in his presentation:
 - a. Evidence should be driving the forensic work, not a “target” suspect

⁷ Ms. Davis proceeded through all eight requirements of 9(c) and compared each to the existing ISO/IEC standards and the audit process. The FSOB used this as a starting point for their audit in determining areas in which they needed to go beyond the scope of existing accreditation documents and audit for the statute.

- b. Minimize exposure (as much as possible) to task irrelevant contextual information – Decisions should be based on the relevant information
- c. State Crime Lab to: give full access to defense and take work for defense
- d. All forensic reports should specify: weaknesses, limitations, scope, exposure to irrelevant information, potential for error and bias, etc.
- e. Verifications should be as blind as possible

In addition to presentations from Ms. Davis and Dr. Dror, the FSOB also heard presentations from two commissions with mandated oversight of forensic laboratories in the country: the New York Commission on Forensic Science⁸ and the Texas Forensic Science Commission⁹.

Although these Commissions do not audit any laboratories, their presentations provided the FSOB with helpful guidance and sources of comparison. One key takeaway from both presentations was the importance of having an existing relationship between a forensic science commission and the state laboratory in that jurisdiction.

⁸ Commissioner Michael Green of the NY Commission discussed that the 14-member Commission was established in 1994 to develop minimum standards and a program of accreditation for all public forensic laboratories in New York State. The Commission does not audit the laboratories themselves but instead relies on the ANAB accreditation assessments. The Commission reviews every nonconformity that occurs and receives presentations from the laboratories at each of their quarterly meetings so the commission is always up to date on what is occurring at each of its laboratories. The Commission has established technical working groups for various disciplines. The Board asked many questions of the Commissioner specifically in regards to auditing and if NY has ever had to audit something beyond the ANAB assessments. Commissioner Green confirmed that since 1994, they have not audited or set any standards beyond ANAB and FBI Quality Assurance Standards. More information can be found at: <https://www.criminaljustice.ny.gov/pio/boards/index.html>

⁹ General Counsel Lynn Garcia from the Texas Forensic Science Commission discussed that this Commission was established in 2007 and currently has four full time employees responsible for the operation of the nine member Commission. It is responsible for oversight of all state forensic laboratories (public and private) including: accreditation, licensing, managing self-disclosures, investigating complaints of negligence or misconduct, conducting discipline-wide review of cases when needed, acting as a facilitator between labs and legal community, reviewing training, and dealing with emergencies as they arise. Attorney Garcia discussed that while the Commission is responsible for accreditation, they do outsource the assessments to ANAB. She further discussed successes and failures the Commission has had since its establishment in 2005, particularly with regards to auditing/accreditation as it relates to the FSOB in Massachusetts. More information can be found at: <https://www.txcourts.gov/fsc/about-us/>

III. REVIEW OF EXISTING ASSESSMENT DOCUMENTS

Based on discussion and recommendations from FSOB members and the presentations described above, the FSOB concluded that a review of assessment reports from accrediting bodies and supplemental questionnaires to the MSPCL would assist the FSOB with the audit requirements set forth in The Criminal Justice Reform Act.

The FSOB also recognized that certain requirements in 9(c) regarding the administration and management of the MSPCL are not part of the assessment process by accrediting bodies. The FSOB chose to begin its review on aspects of the mandate that would be included as part of the audit.

The FSOB requested and reviewed the most recent assessment reports and supporting documentation as follows:

- 1) The FBI Quality Assurance Standards Audit for Forensic DNA Testing Laboratories
- 2) The FBI Quality Assurance Standards Audit for DNA Databasing Laboratories
- 3) ANAB Nonconforming reports
- 4) 2018 Corrective Action Reports
- 5) 180814-ANAB -Assessment Report
- 6) 190610 ANAB (T) Offsite Report
- 7) 190613 ANAB (C) Assessment Report

Ms. Davis provided a general review of the accreditation assessment documents and highlighted important aspects of the documents as they pertain to the FSOB's mandate. The FSOB asked questions of Ms. Davis and discussed the documents.

IV. FIRST QUESTIONNAIRE

After reviewing the MSPCL's most recent assessment documents, the FSOB also sent a questionnaire to the MSPCL. The FSOB requested written responses, copies of relevant policies and procedures, and an oral presentation by the MSPCL on the following topics:

FIRST QUESTIONNAIRE TOPICS:

1. Documenting and minimizing communication with/cognitive contamination by submitting agencies & outside parties;
2. Documenting & minimizing exposure to task irrelevant information;
3. Blind verification;
4. Transparency;
5. Discovery;
6. Forensic reports;
7. Information sharing among analysts, and between the Lab and prosecution/ submitting agencies;
8. Whistleblower/ complaint procedures;
9. Nonconformities, issues requiring corrective action, and unsuccessful proficiency testing;
10. Structure; and
11. Lab consideration (including issues of cognitive contamination and resources).

In response to the questionnaire, the MSPCL provided the FSOB with written responses to the questionnaire, which are included herein as **Appendix B**. The MSPCL also provided the FSOB with copies of the following additional policy documents:

- 1) DNA Interpretation Guidelines for Forensic STR DNA Analysis
- 2) DNA Y-STR Interpretation Guidelines
- 3) Firearms Identification Policy & Procedures Guide
- 4) Discovery Materials Policy for the Office of Alcohol Testing
- 5) Laboratory Materials Request Policy
- 6) Lab Access Web-Based System (LAWS) User Manual
- 7) Laboratory Information Management System Protocol and User Manual
- 8) General Unknown Analysis by GC/MS for Acidic, Neutral and Alkaline Compounds
- 9) Office of Alcohol Testing Quality Assurance Manual
- 10) Proficiency Testing Program Quality Assurance Manual
- 11) Testing and Calibration Quality Assurance Manual
- 12) Trace Section Examination and Comparison of Paint
- 13) Trace/Arson and Explosives Unit Examination and Comparison of Fibers

- 14) Trace/Arson and Explosives Unit Examination and Comparison of Glass
- 15) Trace/Arson and Explosives Unit Examination and Comparison of Pressure Sensitive Tape
- 16) 2019 August MSPCL Snapshot
- 17) Office of Alcohol Testing Certification Report (Redacted)
- 18) Certificate of Drug Analysis (Redacted)
- 19) Prima Facie Certification Test of Blood Under G.L. Ch 90, Sec. 24 (1)(f)(2) (Redacted)
- 20) Trace/Arson and Explosives Unit Fire Debris Analysis Report (Redacted)
- 21) Report of Investigations (Redacted) – 7 examples provided
- 22) August 2019 Draft Organizational Chart
- 23) Case Log (Redacted)

Deputy Director Lynn Schneeweis of the MSPCL gave an oral presentation to the FSOB that provided an overview of the MSPCL. The presentation focused on management structure and personnel, the various organizational units of the MSPCL, the MSPCL's role in the criminal justice system, and the MSPCL workflow. The presentation also addressed cognitive bias and other human factor considerations. The MSPCL noted that they have already taken steps to address some elements of bias which can arise in laboratory testing. The presentation also afforded Board Members an opportunity to ask questions of the MSPCL staff related to various analyses, protocols, and procedures.

V. SECOND QUESTIONNAIRE

Focusing on the statutory requirements that the FSOB determined it could address in this preliminary audit, the FSOB provided another questionnaire to the MSPCL that was focused entirely on subsections (i) and (ii) of 9(c). This questionnaire sought all relevant documentation to address these portions of the mandated audit. The questionnaire sought written responses and an oral presentation to address the following issues:

SECOND QUESTIONNAIRE

1. Summary of MSPCL's own assessment of the issues addressed in section (c) items (i) & (ii) of the G.L. audit. Lab's response (in writing and at an oral presentation at the next meeting) should include:
 - a. Annual management review document (most recent);
 - b. Equipment list (most recent);
 - c. Budget request submitted to General Headquarters; and
 - d. Synthesis/summary of the key issues and concerns from the lab's perspective arising out of these documents.

In response, the MSPCL provided the FSOB with the following documents which are included herein as **Appendix C**:

- 1) Written response to additional questions submitted by Dr. Dror
- 2) 2018 Management Review Meeting Minutes
- 3) Crime Lab Asset Inventory 10.10.19
- 4) Finance PowerPoint prepared for FSOB
- 5) MSPCL Summary of Key Issues & Concerns

Additionally, the MSPCL invited the FSOB to the Maynard facility to hold their October meeting and tour the facility. At the October meeting, the FSOB toured the laboratory and Director of the MSPCL, Kristen Sullivan, gave a presentation on the budget process as a whole, some history of the MSPCL's budget, information on staffing, and equipment. This presentation provided the FSOB with an opportunity for a Question and Answer session with laboratory personnel where they could ask any outstanding questions and request additional documentation relevant to their audit.

VI. FINAL DOCUMENT REQUEST

At the conclusion of the October meeting, the FSOB compiled a final list of additional documents to facilitate the MSPCL review. This list included:

- 1) Updated equipment inventory 10 years or older
- 2) Breakdown of annual budget versus grant budget
- 3) Breakdown of BODE spending
- 4) Breakdown of average analyst overtime hours by department
- 5) List of lab personnel who hold certifications and type
- 6) A reasonable needs list from the lab

In response, the MSPCL provided the following documents which are included herein as **Appendix D:**

- 1) Updated Asset Inventory
- 2) FSOB Info November 2019 Excel Spreadsheet depicting Breakdown of Grant Budget versus Annual Budget
- 3) Grant budgets Excel spreadsheet for the years 2017-2019
- 4) FSOB Info November 2019 Excel depicting spreadsheet breakdown of BODE spending
- 5) Bode Cellmark Forensics¹⁰ budget estimates
- 6) Bode Cellmark Forensics pricing charts
- 7) Breakdown of scientists who hold certifications
- 8) FSOB overtime spreadsheets for civilians and sworn personnel

¹⁰ Bode Cellmark is an external forensic science vendor which handles evidence sent out by MSP labs for testing and analysis.

4. SUBSECTION 9(c) RECOMMENDATIONS

At this time, the FSOB is prepared to make the following recommendations broken down by subsection 9(c).¹¹

Not more than 6 months following the appointment of its membership, the FSOB shall conduct a comprehensive audit of the facilities and practices being utilized for criminal forensic analysis in the Commonwealth and the operation and management of the Massachusetts state police crime laboratories. Such audit shall include, but not be limited to:

(i) evaluating the capabilities of the state police crime laboratory and its ability to process evidence necessary to comply with the Massachusetts general laws;

Through the review of documents, presentations, and responses provided by the MSPCL, including the MSPCL Summary of Key Issues Concerns, the FY 20 Department of Massachusetts State Police Crime Laboratory-Spending Plan (September 3, 2019), the 2018 MSPCL Management review, and the various documents in Appendix B and C, the FSOB has concluded that the following processes are present at the MSPCL.

- A) The MSPCL does comply with the ANAB and ISO accreditation standards. The MSPCL does have a process in place to respond to any negative findings and inconsistencies, and has a review process which creates a feasible plan for remedying these inconsistencies.

- B) The MSPCL recognizes that steps can be taken to further minimize the effect of cognitive bias related to human factors in forensic work, including changes to the intake, processing and documentation of examination, and analysis. Furthermore, the MSPCL has received training on cognitive bias and human factors, and is making adjustments to minimize the impact of cognitive bias factors, e.g., by updating forms and regularly discussing and working to resolve these issues.

- C) The MSPCL has recently undergone a facility review and reorganization of space to accommodate the growing needs for forensic services. To this end, they have maximized work space and the flow of operation to provide more efficient and viable facilities and operations. However, they have also reached their maximum capacity in most of their facilities and they anticipate the need for expanded or new facilities in the near future.¹² The needs outlined in the 2018 MSPCL Management Review (which are quite extensive) are anticipated and budgeted in the MSPCL-Spending Plan referenced above. This process of review, anticipation of needs, and projection of costs to remedy those

¹¹ See Section 9(c) of Chapter 69 of the Acts of 2018 “*An Act Relative to Criminal Justice Reform*”

¹² The FSOB anticipates the need to reexamine the adequacy of facilities as it relates to MSPCL in the near future.

needs/necessities is evidence that the MSPCL is fully engaged in the process and is seeking to “provide quality forensic services to the Commonwealth”.

- D) As a result of federal grant awards, the MSPCL has also undergone an evaluation of current processes and procedures in its Forensic Biology, Evidence Control, and Case Management Units, using Lean Six Sigma Process Mapping Procedures. They were able to demonstrate to the FSOB how this process increased the efficiency of those units.

The FSOB recommends that:

- A) The MSPCL maintain their forensic accreditation and annually provide the FSOB with documentation demonstrating continued maintenance of this accreditation including:
- a. All internal and external assessment and audit reports
 - b. Remediation documentation of any non-compliances or findings to external assessments or audits, as necessary
 - c. Annual Management Review report
 - d. All disclosures of significant changes, events, and nonconformities self-reported to their accreditation body, as necessary, and the accreditation body’s response
 - e. Any proficiency test results determined to be “not successful” and corrective actions taken
 - f. Complaints concerning the quality or delivery of reliable forensic science services
- B) The MSPCL provide the FSOB with an annual review and evaluation of its staffing, including current unfilled analyst positions, anticipated possible future vacancies (e.g. retirements, promotions), and additional positions required to address increases in submissions, testing backlogs, or mandated testing requirements.
- C) The MSPCL communicate, on a monthly basis, any instances of professional negligence or misconduct which impact the accuracy and confidence in the results of any forensic analysis.
- D) Lean Six Sigma Process Analysis Mapping should be expanded to include all divisions of the MSPCL. To this end, the MSPCL should pursue funding, including federal grants and annual budget requests. This additional Process Analysis Mapping would allow the MSPCL to determine additional ways to increase efficiency and improve the quality of their forensic work. To the extent that the MSPCL is able to implement Process Analysis Mapping, it shall take steps to ensure that the report of this process contains recommendations for staffing and budget requirements which when implemented would provide more efficient and cost-saving procedures.

- E) The MSPCL will annually report to the FSOB any updates or changes which are implemented to address the impact of cognitive bias in human factors on forensic work, with respect to paragraph 2B. This will include issues related to resources.

(ii) the condition and accuracy of testing equipment;

Through the review of the MSPCL's Equipment Inventory and Asset spreadsheets, the FSOB recommends that:

- A) The Administration¹³ reassess the current capital budget process and the operational budget process for the MSPCL to determine whether the MSPCL can be better supported through additional budget allocation(s).
- B) All major equipment and related hardware and software peripherals shall be on an automated replacement plan based on industry standards and recommendations. In the short term, the FSOB shall evaluate the information that has been provided by the MSPCL concerning all instrumentation identified as in "fair or poor" condition on the FSOB Info November 2019 GAAP Inventory >10yrs list to determine if they should either be replaced or updated.

(iii) the handling processing, testing and storage of evidence by such facilities;

- A) Despite best efforts, the MSPCL is not consistently able to complete all of its requested examinations in a timely turnaround time due to the high and ever increasing volume of cases submitted for analysis. Though not the only unit that is taxed, the Drug Unit is the most critical at this time with a significant backlog. The MSPCL is looking at ways to address backlog testing and this topic will be a focus of future discussion by the FSOB.
- B) To restate, Lean Six Sigma Process Analysis Mapping should be expanded to include all divisions of the MSPCL. To this end, the MSPCL should pursue funding, including federal grants and annual budget requests. To the extent that the MSPCL is able to implement Process Analysis Mapping, it shall take steps to ensure that the report of this process contains recommendations for staffing and budget requirements to implement processes determined to provide more efficient and cost-saving measures.

(iv) establishing professional qualifications necessary to serve as the head of the state police crime laboratory;

¹³ The Administration includes the Governor's office, Executive Office of Administration and Finance, Executive Office of Public Safety and Security, and the Department of State Police.

In order to provide an appropriate response, the FSOB will require additional time to thoroughly research the professional qualifications applicable to the position and used by other forensic service providers as required qualifications.

(v) the licensure and oversight of laboratory personnel;

Currently, certifications are not required of all MSPCL personnel. The FSOB has been informed that 19 out of approximately 240 eligible personnel of the MSPCL hold certifications, which were obtained voluntarily at their own expense. The types of certifications held include The American Board of Criminalistics (ABC), American Board of Forensic Toxicology (ABFT), International Association of Identification (IAI), International Association for Property and Evidence (IAPE), and Clandestine Laboratory Certification (CLC). In order to determine whether something should be formalized in this regard, the FSOB intends to conduct a review of the continuing education (CE) accessibility and funding. The FSOB will further examine the feasibility and desirability of requiring continuing education and/or certifications. This will include a review of budgetary resources necessary to implement any new requirements without relying on outside funding sources.

(vi) determining the proper entity to control the crime laboratory and whether it would be appropriate to transfer such control to another executive agency or to an independent executive director;

In order to provide an appropriate response, the FSOB will require additional time to thoroughly research the proper entity to control the crime laboratory and whether it would be appropriate to transfer such control to another executive agency or to an independent executive director.

(vii) the feasibility of creating a board to select an independent executive director of the crime laboratory;

In order to provide an appropriate response, the FSOB will require additional time to thoroughly research the feasibility of creating a board to select an independent executive director of the crime laboratory.

(viii) setting term limits and reappointment standards applicable to the head of the state police crime laboratory.

In order to provide an appropriate response, the FSOB will require additional time to thoroughly research setting term limits and reappointment standards applicable to the head of the state police crime laboratory.

5. CONCLUSION

In its first six months of operation, the FSOB has focused its attention on the MSPCL. The MSPCL is providing quality services despite being stretched beyond capacity. Increasing technical, service, and administrative demands, as well as budgetary constraints necessitate a commitment by the Commonwealth to ensure adequate staffing, equipment, facilities, and resources. With the exception of projects, such as the Lean Six Sigma, that have been funded by federal grants, the current level of functioning only allows for reactive as opposed to proactive delivery of forensic services. In the preceding sections, the FSOB has made initial recommendations as a result of this audit. Going forward, the FSOB intends to examine what funding and policy modifications would enable the MSPCL to achieve optimum performance.

The FSOB wishes to commend the management and staff of the MSPCL for their responsiveness throughout the process. This audit would not have been possible without their active cooperation.

The importance of delivering scientifically sound forensic services in the Commonwealth is highlighted by the passage of the Criminal Justice Reform Act and the mandate given to the FSOB. The FSOB is in agreement that ensuring a proactive approach to address issues related to delivery of forensic science services is a priority.

The commissioning of the FSOB underscores the importance of the crisis faced by many states in the delivery of forensic services. Inadequate funding, training, and compliance have left many states, including Massachusetts, vulnerable to criticism and to the dismissal of cases in the judicial system. In addition, the cost of wrongful convictions to society is immeasurable. The government, through forensic service providers, has a responsibility to provide up to date and reliable forensic services and to regulate how these are being done. This is critical to the integrity of the criminal justice system. The importance and gravity of this charge cannot be overstated and level funding will not remedy these issues.

In the previous four sections of this Report, the FSOB has identified areas of the MSPCL that require further examination and evaluation. In addition, the FSOB intends to use the audit of the MSPCL as a blueprint for evaluating other forensic service providers. Given the responses from our initial inquiries, the scope of these tasks is substantial and the FSOB will require significantly more support resources.

The FSOB also intends to begin its discussion of the other, non-audit, activities outlined in the Criminal Justice Reform Act, including:

- 1) Creating a process to investigate the scientific validity of forensic science techniques or analysis;

- 2) Developing and implementing a system for forensic laboratories to report professional negligence or misconduct;
- 3) Actively engaging stakeholders in the criminal justice system in forensic development initiatives and recommending ways to improve education and training; and
- 4) Developing and implementing a system to evaluation laboratory education and professional licensing processes.

The establishment of the FSOB is a significant step in bringing to the forefront issues of critical value to the integrity of the criminal justice system. With the formation of the FSOB, Massachusetts joins other states in acknowledging the importance of quality forensic services. The collaboration of forensic scientists and professionals, academics, and members of the legal community brings diverse and unique perspectives to this important mission. We are pleased to be a part of the process that will guide the future of forensic science in the Commonwealth.