

Final Report and Recommendations  
Regarding Vance's  
Comprehensive Operational  
Assessment of the  
Massachusetts State Police  
Crime Laboratory System

Prepared for:

The Commonwealth of Massachusetts  
Executive Office of Public Safety

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## I. Executive Summary

The scientific methodologies being employed at the Massachusetts State Police Crime Laboratory (MSP Crime Lab) are scientifically sound and conform to generally accepted practices in the forensic science community and are consistent with national best practices. The policies and procedures in effect in the MSP Crime Laboratory are current and likewise conform to generally accepted practices in the forensic science community. In short, our review revealed no deficiencies in the science being conducted at the MSP Crime Lab.

In fact, our assessment revealed that some of the current practices exceed the requirements set forth in internal policies and procedures and accepted best practices and national standards. As such, they are unnecessary. They lead to delays and decrease productivity. To some degree, this explains why the output per analyst is lower than the national average, as discussed in our recommendations.

We did identify a number of important areas which need improvement if the MSP Crime Laboratory is to move forward. While the DNA analyses are scientifically sound and consistent with good forensic practices, the management of laboratory operations in this area must be improved in order to become more efficient and effective and assure continued quality analysis. Other disciplines within the laboratory are also discussed in our report, in the context of the overall improved effectiveness and quality management of the entire laboratory. Our review and evaluation of the MSP Crime Laboratory yielded an extensive set of findings and recommendations that emphasize:

- **Organization of the Laboratory management structure** to improve accountability, communication, and the overall expertise and knowledge base of the Laboratory
- **Establishment and clarification of processes** to ensure adherence to regulatory requirements as well as efficiency
- **Formalization of quality assurance (QA) accountability and procedures** to ensure QA processes focus on superior quality and are not used in a punitive manner
- **Investment in staff retention** to create a loyal base of employees that demonstrates high morale and low turnover
- **Professional development of staff** as well as their involvement in industry-specific activities to improve their knowledge level and raise the Laboratory's overall level of professionalism and expertise

The recommendations contained in this assessment fall within several categories:

- ⇒ **Laboratory management**
- ⇒ **Quality assurance**
- ⇒ **CODIS**
- ⇒ **DNA units**
- ⇒ **Forensic Science Advisory Board**
- ⇒ **Backlog reduction**

- ⇒ **State-wide computer forensics group**
- ⇒ **Case management unit**

The recommendations within each of those categories are summarized as follows.

#### ***Laboratory Management***

The MSP Crime Laboratory should consolidate all forensic functions, seek the appropriate ASCLD/LAB accreditations for each of the functions, and should conduct a national search for a Laboratory Director who meets critical educational and experiential requirements. Firearms and toolmarks, crime scene processing, and other appropriate disciplines should be encouraged to not only move forward with accreditation, but, along with the other currently accredited disciplines, to serve as ASCLD/LAB inspection staff volunteers. The Laboratory should also develop policies with the help of external reviewers such as the Forensic Science Advisory Board. Management should increase communications within the laboratory which is essential to maintaining high morale. Additionally, increased and focused internal and external training opportunities are essential to maintaining high quality forensic analyses.

#### ***Quality Assurance***

A comprehensive and fully integrated quality assurance management program, driven by a comprehensive quality manual and single, proactive Quality Assurance Manager who meets critical experiential and educational requirements, must be developed. The Quality Assurance Manager must report directly to the Laboratory Director. The focus must be on right people in right places doing right practices all the time. Quality assurance (QA) representatives answerable to the Quality Assurance Manager and, ultimately, the Laboratory Director, should be placed in all the discipline units, and ensure that the external and internal audit processes and quality practices of the laboratory and various units are appropriately applied in a timely manner. The lack or misuse of corrective actions have resulted in numerous problems that could have been avoided with the proper root cause investigation and timely resolution by QA assigned personnel. Regular, objective audits and reviews must be conducted.

#### ***CODIS***

The MSP Crime Laboratory must appoint an appropriately qualified CODIS Administrator with significant forensic DNA experience. The appointment of two Assistant CODIS Administrators, with DNA casework analysis experience, will also assist in addressing the significant NDIS (National DNA Index System), collection, and outsourcing needs of the unit. CODIS policies must be reviewed and updated, and audits should ensure that policies and practices are aligned. A familial search policy should be developed.

### ***DNA Units***

The DNA units should remain flexible and responsive to the needs of the Laboratory's customers. The DNA units should utilize technology (expert systems) to assist in the processing of DNA analyses. Both casework and CODIS sample production could be enhanced with the use of expert systems, additional personnel, and integration of laboratory operations. Retention of personnel is vital to laboratory effectiveness since lack of experience generally increases processing time and increases opportunities for administrative and technical mistakes. Improved communication among supervisors and between supervisors and employees must be established since lack of consistency and dissemination of important information has created inefficiencies. DNA auditor training and DNA audit participation, although time consuming, will help to ensure exposure to best forensic DNA practices. Compensation for DNA staff must be improved.

As discussed in our recommendations, the Laboratory is suffering from a substantial DNA backlog, well beyond those in other jurisdictions. Partnerships, process mapping, technological improvements, outsourcing, and leadership and support from the government must be utilized to ensure that cases that require DNA analysis are expedited and that the backlog is reduced.

### ***Forensic Science Advisory Board***

The current Forensic Science Advisory Board is appropriate, but not adequately staffed to address some of the most important challenges facing the MSP Crime Laboratory. The current board should continue, but it should be augmented with a scientific subcommittee and individuals appropriate for specific issues that are important to the Laboratory. Specifically, a scientific subcommittee should be established. One aspect that should be a part of the scientific subcommittee's charge is the review of audits and corrective action plans related to laboratory operations.

### ***State-Wide Computer Forensic Group***

Computer forensic requests will only continue to increase with the widespread use of computers, cell phones and other digital personal equipment. The MSP and the Commonwealth of Massachusetts are not equipped to handle the current requests for forensic services, and current capacity at the MSP only involves the analysis of Windows-based Personal Computers. Far too many other types of digital evidence are not analyzed because of the lack of a coordinated, state-wide effort. The first step in this effort should include contact with the Boston Division of the FBI to determine interest in forming such a group with federal assistance and personnel.

### ***Case Management Unit (CMU)***

The CMU should be responsible for the actual "management" of potential DNA and CODIS cases. They should be responsible for the coordination of samples through the Criminalistics, DNA, and eventually CODIS units, and this requires the input, cooperation, supervision, and coordination of the personnel in these units. The CMU should be tasked with ensuring that appropriate personnel and priorities are placed on case samples as they move through processing. The ability to interface with appropriate databases such as the District Attorney's case tracking database would help to coordinate

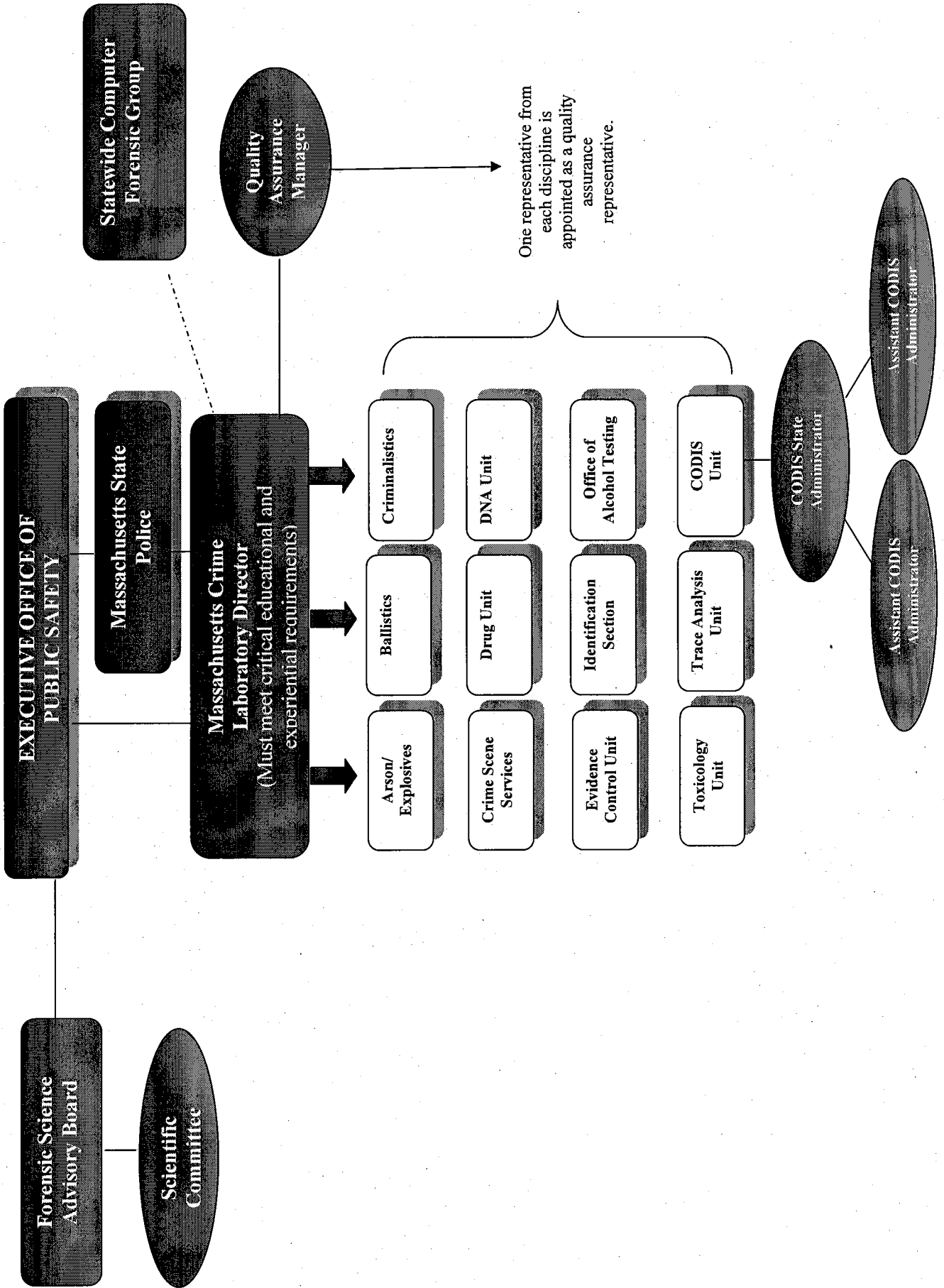
processing efforts. The Laboratory must develop and implement a prioritization system for casework analysis.

**Proposed Organizational Structure of the Laboratory**

Many of our recommendations focus on streamlining the organization to increase chain of command accountability, and clarity of the reporting structure. We believe that re-organization of the MSP Crime Laboratory is essential to ensuring that the work performed by the Laboratory is as efficient, accurate and timely as possible. While setting high expectations for job performance can be motivational, those expectations have to be reinforced through empowered supervisors, formalized quality assurance processes, and through investment in employees' knowledge base and professionalism as well as investment in scientific and professional affiliations for the Laboratory itself.

As a result of our recommendations, the organizational structure of the MSP Crime Laboratory would change considerably as demonstrated on the next page.

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Organizational changes alone will not improve the overall efficiency of processes. Formalized processes alone will not resolve the barriers that currently exist due to an unclear chain of command and quality assurance structure.

On the following pages, please find our detailed explanations of each of these findings. Each of these recommendations is offered with a clear understanding of the MSP Crime Laboratory's profoundly important role in the Commonwealth's criminal justice system. Decision-making processes around each of these recommendations must also be weighed with that understanding in mind. With the appropriate organizational modifications and investment in the Laboratory's staff, we believe the MSP Crime Laboratory System will not only overcome current operational inefficiencies but could become a standard bearer in the forensic science industry.

