

# EXECUTIVE SUMMARY

## I. Assessing California's Forensic Services Delivery System

Forensic disciplines, from fingerprint comparison to firearms examination to DNA analysis, are increasingly relied upon by law enforcement to solve crime, and by district attorneys to prosecute offenders. However, increased use of these services places new strains on the limited resources of our forensic science delivery system.

Attorney General Bill Lockyer created the Task Force on Forensic Services to assess the current status of California's crime laboratories and to identify the changes necessary to ensure the system has the capacity and expertise to deliver timely and accurate forensic services into the future.

### STUDY METHODOLOGY

This study is based on information gathered from laboratory directors, police chiefs, sheriffs, and district attorneys. The Task Force also surveyed public forensic laboratories in other large states regarding staffing, workload, and turnaround times. Unless otherwise noted, the data is for fiscal year 2000-2001. ■

← See page 3

## II. The Big Picture: National Trends in Forensic Science

There are several significant trends that influence the direction of forensic science nationally and in California. These trends come with an increased cost to the laboratory, requiring major investments in training, new equipment and quality assurance oversight.

### AUTOMATION AND COMPUTERIZED DATABASES

Automation has increased the efficiency for routine procedures, such as blood alcohol analysis in driving under the influence (DUI) cases. Laboratory Information Systems (LIMS) have improved the laboratories' ability to track the internal flow of evidence and case analysis. However, the LIMS currently are not compatible between labs, making it difficult to collect workload and other management information across California and between states.

← See page 6

Automation has also opened up a whole new world of evidence examinations. National automated databases such as **AFIS** (Automated Fingerprint Identification System), **CODIS** (Combined DNA Index System) and **NIBIN** (National Integrated Ballistics Information Network) permit forensic scientists to conduct evidence comparisons and identify suspects in unsolved cases. However, the net impact of computerization and automation has been that gains in efficiency have been more than offset by an increased workload.

See page 10 →

#### **ADVANCES IN SCIENCE AND TECHNOLOGY**

Science and technology are advancing at an ever-accelerating rate in forensic science as throughout all modern society. To keep pace with technological improvements, operations budgets must increase to cover the costs for new laboratory equipment and training. The more information the laboratory can generate using new technology, the greater the demand for that service becomes. As the expectations of the criminal justice system increase, so does the laboratory's workload and its need for additional staff.

There is a growing trend nationally toward examination of digital evidence (from personal computers, servers, cell phones, pagers, fax machines, etc.) by specialists within forensic laboratories. The forensic community in California will be expected to meet the challenge of providing this service.

See page 14 →

#### **RECOGNITION OF THE SIGNIFICANCE OF THE CRIME SCENE**

Each step in processing a crime scene is critical. If the evidence obtained is compromised, its potential to link the perpetrator to the crime scene is greatly diminished. The value of appropriately trained, equipped and experienced crime scene investigators cannot be over-emphasized.

New crime scene challenges, such as terrorist incidents, are outside the current capabilities of most forensic laboratories. Mass disasters pose monumental problems for locating and identifying human remains. The advent of computer crime has created a growing need for recognition and proper preservation of digital evidence. California's current planning process with regard to both terrorism<sup>1</sup> and computer crime does not adequately address forensic resource needs.

There has been a dramatic increase in the need for appropriately trained, equipped and experienced crime scene investigators. The role of the forensic laboratory scientist vis a vis that of the crime scene investigator and the training required for each role clearly need attention.

<sup>1</sup> PC 11010, enacted in 2002, has begun to address this issue.

**PROFESSIONALISM: QUALITY ASSURANCE, ACCREDITATION, TRAINING, AND EDUCATION**

Emphasis on quality assurance standards is a major and growing trend in government and private industry worldwide. A strong quality assurance program is an essential foundation – and a necessary “cost of doing business” – for any forensic laboratory. The following are four of the most significant elements of crime laboratory quality assurance:

**A. Laboratory Accreditation:** Accreditation is a voluntary program whereby an organization is inspected by an external body to determine that its policies, procedures, staff, physical plant, and work product meet published peer-based national standards. The most widely sought crime laboratory accreditation is from the American Society of Crime Laboratory Directors-Laboratory Accreditation Board (ASCLD/LAB). By April 2003, 26 of the 33 California public crime laboratories were ASCLD/LAB accredited, and the other seven labs intend to apply in the near future. The more accurate – and more time consuming – processes and additional documentation in an accredited laboratory have created a need for more resources.

**B. Certification of Staff:** Certification is a peer based, voluntary program of examination, coupled with proficiency test and continuing education requirements, to establish that an individual forensic scientist meets national professional standards of knowledge, skill, and experience. The academic degree and continuing education requirements required for certification will have a significant effect on laboratory budgets.

**C. Scientific Standards:** A number of national Scientific Working Groups (SWGs) that include broad representation from the forensic science community are responsible for developing analytical guidelines, training and educational requirements, and quality assurance standards. The recommendations of these groups can be expected to have a significant impact on both certification and accreditation standards.

**D. Training and Education:** California has one of the most highly regarded forensic science training organizations in the country, the DOJ’s California Criminalistics Institute (CCI). Crime laboratory directors consider support for CCI training to be one of their highest priorities. State law requires CCI and the state’s public universities to work together to enhance DNA training. The state should also encourage universities to support research and professional education in all facets of the forensic sciences. ■

← See page 17

← See page 19

← See page 21

← See page 22

← See page 24

### III. California Forensic Laboratory Operations

See page 27 →

#### OVERVIEW AND HISTORY

Unlike many other states whose forensic services are administered entirely at the state level, California's crime laboratory system is composed of a mosaic of state, county and city level entities. The current configuration of the system was established in the early 1970s. There are 33 state and locally funded laboratories recognized by the California Association of Crime Laboratory Directors (CACLD). Nearly 1,500 forensic science professionals<sup>2</sup> and nontechnical support personnel serve California's law enforcement and justice agencies. Each jurisdiction is served by only one primary forensic laboratory for any given type of testing. It is clear that there is no redundancy in the current statewide laboratory system.

See page 30 →

#### STATE LEVEL LABORATORIES

The largest laboratory organization in the state is the Department of Justice's Bureau of Forensic Services (BFS), which has 13 accredited laboratory operations located at 11 sites and provides forensic services to 46 of California's 58 counties. BFS operates two specialized programs that offer services to the entire state – the CODIS databank (called Cal-DNA) and the California Criminalistics Institute (CCI), which trains forensic scientists throughout the state.

The 173 professional staff in the BFS-operated laboratories complete about 63,000 requests for service each year. The vast majority of these requests are for high volume, relatively routine cases (such as controlled substances, blood alcohol, and toxicology) that are far less time consuming than the more complicated BFS cases (such as DNA, firearms and trace evidence) commonly associated with violent crimes. State laboratories handle the bulk of clandestine laboratory ("clan lab") cases in California because illicit drug manufacturing activities tend to locate in the rural areas serviced by BFS.

See page 34 →

#### COUNTY-MANAGED FORENSIC LABORATORIES

Forensic laboratories managed by counties normally serve all law enforcement agencies within the county, although larger cities within a county may have their own laboratories. The 535 professional staff working in the 12 county-managed laboratories complete about 280,000 case requests per year, most of which (as with the state labs) consist of controlled substances, blood alcohol, and toxicology analysis. There is considerable variation in the level of services offered by the county labs. All provide controlled substances analysis and firearms examination, many offer DNA analysis, some have full-fledged trace evidence units, and only a few offer questioned documents service.

<sup>2</sup> Professional staff includes laboratory scientists and examiners who analyze evidence, issue reports, and testify as to their findings.

### **MUNICIPALLY-MANAGED FORENSIC LABORATORIES**

Seven municipal forensic labs employ 278 professional staff that complete about 109,000 case requests per year. All the municipally managed laboratories have a heavy controlled substances workload, but they do not have comparable workloads in terms of other types of cases they process. Some provide limited services, such as controlled substances and latent print comparison only, while others offer a full range of forensic testing .

← See page 35

### **PRIVATE LABORATORIES**

Private laboratories in California and throughout the country perform a variety of forensic tests for California law enforcement agencies, prosecutors, and even public laboratories. Private laboratories are most commonly used in blood alcohol and toxicology cases and in a significant portion of DNA cases. With these exceptions, the case-work capacity of California's private laboratories is relatively small. Much of their practice is devoted to reviewing the work of public laboratories on behalf of the defense.

← See page 36

### **FEDERAL LABORATORIES**

In general, federal laboratories accept only cases related to investigation or adjudication of crimes involving federal statutes or occurring in federal jurisdictions. There are Drug Enforcement Administration (DEA), Bureau of Alcohol, Tobacco, and Firearms (BATF), U.S. Customs and Naval Criminal Investigative Services forensic laboratories in California. The Federal Bureau of Investigation (FBI) Laboratory is in Quantico, Virginia. California agencies rarely send cases to the FBI. ■

← See page 36

## IV. Assessing California's Laboratory Workload and Performance

See page 37 →

See page 38-40 →

See page 47 →

See page 43 →

### FORENSIC LABORATORY OPERATIONS WITHIN CALIFORNIA

Forensic laboratories offer a wide variety of services, although no single laboratory in California provides every service. A number of factors influence the decision to offer certain forensic services, including cost of offering the service, demand from client agencies, and the expertise of laboratory staff.

California's government laboratories employ 985 professionals, assisted by 471 support staff. The responding laboratories collectively completed 451,513 cases or "requests for service," 71% of which were for controlled substances, blood alcohol, and toxicology analysis. A relatively small proportion (24%) of the professional staff are assigned to perform these high volume, non labor intensive tests.

Most of the professional staff time in the laboratories is devoted to the examination of complex evidence such as biological stains, firearms, fingerprints and trace evidence associated with violent crime. For example, 15.5% of the professional staff were assigned to forensic biology (DNA/serology) cases, even though DNA/serology requests comprised only a small fraction (1.5%) of the total requests for service.

The laboratories reported that over half of their equipment is either modern or state-of-the-art. However, a third is old and 10% is obsolete. Laboratories typically do not have a budget for ongoing replacement and upgrading of capital equipment, but must seek and justify these funds each year.

Many laboratories also have identified the need to update, expand, or replace their existing facilities. Although several facilities have been recently replaced, significant facility needs remain to be addressed. There is a small set of services (analysis of soil, glass, paint, gunshot residue and explosives) for which the equipment is expensive and the expertise rarely used and, as a consequence, which might be more efficiently provided by centralized facilities.

Turnaround time<sup>3</sup> is a key area of concern to laboratory users. The statewide average turnaround time in calendar days is:

- Blood alcohol ..... 5.0 days
- Controlled substances ..... 9.3 days
- Toxicology ..... 15.9 days
- Latent Prints (comparisons) ..... 34.1 days
- Firearms and toolmark ..... 40.3 days
- Trace evidence ..... 62.7 days
- DNA cases ..... 182.0 days

The total number of cases backlogged<sup>4</sup> across the state was relatively low – about 18,000 compared to the over 450,000 cases completed the same year. However, a significant backlog was concentrated in five of the labor-intensive services types closely associated with violent crime.

3 Turnaround time is defined as the calendar days from when the case request is received in the laboratory until the report on the test results is completed.

4 Backlog is defined as the number of case requests received by the laboratory that remain in the queue awaiting testing and completion of a report.

Forensic biology, firearms, trace evidence, fire debris and latent fingerprints comprised 63% of the backlogged cases, and forensic biology (DNA/serology) was clearly the single greatest problem area.

← See page 45

The amount of laboratory work requested for each case has increased as new technologies have developed and as the courts and the public have become more aware of the potential value of forensic evidence. Laboratory directors collectively estimated that a 33% increase in staffing levels (326 additional staff) would be required to meet the current needs of their clients in a timely manner.

We conclude from the surveys that laboratories are currently balancing their workload by denying service in property crimes, by focusing on cases where a suspect has already been identified, and by juggling caseloads at the expense of timely service. In essence, they are robbing Peter to pay Paul.

#### **CLIENT FEEDBACK: LAW ENFORCEMENT AND DISTRICT ATTORNEYS**

← See page 50 & 56

Most responding agencies expressed a high level of overall satisfaction with their laboratory service, although most had areas of concern.

Turnaround time for laboratory results is the most frequent cause for dissatisfaction. Two-thirds of the responding prosecutors believed that slow test results in DUI<sup>5</sup> and controlled substances cases reduced the number of successful plea bargains. Turnaround time can be improved by adding additional staff or assigning overtime.

The second biggest concern for law enforcement was evidence collection at crime scenes. This stems primarily from a laboratory's inability to get a qualified evidence collection team to the scene in a timely manner. Policy makers might address this problem by augmenting training programs for law enforcement officers and paraprofessional crime scene investigators.

The primary reason law enforcement agencies sent work to private laboratories was to achieve faster turnaround time. Local control over priorities was the second most cited reason. The third reason was that the agency's primary forensic laboratory did not offer the service needed.

Given the heavy workload of laboratories across the state, priority is given to cases that are already in the "pipeline" and those with suspects, especially those in custody. The result is that forensic laboratories are seldom used for true investigative purposes – identifying a suspect when investigators have no other leads. Even though automated databases developed for DNA, firearms, and latent prints have a significant chance of identifying a suspect, they are not used to their full potential due to the limited resources of most agencies.<sup>6</sup> Nearly 80% of the responding prosecutor's offices believed that emphasis on applying forensic resources to the prosecution, rather than at the initial investigative stages of a case, was a moderate or serious problem confronting the justice system.

5 DUI, Driving under the Influence (blood alcohol).  
6 The COLD HIT grant program funded by the Office of Criminal Justice Planning (OCJP) has had a significant impact on the use of DNA profiling in unsolved sexual assault cases.

See page 61 →

### **COMPARISON WITH OTHER STATE LABORATORY SYSTEMS**

The Task Force sent surveys to the 10 other largest states and received usable results from five: Illinois, New York, North Carolina, Texas, and Virginia. The weighted average turnaround time across all case types in California laboratories was about 15 days, while the average of other states was 37 days. California laboratories also appear to be producing more work per staff member than the other state labs. All in all, results indicated that the California laboratories are performing well from a productivity and turnaround standpoint in comparison with other states. It appears that improvements will need to come from new resources or new ways of doing business overall.

See page 64 →

### **SHORTFALL IN DNA PROCESSING CAPABILITIES**

Bottlenecks in DNA analysis are a significant problem in California. Turnaround times are long, backlogs are high, and prosecutors reported sending over 1/4 of their DNA cases to private labs. One national leader in DNA testing is the State of Virginia, which has by far the largest number of “cold hits” using DNA. Virginia stores profiles of all convicted felons in its CODIS database, as do 28 other states. One study showed that 60% of the “hits” Virginia made on sexual assault cases would not have occurred if its database had been restricted to the same offenses included in California. Virginia also analyzes DNA evidence in a far greater proportion of its cases than does California. California laboratories would have needed over 300 more scientific staff allocated to DNA testing to profile the same proportion of total cases as Virginia.

See page 65 →

### **THE IMPACT OF INCREASING LAB CAPACITY**

Expanding the capabilities of any single component of the justice system has implications for the remaining components. For example, police agencies need the resources to investigate the additional crimes solved via DNA and other databases, and district attorneys need the resources to prosecute them. As laboratory capabilities are enhanced to support more cases, and as the payoff for having the laboratory work done increases, investigators and prosecutors will both need to rethink how they can best use forensic evidence to investigate unsolved cases.

See page 66 →

### **PLANNING FOR THE FUTURE**

Although we have identified major trends and challenges in this Task Force Report, the forensic system in California needs to develop a unified strategy for future improvements. An ongoing planning process is needed for the most effective use of public resources, and a coherent voice is needed to advise public policy makers on forensic science issues. ■

## V. Task Force Findings and Recommendations

### ORGANIZATION AND PERFORMANCE

- The current organization of California’s forensic system is complex but appears to function effectively. There is little impetus for and probably little to be gained by fundamentally altering the configuration of the system.

← See page 69

### PLANNING FOR THE FUTURE

- The forensic system in California needs to develop a unified strategy for future improvements. There is an ongoing need to forecast the most significant likely changes and determine the near-term steps the laboratory operations and related support systems will need to take to meet them.
- The State should create an ongoing representative body (analogous to the present Task Force) whose mission would be:
  1. To provide a forum for follow-up and to coordinate the implementation of these recommendations;
  2. To develop and continually update a shared vision and priorities for California’s forensic services delivery system;
  3. To create a master plan for implementing that vision; and,
  4. To act in an advisory capacity to the Department of Justice, the Office of Criminal Justice Planning, and the Legislature.

← See page 70

### DEMAND FOR SERVICE AND IMPROVED TURNAROUND

- Based on past history, demand for laboratory services will continue to rise, even if crimes do not, due to the increased technological capabilities of the laboratories and higher public expectations of forensic science.
- To reduce backlogs and improve turnaround times, the State and local agencies should consider funding overtime or limited term staff increases in California’s crime laboratories. Over the long term, improving turnaround time and minimizing denial of services will require a net increase in permanent staffing levels.
- State and local agencies should evaluate the role of forensic laboratories in the investigation of computer crime (digital evidence) and in the law enforcement response to terrorist incidents and should incorporate a forensic component into existing plans.

← See page 71

### QUALITY ASSURANCE AND ACCREDITATION

- The State should require all public forensic laboratories to be accredited by ASCLD/LAB. To the extent that accreditation is mandated, the State should identify costs related to accreditation and assist laboratories with those costs.
- Agencies that manage crime laboratories must recognize and support the costs (both staff time and operating expenses) of accreditation and other quality assurance measures.
- State (for example, POST and CCI) and local agencies should explore ways to ensure that crime scene, digital evidence, and latent print units not controlled by forensic laboratories follow appropriate quality assurance guidelines and meet appropriate training standards.

← See page 72

See page 73 →

#### **USE OF FORENSIC DATABASES IN INVESTIGATIONS**

- The State should enact legislation to include all felons in the Cal-DNA databank.
- The State should extend funding for the “Cold Hit” Program and expand the program to cover all DNA cases, with and without suspects.
- Agencies should identify and attempt to fund the increased laboratory, investigative, and prosecutorial resources needed for full use of CODIS, AFIS and NIBIN.
- The State should seek earmarked federal funding for all California public laboratories to increase laboratory capacity and reduce turnaround time, especially in DNA cases.
- Law enforcement and prosecuting agencies should reevaluate their investigative approaches and modify them where appropriate to make the most effective use of forensic laboratory automated database information.
- The state should encourage public universities to support research and professional education in all facets of forensic science.

See page 74 →

#### **EDUCATION AND TRAINING**

- The State should continue to support CCI training, including funding travel for forensic scientists employed by both state and local laboratories to attend CCI courses
- The State should implement and fund the DNA internship program and, ultimately, expand it to other disciplines.
- The State and local agencies should augment in-service training and educational programs for crime scene investigators and latent print analysts and ensure that they meet appropriate professional standards.
- The State should encourage the public universities to support research and professional education in all facets of forensic science.

See page 75 →

#### **EQUIPMENT AND FACILITIES FUNDS**

- Agencies should develop replacement plans for laboratory equipment and establish revolving funds for this purpose.
- Agencies that manage crime laboratories should make every effort to upgrade, expand, or replace existing laboratory facilities, where the need has been identified.
- The State should continue grant funding for equipment and should explore a “sinking” fund for statewide funding of forensic equipment.

See page 76 →

#### **COLLECTION OF WORKLOAD DATA**

- The CACLD should establish a consensus on workload reporting and should conduct a workload survey annually.
- The State should fund development, licensing, and installation of LIMS that provide data conforming to the CACLD workload reporting standards.

See page 77 →

#### **REGIONALIZED SERVICES**

- The State and local agencies should consider regionalizing some services where appropriate.
- Laboratories, especially those that serve multiple client agencies, should set up mechanisms that give their agencies input on case-work priorities. ■

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