



NEVADA FORENSIC TOXICOLOGY LABORATORY: IMPLEMENTATION PLAN



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THE TRAFFIC INJURY RESEARCH FOUNDATION

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PROBLEM STATEMENT & OBJECTIVES

Problem Statement

Nevada is one of two US jurisdictions without a state forensic toxicology laboratory. Instead, three public forensic toxicology laboratories provide limited contracted services across the state (City of Henderson, Las Vegas and Washoe County). While these labs have worked diligently to keep pace with demand for toxicology services, their capacity has been eroded as new and competing functions have been added at local levels. This has contributed to growing case backlogs and left some counties underserved. The bottom line is the absence of a state laboratory means some state agencies must rely on costly contracted services in order to carry out essential functions or demonstrate due diligence in the delivery of services.

As just one example of gaps, the lack of consistent and standardized toxicological data is an impediment to understanding the magnitude of the impaired driving problem in Nevada. Similarly, the lack of standardized testing and data collection is a barrier to decision-making in terms of policy development and resource allocation. This problem has become more pronounced as a result of cannabis legalization. Moreover, without a state lab to conduct independent testing, it is challenging to enforce regulatory requirements related to cannabis production and sale.

As evidence of the extent of the problem, impaired driving is a leading road safety priority in Nevada. In recent years, criminal justice reform related to this topic has been an important issue, receiving attention in special subcommittees tasked with studying the application of penalties for traffic infractions and drug-impaired driving marijuana laws.

Of concern, the total number of all persons killed in road fatalities in Nevada in 2018 was 330 according to the National Highway Traffic Safety Administration (NHTSA) as compared to 291 in 2014.¹ The Office of Traffic Safety in Nevada reported the five-year average number of fatalities was 316 during this timeframe.²

Fatal road crashes involving one or more impairing substances continue to represent a large percentage of overall statistics in Nevada with more than 50% of fatal crashes involving an impairing substance or combination of substances (polysubstance). In the period from 2016 – 2018 polysubstance involved fatal crashes increased by nine percent. Further, among polysubstance impaired drivers, data revealed marijuana was by far the most common substance present. To illustrate, in 71 out 95 cases (75%) involving polysubstance use, marijuana was detected (source: Office of Traffic Safety, State Fatal Data).

In addition, in 2019, the Nevada Department of Public Safety (DPS), Committee on Testing for Intoxication reported there were 12,860 arrests and 3,457 completed court cases for impaired driving (alcohol and drugs). Among completed court cases, 213 cases were dismissed and four were deemed not guilty. Overall, while some progress has been achieved reducing this problem in

¹ Source: 2018 FARS data as mentioned in NHTSA's December 2019 Traffic Safety Facts resource

² Source: 2019 Nevada Office of Traffic Safety Annual Report,

the past five years, gains have been nominal and more concerted effort is needed to address this problem and achieve zero road deaths due to impaired driving.

The cost of collisions in Nevada is equally substantial. Alcohol-impaired driving accounted for 26% of total crashes. In 2013, total motor vehicle crashes in Nevada cost \$356 million, which is 0.81% of the total cost of motor vehicle crashes in the US at \$44 billion (CDC 2014). According to NHTSA (2015), data from 2010 showed a total cost of \$732 per capita in Nevada for motor vehicle crashes. In 2010, Nevada also accounted for 0.8% of the total cost of motor vehicle crashes in the US, which was \$242 billion (NHTSA 2015). Data from 2010 revealed alcohol-involved crashes accounted for \$52 billion (22%) of economic costs. State-specific data for the 2010 year regarding economic costs of alcohol-involved crashes were unavailable.

The recent legalization of recreational marijuana in Nevada further underscores the urgency of putting in place an effective strategy to deter and detect drug-impaired drivers. In neighboring jurisdictions, notably California, Washington and Colorado, the legalization of recreational marijuana has had profound, real-world implications and increased the prevalence of impaired drivers on the road and in fatal crashes. Increased and more consistent toxicological testing of all suspected drivers is a pre-requisite to deter impaired drivers and ensure they are systematically identified and removed from the road, and held accountable, to protect all road users in Nevada.

Moreover, the availability of robust and consistent toxicological data measuring the magnitude and characteristics of the impaired driving problem is imperative to inform policy decisions as well as the strategic allocation of finite resources. The implementation of a state laboratory is paramount to provide a solid foundation to standardize measures and monitor the prevalence of drug-impaired driving in the state. At present, the lack of a state laboratory is a barrier to collecting robust data about the magnitude of the impaired driving problem in Nevada, and the impact of drugs and alcohol on road fatalities in the state. While the testing currently available to law enforcement addresses the most basic needs for effective investigation and prosecution of these cases, there is a lack of standardization in testing, and significant variability in the turnaround time for obtaining test results in some cases. This problem has become more pronounced as a result of cannabis legalization as laboratories across the US have seen an increase in marijuana-impaired driving cases resulting from more widespread availability and use of the drug.

Of equal importance, with the legalization of marijuana there is an emergent need for reliable regulatory testing of marijuana products to ensure compliance with state and federal regulations on the cultivation, and sale of marijuana derived products. The current system of unregulated private laboratories performing this testing leads to inconsistencies in testing quality, and problems for effective enforcement of marijuana laws in Nevada.

As such, the rationale for implementing a state laboratory to conduct toxicological testing and compliance testing of marijuana products is clear.

- > There are 29 active Drug Recognition Experts (DREs) in Nevada of whom eight are certified instructors. Limited numbers mean often DREs are not available to attend traffic stops and evaluate suspects in many jurisdictions. Results of toxicological analysis are often the only evidence to demonstrate a driver was impaired by drugs.

- > Existing county and municipal labs contracted for services simply lack sufficient personnel, instrumentation and space to keep pace with the analysis of drug-impaired driving samples. Despite best efforts, each of the labs reported a backlog of testing and the presence of underserved areas. In addition, these labs face competing priorities and are tasked with analyzing sexual assault kits and related crime function tasks for which additional funding is not available.
- > In 2018, an analysis of impaired driving samples by the City of Henderson Lab revealed the presence of drugs in 55% to 75% of samples per month with drugs detected in an average of 62% of impaired driving cases overall, and almost half of all impaired driving samples had a BAC > .08 as well as drugs present. Las Vegas Metro lab similarly reported 60% of all impaired driving cases screened positive for marijuana in 2018. Generally, after alcohol, marijuana is the drug most commonly detected.
- > Among drivers killed in road crashes, marijuana is most often used in combination with alcohol, and research shows the impairing effects of these drugs are additive (Robertson et al., 2018).
- > Research by Brubacher et al. (2018) compared blood samples and police reports related to injured drivers who were treated in one of seven participating British Columbia trauma centers following a crash between January 2010 and September 2015. Blood samples were analyzed for alcohol, cannabinoids, other recreational drugs (i.e., amphetamines, cocaine), and impaired medications (i.e., benzodiazepines or antidepressants). Police reports were examined for police recordings of the ability of the driver being impaired by alcohol, drugs or medication. Ultimately, results indicated police did not often document drug involvement in drivers in a crash after using cannabis, other recreational drugs, or potentially impairing medications. In fact, police crash reports included in this study failed to identify more than 90% of drug-positive drivers. These findings highlight concerns regarding the ability of police to enforce drug-impaired driving laws as well as the reliance of public health officials on police crash reports to monitor the prevalence of drug-impaired driving.
- > US roadside surveys demonstrate drug-impaired drivers are equally likely to be detected during weekdays and during daytime hours as compared to alcohol-impaired drivers who are most likely to be detected on weekends in late evening hours (Berning, Compton & Wochinger, 2015). As such, impaired driving enforcement activities during weekday and daytime hours is important because Census data indicate Nevada residents spend an average of 24 minutes on the road during morning commutes to work and late afternoon commutes home. These drivers may be at risk for collision involvement due to the presence of undetected drug-impaired drivers.
- > US data indicate the prevalence of marijuana use is highest among young drivers who also have the highest crash risk of any age group of drivers on the road (Compton 2017). Almost one-quarter (22.7%) of Nevada residents were under age 18 years according to Census data, meaning a large population of young drivers will potentially obtain a driving license in Nevada in the next decade.

In summary, the absence of a state laboratory is an impediment to understanding the magnitude of the impaired driving problem in Nevada and developing countermeasures to achieve a strong deterrent effect. Similarly, the lack of standardized testing and data collection is a barrier to decision-making in terms of policy development and resource allocation. Further, it is impractical for the state to undertake independent testing without a state lab, making it very difficult to enforce regulations associated with cannabis production and sale.

The immediate need to establish a state laboratory to undertake testing of biological samples is most recently underscored by the widespread nature of the COVID-19 pandemic. The inability of states to test and identify residents who are positive for the virus is a major barrier to slowing its spread and protecting at-risk populations. Moreover, the pandemic has made the limited resources to keep pace with DUID toxicology testing more obvious. Jurisdictions with a state lab have been able to mobilize faster to execute a coordinated public health response.

Objectives

Against this backdrop, the Traffic Injury Research Foundation (TIRF; www.tirf.ca), an independent road safety research institute, was invited to conduct a gap analysis to inform the implementation of a state forensic toxicology laboratory in Nevada (henceforth referred to as a “state lab”). This involved assessing existing lab services against best practices and undertaking a gap analysis to inform the development of an implementation plan. This work was conducted in consultation with forensic experts from several jurisdictions and representatives of state agencies in Nevada.

TIRF has a cooperative agreement with the National Highway Traffic Safety Administration (NHTSA) to provide technical assistance to requesting states in order to enhance the implementation and delivery of impaired driving countermeasures. From 2009 to 2017, TIRF delivered technical assistance and training for alcohol ignition interlock programs in more than 30 states. In 2017, the cooperative agreement was expanded to encompass technical assistance related to a continuum of impaired driving countermeasures. Notably, TIRF assists jurisdictions by developing tailored solutions for more complex challenges in consultation with leading experts. The objective is to help states implement evidence-based solutions and achieve major improvements in countermeasures to accelerate reductions in deaths and injuries. To date, TIRF has provided such assistance to more than 40 US jurisdictions.

This report describes the implementation plan for a state laboratory based on the previously submitted gap analysis conducted by TIRF in concert with national experts. It contains two separate budget scenarios for consideration.

It was developed using best practices, national standards, consultation with laboratory experts from Wisconsin (Amy Miles, Forensic Toxicology Program Supervisor, State Laboratory of Hygiene), Washington (Sgt. Brandon Villanti, Washington State Patrol), Arkansas (Laura Bailey, Office of Alcohol Testing) and forensic expert, Dr. Barry Logan who has played a leading role in the development of best practices and national standards for laboratories analyzing impaired driving biological samples for alcohol and drugs.

CURRENT LAB SERVICES

The analysis of biological alcohol and drug samples from impaired drivers is presently conducted using service agreements with three city or county laboratories in Nevada: Las Vegas Metro, City of Henderson and Washoe County. These labs have worked professionally and diligently to provide much-needed services to the State. A summary of the volume of cases processed and types of analyses conducted is below. This information provides context regarding the need for a state lab as well as the delivery of uniform services in order to provide the State with a clear picture of the impaired driving problem.

Overview of Nevada Laboratories

Capacity

- > On average each year these labs analyze 7,000 impaired driving cases for alcohol and 4,650 impaired driving cases for drugs.
- > There are 16 full-time analysts conducting testing across the three labs.
- > The average turnaround time for alcohol test results is approximately 14 days whereas the turnaround time for drug test results ranges from four to 14 weeks with the average time being eight weeks. Much of the backlog in lab processing times is due to inadequate instrumentation and staff to handle the volume of analyses needed. Labs also struggle with competing priorities such as the analysis of sexual assault kits which means fewer resources are available for toxicological analysis.
- > Court testimony by analysts is supplied in 72 alcohol cases and 46 drug cases on average each year. Subpoenas for testimony are common and preparation time is considerable. Although testimony is less often required in court, preparation does contribute to time inefficiencies and reduces the availability of analysts for analysis.

Test protocols

- > Threshold cutoff values vary across the three labs for both alcohol and drugs. Two labs use .01mg/dL as the alcohol cutoff and one lab reports .02 as the lower threshold with a maximum value of .4.
- > Only two of the three labs test all samples for drugs. One lab tests for drugs only if requested by law enforcement and/or in accordance with policy. One lab tests for 64 drugs whereas the other lab tests for 52 drugs.
 - » One lab ceases further testing for drugs once alcohol above .09 is detected in non-felony cases.
 - » One lab has a specific scope of drug testing (as requested by the prosecuting attorney) if alcohol below .09 is detected in non-felony cases.

- » One lab makes an administrative decision to stop testing if a per-se drug level is detected in non-felony cases (amphetamine, meth, cocaine, benzoylecgonine, morphine, 6-MAM and delta-9 and 11-OH THC) meaning tests for other drugs are not conducted.
- > One of the three labs tests deceased drivers differently than living drivers.
- > Two labs use blood only to test impaired driving cases and those cases involving injury/death whereas one lab uses blood and urine in these latter cases.
- > Data regarding the percentage of drug cases including a DRE evaluation is not available for Nevada. However, a 2020 national survey of toxicology labs in the US revealed approximately 10% to 20% of DUID cases submitted to laboratories involved a DRE evaluation. Generally, this percentage is higher in jurisdictions with more robust DRE programs.

Instrumentation

- > Two labs use ELISA to screen for blood and one lab uses ELISA to screen for urine. One lab uses LC-HRMS to screen blood.
- > All three labs use GC-MS and LC-MS for confirmatory testing for blood and one lab uses GC-MS and LC-MS for urine.
- > Two labs provide screening/confirmation testing of blood samples in driving under the influence of drugs (DUID) fatality samples.

Recommended guidelines

With respect to adherence to recommended guidelines for screening and confirmatory testing of drug thresholds, one lab does not follow recommended guidelines whereas the other two labs adhere to them but to varying degrees. For example:

- » **THC.** Some labs test above the recommended guideline and others test below it.
- » **Reasons for not meeting drug screening guidelines.** One lab is in the process of making changes to meet the guideline whereas the other lacks instrumentation. Similarly, with respect to confirmatory testing, one lab is in the process of meeting the guidelines whereas the other lab is close to meeting it, but it is not a priority.
- » **Oral fluid.** None of the labs do oral fluid testing.

Training needs

- > Training needs relate to general toxicology, basic pharmacology, drug trends, instrumentation and technology, and court testimony.

Priorities

- > Top priorities for two labs include purchasing additional instruments for screening or confirmation testing as well as training.
- > The top priority for the third lab is additional space.

Gap Analysis Summary

A gap analysis was undertaken to inform the development of the implementation plan. A discussion guide was developed to structure discussions with key stakeholders representing laboratory staff and supervisors, law enforcement, prosecutors and the Highway Safety Office. The objective of these key informant interviews was to gather experience and expertise from state agencies regarding strengths and limitations associated with existing toxicology services in the state. In addition, relevant documents, reports and data were reviewed including business planning documents specific to laboratories, results of a national survey of state labs and best practices, a brief survey of existing labs in Nevada undertaking toxicological analysis, and state highway safety data. Four leading experts in toxicological analysis and enforcement were engaged in the discussions and review to contribute their expertise.

Notable findings emerging from the gap analysis included:

- > Not all blood samples from impaired drivers are tested for drugs.
- > Testing panels and cutoff thresholds for drugs are not uniform across labs.
- > Existing labs testing samples from surviving drivers in fatal crashes, performed under the jurisdiction of police, similarly, are not tested in a uniform fashion, although the three existing labs do expedite their testing in felonies and vehicular assaults.
- > Demand for court testimony from toxicologists is substantial. Toxicologists receive subpoenas to testify to results of toxicological analysis in 40% to 80% of impaired driving cases. Although toxicologists may be called to testify often, the proportion of cases in which they actually testify is much smaller (perhaps 2%). However, the preparation required to testify in each case is significant, as is the travel time when testimony must be delivered in person as opposed to electronic means.
- > Some rural areas may be underserved due to long travel times and inadequate budgets.
- > Cannabis compliance testing is a critical need and strong oversight of private labs is needed. The lack of standardization, accreditation, and reliability of the test results from the private labs that conduct compliance testing undermines the credibility of regulatory enforcement.
- > Toxicologists lack capacity to consistently educate key stakeholders, including police agencies and prosecutors among whom turnover is quite common. Key topics include collecting and handing samples, recent patterns and trends in drug-impaired driving and drug prevalence, the steps involved in analysis, and testimony.

Priority needs identified in key informant interviews with various stakeholders included:

- > Building on services provided by existing labs to increase capacity for testing and respond to demand.
- > Establishing two lab locations to facilitate statewide coverage.
- > Optimizing processing and turnaround times to support decision-making and prosecution of impaired drivers.



- > Designating a staff person as the primary contact person to respond to inquiries from law enforcement and prosecutors on issues related to test results and training.
- > Improving and increasing training opportunities for law enforcement and prosecutors and others as needed.
- > Building a foundation that could be developed into a complete crime lab and forensic analysis of other materials and substances related to crash investigation, DNA and fingerprint analysis, and explosives and firearms.

REPORT STRUCTURE & GENERAL ASSUMPTIONS

Implementation Plan Overview

A synthesis of the data collected as described above informed the development of an implementation plan for a state toxicology lab in Nevada. The implementation plan is structured in accordance with the four main business perspectives of a balanced scorecard methodology:

- > **Business structure.** This section describes the mission and goals of the lab as well as the operational business structure and the environmental business structure.
- > **Human resources.** This section describes the staffing requirements to achieve capacity and qualifications necessary to operate the lab. It also includes continuing education opportunities and requirements.
- > **Customer and client requirements.** This section contains an overview of key stakeholders and the types of services they require of the lab. Services are modelled after the services provided by the three contracted labs.
- > **Business model and financial structure.** This section proposes a feasible funding model and further identifies opportunities to generate additional revenue streams to reduce the cost burden on the state. Two separate budget scenarios are included for consideration.

Each of these sections is preceded by a set of core assumptions upon which the plan and budget are based. Of course, changes to the assumptions have important implications for cost.

A further section describing the legal framework for the state lab is also included. Consideration is given to the placement of the lab as either an independent state entity or its inclusion within an existing state agency. The types of authority often granted to and necessary for labs, such as the authority to impose fees, is discussed.

General assumptions for implementation plan

A set of core assumptions were established to guide the development of the plan. These assumptions are summarized below.

- > Establishing a main lab in the southern region and a smaller satellite lab in the northern region is ideal to ensure high-quality and efficient service delivery across the state. Of course, this would ultimately be dependent on available funding. The main lab should be set up first in Henderson to serve the largest population area and produce the greatest revenue as quickly as possible. This approach also would enable discontinuing contracted services in Henderson and Las Vegas sooner and reducing continued costs. The satellite lab, located in Carson City, would be a longer-term goal once the main lab becomes fully operational to spread capital costs over a longer timeframe. The first budget scenario is based on the main lab being established in Henderson first.

A second scenario in which the Carson City lab is set up first is included for consideration. In this instance, the contracted lab services from Washoe could be discontinued first, however, contracts with Henderson and Las Vegas would have to remain in place until the second lab site is operational.

- > It would take an estimated eighteen months to two years to make the main lab operational once the facility, instruments and core staff are in place. During this two-year period, method development and validation and workflows would be established and tested following which lab accreditation would be pursued. The satellite lab could become operational once the facility is fitted.
- > The new main lab in Henderson would be designed to initially operate at 85% capacity in the first 18 months following opening, and it may be possible to begin alcohol testing only in the first six to 12 months after hiring initial staff. It would scale up to 100% capacity during the first six to eight months of operation. Conversely, the Carson City lab would be at capacity immediately upon opening unless it was expanded with additional space, instruments and staff.
- > Once the main lab becomes operational, only new toxicological samples/cases would be directed to the state lab. No samples/cases previously submitted to an existing lab would be redirected to the new lab because the transfer of cases between labs is fraught with challenges, including the risk of generating a backlog of cases as soon as the lab opens.
- > Services delivered by the state lab would include:
 - » toxicological analyses for alcohol and drug-impaired driving biological samples from living and deceased road users, and depending on the types of lab instruments purchased, it may or may not be necessary for the small number of toxicological samples involving novel psychoactive substances (NPSs) these samples to be outsourced to a reference laboratory.
 - » provision of expert testimony in impaired driving cases;
 - » maintenance of evidence, records and data;
 - » breath instrument and evidential instrument calibration and maintenance records as well as alcohol solution and gas standards;
 - » training for stakeholders;
 - » managing and reporting aggregate toxicological impaired driving data to the Governor's Office;
 - » testing and evaluating new breath testing instruments for the State; and,
 - » oversight of private labs testing cannabis products for producers, and testing of cannabis products initially failing private lab testing.

It is acknowledged the preference of the Department of Taxation is to undertake full compliance testing of all cannabis products as opposed to simply providing oversight of the retesting of cannabis products. This work is beyond the scope of TIRF's technical assistance cooperative

agreement. However, it is noted a strategy to avoid cross-contamination issues is essential if product testing is conducted in the state lab. A physical separation between the toxicology lab and the cannabis testing lab would be required along with separate instruments in each lab. This approach is paramount to preclude defense arguments that a toxicology test result positive for cannabis was due to lab contamination with cannabis products. Additional information about key issues associated with cannabis product testing are included in a separate document.

IMPLEMENTATION PLAN

This section describes key elements of the implementation plan for a state toxicology lab. It is intended to provide the foundation for informed discussion among key stakeholders and decision-makers about the importance of implementing a state toxicology lab in Nevada.

The plan summarizes important priorities and activities required to set up a state lab and recommendations from experts. It further identifies important issues and factors requiring exploration and consideration with respect to Nevada to finalize the plan.

Each section contains building blocks to guide the implementation and provides direction and caveats to further refine the plan and tailor it to the Nevada context. Building blocks are derived from best practice documents combined with existing practices in leading labs across the country. Strong examples and templates gathered from labs in other jurisdiction are included in a series of appendices in this report to provide practical examples which can be used by a lab supervisor to begin implementation.

Mission & Goals

Mission

Core elements of the mission of a state toxicology laboratory for consideration include:

- > Provision of high-quality analytical and support services to assist in identifying impaired drivers and documenting incidence of alcohol and drugs in motor vehicle crashes and deaths.
- > Aid coroners with death investigations.
- > Deliver high-quality training and proficiency testing services, court testimony, standardized data collection.
- > Service to all communities in collaboration with county and city laboratories to promote consistency in the analysis of impaired driving samples.
- > Enforcement of regulations and testing pertaining to cannabis products.

Goals

Important goals of the Nevada state toxicology and compliance testing lab may include:

- > Make our highways safe.
- > Provide specialized investigative, forensic, and support services. Provide the highest quality forensic science services through continued adherence to all applicable American National Standards Institute (ANSI), National Accreditation Board (ANAB) standards.
 - » Provide analyses for alcohol and other drugs.
 - » Provide court testimony to support analysis results.

- » Provide interpretation of results to attorneys, law enforcement agencies, subjects, coroners and medical examiners.
- > Ensure quality, integrity, and accuracy of laboratory examinations through the use of external, intra-laboratory, and interagency proficiency testing. Further the professional development of laboratory personnel by providing training opportunities in the latest technological trends and encouraging membership, certification, and active participation in appropriate and reputable international, national and regional forensic science organizations.
- > Provide training to toxicologists, laboratory personnel, university and college students, attorneys, judges and law enforcement agencies.
- > Develop and improve analytical methods.
- > Promote efficiency and uniformity throughout the laboratory system through effective information management and communications.
- > Interact with other forensic laboratories locally, nationally, and internationally toward advancements in the forensic science field.
- > Provide breath alcohol testing technical assistance to the Department of Transportation (DOT).
- > Fulfill statutory obligations of Nevada statutes
 - » Provide kits for specimen collection (which are typically purchased by the lab from 3rd-party vendors).
 - » Approve methods of other laboratories providing alcohol and drug testing.

The mission and goals for the state lab should be developed with input from key stakeholders and using a consensus-based approach. The mission may also be influenced to some extent by whether the lab will be structured as an independent entity or housed within a state agency or university as this will influence its level of authority. It may also be shaped by the funding model selected to support the lab. Specific examples of the mission and goals of toxicology laboratories in Wisconsin, Missouri, Washington and Colorado are provided in Appendix A.

Business Operations

Establishing the operational business structure for the laboratory is a complex activity requiring careful planning and considerable time to meet accreditation standards. This is due to the need to develop, test, and validate analytical processes and complete the professional accreditation standard for the lab. While the validity of general analytical processes is inherently recognized, the onus is on the laboratory to demonstrate the specific processes it relies upon based on the handling procedures and types of instrumentation acquired are similarly valid.

Achieving professional accreditation from a recognized body is essential to demonstrate the validity and accuracy of analytical processes and handling of biological samples to uphold the prosecution of impaired drivers by the State of Nevada.

As such, a number of critical milestones must be realized during the implementation process and many of these milestones must be completed in a logical stepwise process. A brief overview of these critical milestones is provided below as context for the implementation plan.

General assumptions related to business operations

- > The main lab would be set up first and once it is operational the satellite lab would be established as this approach is the most cost-efficient and serves the largest population first. The earliest a state lab could begin receiving and processing samples for analysis would be approximately 18 months to two years after accreditation is obtained.
- > There would be two primary business streams provided in the lab: the toxicological analysis of DUID samples from living and deceased drivers, and oversight and inspection of private cannabis testing labs along with oversight of cannabis product re-testing.
- > Biological samples analyzed by the lab would be initially limited to blood. Urine samples would only be analyzed as part of post-mortem cases. The lab may also consider the analysis of oral fluid samples in the future.
- > Estimates are based on the state lab analyzing all impaired driving toxicological samples submitted by agencies across Nevada for practical reasons. This is because the significant capital investment to set up a state lab makes it costly and inefficient to only conduct a portion of all the testing required. In other words, scaling for a smaller lab means efficiency drops dramatically and the projected cost per test increases substantially; it also undermines a standardized approach to testing and data collection. As such, once the main lab and satellite lab become operational, contracted lab services would no longer be required. However, this approach does free up resources in the three contracted labs for other much-needed crime lab functions which could be expanded to meet the needs of more police agencies and fill an important gap in the state. These labs would also have at least three years to make a seamless transition.
- > The main lab would accommodate two-thirds of the volume of tests required by the state and the satellite laboratory would accommodate one-third of tests.

Implementation milestones

Important milestones should be included within the implementation plan to guide the work and tasks in a logical and stepwise process. These milestones should be associated with timelines to ensure the work is completed and to avoid delays. Examples of important milestones to be considered are provided below. Information regarding current practices in Nevada are included for context.

- > **Establish service level goals.** It is essential to establish service level goals which are designed to measure lab performance in the delivery of services in key areas. These goals quantify desired and acceptable outcomes and set a standard for the efficient functioning of the lab. These goals are an integral first step to develop an implementation plan because these goals will determine necessary instrumentation, the quantity of instrumentation, the qualifications of needed staff as well and the number of staff required to optimize the functioning of the lab.

As context for decision-making with respect to service level goals, the three existing labs analyze approximately 7,000 alcohol cases and 4,650 DUID cases each year on average with 16 full-time analysts conducting testing across the three labs. The average turnaround time for alcohol test results is approximately 14 days whereas the turnaround time for drug test results ranges from four to 14 weeks with the average being eight weeks. In addition, court testimony by analysts is supplied in 72 alcohol cases and 46 drug cases on average each year. Although subpoenas for testimony are common and preparation time is considerable, testimony is rarely required.

Some critical service level goals are needed with respect to:

- » Completing the screening of biological samples to determine the presence of alcohol and/or drugs which measures the efficient operation of the lab and ability to respond to demand for services.
- » Confirmation rate which is the extent to which the results of sample screening support a DRE officer's assessment of which drug classes were responsible for impairment. Typically, confirmation rates are estimated at 90% on average and achieving a 90% confirmation rate is a good benchmark the lab is testing for the right substances.
- » Testimony rate is the proportion of cases in which testimony is provided in court as compared to the total number of samples analyzed. This provides a tool for monitoring the appropriate staffing level in the lab. If testimony rate changes, failure to adjust staffing may result in deterioration of service levels, increased turnaround time and the creation of backlogs. For example, a high rate of testimony can erode the capacity of the lab to keep pace with the demand for sample analysis.
- » Volumes and ramp up plan which are measures to ensure the operation of the lab is gradually scaled to account for process improvements as the lab begins operations, as well as ensures the submission of samples does not exceed the capacity of staff in the short-term, which can undermine the quality of analysis and reputation of the lab.

Define list of services

This task is designed to specify the nature of services to be offered by the lab. At the outset, the primary services offered by the lab are intended to focus on:

- > analysis of biological samples of impaired drivers (living and deceased) and provision of testimony as needed;
- > training of law enforcement agencies and prosecutors, and, perhaps, other state agencies as needed;
- > maintenance of breath testing equipment and device records as well as testing new devices would also fall within the purview of the lab;
- > maintenance of evidence and reporting annual and trend data to the Legislature; and,
- > oversight and inspections of private labs testing cannabis for producers and oversight of required retests of cannabis products that fail initial testing.

These services should be refined with more precise parameters explicitly indicating the specific types of services included within each area and acknowledging the types of services deemed to be beyond the scope of activities.

- > **Establish quality assurance goals and determine accreditation required.** The development of quality assurance standards and processes is fundamental to demonstrate biological samples are analyzed and reported with a high degree of accuracy and validity to support the prosecution of impaired drivers and the safe production of cannabis products. These goals provide a basis by which lab operations can be continuously measured and ensure problems with analysis do not undermine the professional reputation of the lab or its accreditation. Lab accreditation demonstrates a commitment to producing reliable results, continuing improvement and achieving best practices. Important elements of accreditation include adherence to professional standards, on-site peer review, and effective proficiency testing.

Accreditation can be pursued from a few different entities including the American Board of Forensic Toxicology (ABFT), which accredits labs and certifies individual staff, and the ANSI/ASQ National Accreditation Board (ANAB). As of October 2016, ANAB administers the ABFT accreditation program on behalf of ABFT. ANAB is also a recognized accrediting body by the International Laboratory Accreditation Cooperation (ILAC). In addition, accreditation is available from the International Organization for Standards (ISO) with the appropriate designation being ISO/IEC 17025. This designation contains general requirements for the competence of testing and calibration laboratories such as toxicology laboratories.

More generally, the American Society of Crime Lab Directors (ASCLD) is a professional association with resources to help laboratories attain accreditation and they provide a toolkit to obtain accreditation (available at <https://www.asclcd.org/asclcdaccreditationtoolkit/>).

For reference, the three existing labs providing toxicology services in Nevada are accredited by ANAB. Specific accreditations for each lab include:

Las Vegas:

- » ISO/IEC 17025:2017
- » ANAB 17025:2017 forensic science testing and calibration laboratories accreditation requirements
- » FBI quality assurance standards for DNA databasing laboratories: 2011

Washoe:

- » ISO/IEC 17025:2017
- » ANAB 17025:2017 forensic science testing and calibration laboratories accreditation requirements
- » FBI quality assurance standards for DNA databasing laboratories: 2011

Henderson:

- » ISO 1201725-2017
- » ANAB 17025:2017 forensic science testing and calibration laboratories accreditation requirements

Determine appropriate staff levels and develop a hiring process

- > Gauging staff levels needed to efficiently run the lab and deliver services is an important task to optimize the functioning of the lab and ensure capacity to deliver services at needed levels. Appropriate staff levels are influenced by the efficiency of the sample submission process, the number of biological samples to be analyzed on an annual basis and the instrumentation available to perform these tests, the number of cases in which testimony is requested as well as supplied, and the number of breath testing devices to be calibrated and maintained in the state. Similarly, staff levels impact the salary and benefits line items in the budget, as well as costs for individual accreditation and proficiency testing, continuing education and professional development, and any state licensing costs,

Other factors influencing staffing is the service demand for inspection of private labs testing cannabis products for producers and oversight of retests of cannabis products failing one or more initial tests. Nevada currently receives approximately 900 requests annually (estimated 70 per month) for retests of cannabis products failing at least one or more tests required by the Marijuana Enforcement Division of the Nevada Department of Taxation. For reference, every time a product is approved for retesting, it must undergo all tests, not just retesting with respect to the failed test alone. In addition, the Enforcement Division would request inspection of an estimated ten private labs conducting cannabis compliance testing at least once annually, although an objective of bi-annual inspections is desired.

Staff positions required to operate the lab include but are not limited to:

- | | |
|--|------------------------|
| » Lab Director | » Accessioners |
| » Lab Supervisors | » IT staff |
| » Quality Assurance manager | » Administrative staff |
| » Toxicologists/forensic toxicologists | » Accountant |
| » Drug chemists | » Custodians |
| » Analysts/technicians (Level I, Level II and Level III) | |

Staffing over time

- > Another important consideration with respect to staffing levels is establishing the order and timelines for hiring at various phases of implementation and the tasks associated with each phase. For example, senior managerial level positions must be staffed at the outset as their skills and expertise are essential to designing and building the lab before it can be occupied. Conversely, once the physical lab environment is available for occupancy, other staff positions

must be filled to undertake the development and validation of methods and standard operating procedures (SOP) and quality assurance plans (QAP).

Opening

- > Some of the critical tasks related to the opening of the lab include:
 - » Hiring a director to manage the lab.
 - » Developing SOPs for day-to-day operations as well as security protocols and hiring process.
 - » Initiating a research and development (R&D) program to develop and validate methods used in the lab and write new SOPs for developed methods. Important elements include:
 - ◆ Specifying the design and duration of method development and priority tests.
 - ◆ Establishing a plan for outsourcing some tests to a reference lab while capacity and competencies to conduct those tests is developed internally.
 - ◆ Acquiring the instrumentation to be used in the lab to perform tests.
 - ◆ Familiarizing staff with instrumentation to ensure they are trained to correctly use the instruments and related software packages.
 - ◆ Developing and validating methods to initiate use of the instruments in consultation with instrument vendors who may also be contracted to provide start-up support and ongoing maintenance.
 - ◆ Developing a quality assurance plan aligned with professional standards and accrediting bodies.
 - » Additional hiring of senior staff to manage designated functions within the lab such as supervisors for lab departments, toxicologist(s) and chemists, an operations director, IT manager, and head of security.
 - » Training new staff on methods and SOPs within the lab.
 - » Develop training plan for additional staff in less technical positions such as accessioning, analysts, and administrative support staff.
 - » Hire and train staff in less technical positions including accessioners, analysts, support staff.
 - » Complete performance checking of methods and achieve accreditation from a recognized body.
 - » Begin casework which is estimated to be two years after the lab is built and staffed, and immediately following receipt of professional accreditation.

Day-to-day operations and processes

Projected capacity

- > It is estimated the state lab should be able to accommodate approximately 8,000 alcohol cases and 7,000 drug cases annually or an estimated 154 cases³ per week from living drivers as well as an estimated 300 samples annually from deceased drivers. This is slightly higher than current demand for services, recognizing that at least one existing lab does not consistently test all samples for drugs, and some areas in the state are underserved. In addition, with the implementation of a state lab, the demand for services will likely increase.
- > Turnaround times for the analysis of alcohol test samples is targeted at two weeks from receipt of the sample and analysis of drug test samples is targeted at four weeks. At present, turnaround times for the three existing labs is two weeks for alcohol (14 days) and on average eight weeks for drugs, although the range is four weeks to 14 weeks. Turnaround times should ideally be shorter in cases involves serious injuries and deaths to ensure defendants are appropriately charged and/or released to ensure public safety.
- > The budget estimates in the first full year of operation the lab would process two-thirds of all alcohol and drug samples (4,600 alcohol and 5,300 drug) since Las Vegas and Henderson police departments will rely on their own labs for this service.

Workflow

- > Officers of law enforcement agencies in close proximity to the lab are able to drop off samples for analysis either in-person or through a collection box within the police agency. A designated person from the lab would collect samples from these boxes on a regular basis and log them. Police agencies located outside of the immediate area of the lab would be able to submit samples by US mail. This is common practice in many jurisdictions across the country as the mail service is operated by a government entity and is protected, secured and acceptable to the courts. This approach is relatively inexpensive and would greatly reduce the workload of police agencies as they would no longer require officers to transport samples to the lab. Accensioners would receive and log the samples as well as prepare them for testing.
- > Work processes related to the analysis of samples within the lab can be structured in two ways. The first option involves a single analyst conducting the alcohol and drug screening and drug confirmation testing for individual samples. The second option involves a segmented and batched workflow in which samples are analyzed in batches and one analyst may prepare all of the samples, another individual may conduct all of the alcohol analyses and another analyst may conduct all of the drug analyses. This would be applicable with respect to screening of samples as well as drug confirmation testing.

³ Assuming all agencies utilize a state lab for sample analysis, the 8,000 alcohol/7,000 drug cases is derived from number of cases currently managed by existing labs and extrapolating for the fact one lab does not test majority of samples for drugs and some areas are underserved as well as anticipated growth in demand in next three years.

Using a segmented workflow greatly increases the efficiency of analyses and preparation of reports and this approach is recommended. Of importance, this approach does not incur additional costs for testimony in cases because one designated analyst is qualified as an expert to testify to all the results, even if they did not directly analyze the samples themselves. A case from the Wisconsin Supreme Court (Wisconsin vs. Grief 2014) ruled an expert witness representing a laboratory can testify regarding the analysis results, even if the witness did not conduct the actual tests but instead reviewed the analyst's forensic test results and other records to form an independent opinion regarding the results, and this approach does not violate a defendant's right to confrontation. This case has been used successfully in other jurisdictions. A copy of this ruling is found in Appendix B as an example, and there is a strong body of case law from at least a dozen other states to support this approach.

- > The scheduling of testimony in impaired driving cases is typically managed by administrative staff at the lab. Ideally, one designated individual would receive subpoenas and have access to the staff calendar to coordinate requests for testimony. The budget estimates 70 cases per year will require testimony with an average of five hours of preparation and four hours of testimony. The hourly rate is estimated to be \$54.00 per hour based on an average salary cost; travel expenses would be reimbursed by the requesting agency. Comment:
- > The state lab would provide training to an estimated two-thirds of police agencies in year 1. It is anticipated larger agencies such as Las Vegas Police Department and Henderson Police Department would continue to rely on their own lab for training. It is further anticipated each training would be approximately four hours at a cost of \$1,500 per session. This is optional and dependent on existing practices and preferences in Nevada. In some jurisdictions, training is delivered to police services at no cost and instead recouped through the fee paid by convicted impaired drivers for testing. Of course, free training has benefits in terms of ensuring officers are trained to properly submit samples for testing which can increase efficiencies for the lab.
- > The state lab would be responsible for calibration and servicing of all breath testing instruments in the state to ensure consistency and reduce liability. For reference, there are an estimated 80 to 100 breath testing instruments in the state and currently they are calibrated every 90 days by either Las Vegas or the Washoe County lab. It takes approximately one hour to calibrate and run the functional checks on an instrument, and this servicing would be conducted onsite within police agencies. The cost is estimated to be \$100. Calibration is a very short process whereas running the functional checks to make sure the instrument is accurate takes the most time.
- > One staff person would conduct biannual inspections of ten private labs conducting cannabis testing for producers. It is estimated three to four days are needed per inspection and conducting two inspections each month is feasible. Each lab would be inspected twice each year and the inspection fee is estimated at \$1,300 in the budget. This individual would further oversee the outsourcing of retests of cannabis products to a reference lab, as well as review and track results and report them to the Department of Taxation. Private labs would be instructed to send samples directly to the reference laboratory as instructed to ensure chain of custody and avoid contamination at the toxicology lab. A fee of \$150 would be charged to the

cannabis producer to oversee the outsourcing. This approach would ensure retests are independent and transparent to protect the state from liability. Due to the nature of this work, this staff person would not require office space to perform their duties. This position would also create a revenue stream for the lab from the private lab and cannabis producers.

Workplace policies

Several important policies must be developed to ensure the efficient, standardized, high-quality and safe operation of the laboratory. A number of organizations have published best practice documents and guidelines relevant to the development of these policies and practices, including:

Recommended guidelines and best practices to consider

- > National Safety Council Alcohol, Drugs and Impairment Division (NSC-ADID) Recommendations for Toxicological Investigation of Drug-Impaired Driving and Motor Vehicle Fatalities – 2017 Update (<https://pubmed.ncbi.nlm.nih.gov/29186455/>)
- > Society of Forensic Toxicologists (SOFT) AAFS Forensic Toxicology Laboratory Guidelines (2006 version) (http://www.soft-tox.org/files/Guidelines_2006_Final.pdf)
- > American National Standards Institute (ANSI) / Academy Standards Board (ASB) of the American Academy of Forensic Sciences (<http://www.asbstandardsboard.org/published-documents/toxicology-published-documents/>)
- > The International Association of Forensic Toxicologists (TIAFT) Guidelines (<http://www.tiaft.org/tiaft-guidelines.html>)
- > National Institute of Standards and Technology (NIST) Toxicology Subcommittee (<https://www.nist.gov/topics/organization-scientific-area-committees-forensic-science/toxicology-subcommittee>)
- > National Research Council Strengthening Forensic Science in the United States: A Path Forward (2009) (<https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf>)

Drug panels and cut-off values policy

Currently the existing laboratories in Nevada utilize different panels and cut-off values for drug testing, and one laboratory does not routinely test biological samples for drugs unless specifically requested (see overview of lab practices in Section 2 of this report). Of the two laboratories testing for drugs, one tests for 64 drugs whereas the other tests for 52 drugs.

Consistency in the testing of samples is essential to accurately quantify the magnitude of the impaired driving problem in Nevada and to inform state policies and practices. According to a National Safety Council survey (2017) of impaired driving toxicology labs across the US which was completed by 70 laboratories, the top 10 drugs in DUI casework include:

Table 1: Number of laboratories reporting this compound/class in their 10 most frequently detected (n = 70)

Compound	Frequency
Alprazolam/alpha-hydroxyalprazolam	65
THC and metabolites	63
Oxycodone	57
Morphine	48
Methamphetamine	46
Cocaine and metabolites	46
Clonazepam/7-aminoclonazepam	41
Diazepam/Nordiazepam	40
Amphetamine	36
Hydrocodone	36
Diphenhydramine	22
Zolpidem	18
Fentanyl	18
Lorazepam	18
Methadone	16
Codeine	15
Carisoprodol/Meprobamate	14
6-Acetylmorphine	13
Citalopram	9
Tramadol	9
Hydromorphone	9
Gabapentin	5
Trazodone	4
Oxazepam	3
Fluoxetine/Norfluoxetine	3
Phencyclidine (PCP)	3
Temazepam	3
Cyclobenzaprine	2
Dihydrocodeine	2
Oxymorphone	2
MDMA	1
Amitriptyline	1
Butalbital	1
Topiramate	1

Source: Logan et al. (2017)

In Nevada, the top 15 drugs in DUID casework reported by the three contracted laboratories providing services in 2019 were as follows:

Ranking	Official Top 15 (Nevada)
1 (most prevalent)	THC and metabolites
2	Methamphetamine
3	Amphetamine
4	Alprazolam/alpha-hydroxyalprazolam
5	Cocaine and metabolites
6	Morphine, Carisoprodol/Meprobamate, Clonazepam/7-aminoclonazepam
7	Hydrocodone
8	Citalopram, Codeine, Zolpidem
9	Methadone, Fentanyl, Oxycodone
10	Diazepam/Nordiazepam
11	PCP
12	Trazodone
13	Oxymorphone
14	MDMA
15 (least prevalent)	*N/A

Standard operating procedures (SOPs) policy

According to the SOFT Guidelines referenced above, each lab must develop its own SOPs which describe the current status of all lab functions and operations. This essential document guides the activities of all staff and is referenced, notably, by those analyzing samples. Descriptions of administrative processes and methods of analyses should be included in the SOPs. Key topics include procedures related to receiving samples, accessioning, chain of custody, analysis, quality assurance and controls, data review and reporting should be described in step-by-step detail. Once completed and reviewed, the SOPs should be signed and dated, and this process should be repeated whenever the SOPs are updated. In addition, older versions should be retained in archives as part of the record-keeping process.

With respect to analyses, each analytical procedure should describe the following: a) theory and principle associated with method, b) instructions to prepare reagents, c) details of analytical procedures, d) instructions to prepare calibrators and controls, e) information regarding any special requirements for handling reagents and safety protocols, f) validation parameters (e.g. LoQ⁴, linearity), g) criteria related to accepting or rejecting qualitative or quantitative results and h) references. Other important issues include creating required documentation for new or infrequently

⁴ LoQ is the lowest concentration at which an analyte can not only be reliably detected but at which some predefined goals for bias and imprecision are met (Armbruster and Pry, 2008).

performed assays the first time it is performed. Finally, a signature page containing a record of sample signatures and initials of all staff who handle specimens and conduct testing should be included and kept current.

As an example, important topics included in the Washington State Patrol Toxicology Lab SOPs include:

- > Scope
- > Laboratory space, security and safety
- > Records management
- > Disclosure and release of information
- > Courtroom testimony
- > Administrative procedures
- > Evidence management

As described previously, once the lab facility is built and staffed, and prior to its accreditation and opening, lab staff systematically develop and validate the lab protocols in accordance with accreditation standards. The SOPs are drafted concurrently with this process. Appendix C contains examples of SOPs from SOFT Guidelines and Washington State Patrol

Quality assurance plans (QAPs) and accreditation requirements policy

Similar to SOPs, the SOFT Guidelines also contains best practices for QAPs. This plan incorporates all features of processes related to analyses and reporting of results. It describes key activities such as collecting specimens, quality control of analyses, the review of data and reporting of results, and laboratory proficiency testing. These plans are essential to ensure toxicology results are of the highest quality and meet evidentiary standards set by the criminal justice system. The justice system is based on an adversarial process so toxicological results must free of error to be unassailable by defense experts or attorneys in the criminal justice system.

The QAP should be established and maintained by a quality assurance manager in the laboratory. Generally, QAPs address the following topics:

- > Purpose
- > Standards, calibrators and controls
- > Control acceptance criteria
- > Documentation of calibrators and controls
- > Recovery samples and other quality assessments
- > Reporting criteria
- > Standard operating procedure
- > Proficiency testing
- > Reagents and supplies
- > Equipment
- > Instruments
- > Personnel and training
- > Document control
- > Specimen handling and chain of custody policy
- > Pre- and post-analytical procedures
- > Related documents and references
- > Signature page

Other important topics included in the QAP pertain to laboratory security and safety.

QAPs are also developed in tandem with the development of SOPs and the validation and testing of lab methods. They should be designed to meet laboratory accreditation requirements described previously. Forensic accreditation documents are available from the ANSI National Accreditation Board at: <https://anab.ansi.org/2018-iso-iec-17025-forensic-accreditation-documents-0>. Appendix D contains examples of QAPs from the SOFT Guidelines and Wisconsin State Laboratory of Hygiene, Environmental Health Division, Forensic Toxicology Program for 2019. Obtaining accreditation for a crime lab is available in the ASCLD toolkit: <https://www.asclد.org/asclدaccreditationtoolkit/>

Outsourcing to reference laboratory samples and criteria policy

Many laboratories outsource the confirmation testing of Tier II drugs to private labs. Specialized instrumentation is needed to analyze complex drugs such as synthetic cannabis and novel psychoactive substances. The low frequency of samples for testing combined with the constant evolution of chemical properties of drugs in this category make it cost-prohibitive for many labs to purchase the needed analysis instruments to conduct such testing. As such, the analysis of these samples is often outsourced to reference laboratories who are equipped to conduct such testing on behalf of many laboratories and a line item in the operational budget is included to account for the costs of these tests annually. As such, a policy on the outsourcing of samples is needed as well as criteria for the outsourcing of analyses. It is also important to consult with prosecutors when determining an approach because it will have implications for the use of expert testimony by toxicologists in court.

Data management

The standardized collection of impaired driving toxicology data is essential to quantify the impaired driving problem in Nevada, track trends over time to inform the Legislature with respect to appropriate policies and practices. This data collection system is typically referred to as the Laboratory Information Management System or LIMS. Several types of software packages are available and are briefly described in the next section. Notably, to ensure consistency the analysis of all impaired driving samples should be recorded and tracked using the same LIMS, even if different laboratories are analyzing samples.

Training services

Laboratory staff will deliver training to all 51 law enforcement agencies in Nevada with respect to the handling and submission of biological samples as needed. Training will also be delivered to police agencies and prosecutor offices with respect to recent impaired driving trends, the basics of the toxicological analysis of impaired driving samples, and the effects of different types of drugs on driving. The demand for training is a function of the number of agencies in the state as well as the frequency of needed updates. One way that demand for training can be reduced is to publish monographs containing current information as this reduces requests for information to lab staff. For example, the State crime laboratory in Colorado publishes a variety of monographs describing drug effects which prosecutors can rely upon to gather current research and information for their cases and put toxicology results in context. (See Appendix H for more information and monographs are available at: <https://www.colorado.gov/pacific/cbi/drug-effects-monographs>).

Communication protocols internally and externally with stakeholders

One or more designated staff should be assigned to coordinate and manage communications with external stakeholders (police agencies and prosecutor offices) with respect to results of analyses, the coordination of training, and equipment maintenance. Reporting results to police or prosecutors through an online portal may create efficiencies. This approach can ensure communications are efficient and seamless to make the best use of everyone's time. Generally, a designated staff person has access to the calendars of lab analysts to schedule testimony as needed. A central point of contact can also create efficiencies with respect to the organization of training and equipment maintenance to minimize travel.

Business Environment

This section contains an overview of key features of the lab environment with respect to building and maintaining a laboratory with an emphasis on direct and operational costs.

General assumptions about business environment

- > Henderson is proposed as the site of the main lab for two reasons. First and most importantly, this location is easily accessible to the majority of agencies submitting samples for testing or relying on the services of the state lab, such as training. Larger police services are located in southern areas of the state as are most of the cannabis producers, private labs and other potential private sector funders. Second, leasing costs are cheaper in Henderson as compared to Las Vegas and this location will help to reduce operating costs. Similarly, it is proposed the satellite lab is located in Carson City to serve the most populous northern areas which are much smaller than the southern region. It is further proposed the main lab is established first to be cost-efficient and to serve the largest population base in Nevada as soon as possible. However, a second budget scenario is provided in which the Carson City lab is established first.
- > The cost will vary substantially depending on whether a new building is erected versus an older building or warehouse is retrofitted. It is assumed a warehouse will be leased for 10 years and retrofitted to house the state lab. Costs may be reduced if the state owns a warehouse suitable and available for this purpose since the costs of renovation can be expensive for a rental property. This appears to be feasible in Carson City. The cost of the build out is estimated at \$650 per square foot for a lab.
- > Ownership of the physical lab building will influence cost to establish the lab. Who owns the building in which the lab operates will significantly affect cost and the importance of complying with State Building Codes. For example, the ceiling clearance for some instrumentation needed for analyses is quite high and may exceed the building code. It is recommended a warehouse be leased and retrofitted to house the lab unless the state has access to an empty warehouse already that may suit this purpose.
- > Instruments are generally amortized over five years and a one-year warranty for instruments is standard.

- > As a general rule, labs own at least two of each instrument to ensure a back-up is available. This ensures analyses are not halted if an instrument fails or requires preventative maintenance or servicing. The initial implementation costs include one QToF in the main lab and a second QToF in the satellite lab to manage costs, however for start-up, two QToFs would be purchased and located in the main lab until the satellite lab is set up.
- > Multiple software licenses to operate the instruments are needed in accordance with staffing levels. Generally speaking, a fixed number of staff are able to operate the instrument and conduct analyses per software license. On average, three persons are able to use one license; however, some labs have been able to negotiate as many as five persons per license, so it is important to use a good negotiator when obtaining software and licenses.
- > Costs of service packages for instruments are based on a standard service package. Specific costs may vary depending on whether more or less service is required.

Features of business environment

Building

- > It is estimated the main lab is a leased 5,000 square foot facility located in Henderson to take advantage of lower real estate costs and be situated close to the majority of agencies requiring services. The cost is based on current real estate listings for a similar space in the area. This is the space required to operate a fully functional toxicology lab and accommodate the requisite number of staff, instruments and equipment described below. Of importance often the space required to make a lab function efficiently is underestimated in lab setups, and as staff move into the facility the space limitations become readily apparent. The building would be leased for 10 years.
- > Investing in a slightly larger lab facility at the outset would be more cost-efficient and facilitate the pursuit of new revenue streams which will help to make the lab self-sustaining in the long-term and accommodate the addition of new services for government, universities/hospitals and the private sector.
- > Moreover, staff require sufficient space to safely use instrumentation to conduct analyses as well as accession and prepare samples with gas and chemicals requiring fume hoods. Additional space is required for an evidence vault with refrigeration units, storage for supplies and consumables, staff offices, administration and reception areas. Secure storage for documents and records is needed along with IT and security personnel.
- > It is recommended the location of the lab is selected based on the location of jurisdictions submitting the majority of samples for analysis, such as the Henderson area. This location would also accommodate most of the cannabis cultivators and producers who are located in the Metro area as well as eight of the ten private labs (only two private labs are located in Reno). The location of the lab will influence cost to purchase the building or land required to build a facility.
- > Labs are typically operational during standard weekday hours.

- > The satellite lab is a 2,500 square foot facility leased in Carson City to service the northern part of the state which has a much smaller population base and fewer agencies requiring lab services.

Instrumentation and servicing

Different types of instrumentation are required for screening and confirmation of alcohol and drugs in biological samples. Categorized in accordance with the National Safety Council Alcohol, Drugs and Impairment Division, Tier I drugs are comprised of those most often detected in drug-impaired driving casework whereas Tier II drugs involve analytes detected on a limited or regional basis and which are found less often but require more sophisticated analysis techniques.

It is generally recommended specific instruments are not be written into statute as it is too restricting to enable laboratories to keep pace with technology. The authority to add or remove instruments and products is important to ensure the toxicology program keeps pace with technological advancements.

- > Gas chromatography flame ionization detection with headspace (GCFID-HS) is used to screen samples for volatile substances such as alcohol. It is estimated a Nevada central lab would require two GCFID-HS instruments and the cost of each instrument is \$120,000 for a total of \$240,000. In addition, the annual service package for each instrument is \$10,000 for a total of \$20,000.
- > Drug screening is performed using Enzyme-Linked Immuno-Sorbent Assay (ELISA) instruments which are commonly referred to as ELISA robots. Each ELISA robot is estimated to cost \$50,000 and two instruments would be needed for the central Nevada lab for a total of \$100,000. In addition, the annual service package for each instrument is \$12,000 for a total of \$24,000.
- > Confirmation testing of drugs, notably Tier II drugs, requires more advanced instrumentation such as liquid chromatography/ tandem mass spectroscopy (LC-MS-MS). Each instrument is estimated to cost \$350,000 with an annual service package costed at \$20,000. The total cost for three instruments would be \$1,050,000 and \$60,000 for service packages annually.
- > Quadrupole Time-of-Flight Mass Spectrometry (QToF) is a newer technology that is both more robust, accurate and adaptable as well as costly. It is quite challenging for laboratories to keep pace with the rapidly evolving drug landscape. It takes considerable time to develop assays (or wait for them to be commercially released) and/or validate methods for the detection of new drugs, and this occurs at enormous cost. In the past decade, QToF has garnered attention for its ability to achieve high sensitivity and specificity and the ease with which methods can be updated to account for emerging drugs (Allen and McWhinney, 2019).

Of note, the use of this device, while expensive, would also enable a lab to accomplish efficiency in analyses and perhaps preclude the need for ELISA robots for screening as well as eliminating the need for Tier 2 samples to be outsourced to a reference laboratory for analyses. The estimated cost of this device is \$650,000 and the annual service package is \$35,000.

As a rule of thumb, labs aim to purchase two of each instrument for redundancy and to ensure analyses can continue if an instrument breaks down or requires maintenance. This may be a cost-prohibitive undertaking when setting up the main lab. However, it may be possible to purchase a second QToF instrument for the satellite lab and manage the analysis of samples accordingly in the event one device breaks down.

Equipment for lab

A variety of equipment and supplies (i.e., consumables) are required to operate a lab. These costs are estimated in the implementation budget at \$230,000 and amortized over five years.

Examples of benchtop equipment include:

- > Centrifuge
- > Solid Phase Extraction manifold
- > Dry down blocks/heat blocks
- > Turbopap (evaporator bath)
- > Sonicator
- > Automated diluter (Hamilton – used for automated alcohol dilutions)
- > Tube rotator
- > Single tube vortexer
- > Multi-tube vortexer
- > pH meter
- > Balance to weigh drug standards or other use
- > Fumehoods

Consumables for lab

A variety of consumables are needed for the operation of a lab. These costs are estimated annually based on a fixed number of samples analyzed in accordance with the capacity of the lab. The standard estimate is \$25 per sample and this was used in the budget estimate.

- > Pipettes (disposable glass pipettes and pipette tips for repeating pipettes, multi-channel pipette tips)
- > Solvents (acetone, butyl chloride, ethanol, acids, etc.)
- > Personal protective equipment (PPE; gloves, disposable lab coats, etc)
- > Biohazard bags for easy disposal into step can buckets
- > Test tubes / caps
- > Test tube racks

- > Solid Phase Extraction cartridges
- > 96 well plates (used for QToF and LCMSMS work)
- > Beakers, flasks, graduated cylinders, other reusable glassware
- > Lab hood paper and wipes
- > Instrument supplies: glass liner (GCMS), tubing (LCMSMS), columns, reagents

Data management system

A Laboratory Information Management System (LIMS) is required for the consistent collection, tracking, analyses and reporting of alcohol and drug trends. It is important labs utilize a common software package and this was discussed in more detail in the previous section related to business operations. The budget estimate a LIMS system set up is \$100,000 and software packages are \$50,000.

Common examples of LIMS include:

- > Justice Trax <https://justicetrax.com/>
- > Starlims <https://www.informatics.abbott/us/en/industries/forensics>
- > LabLynx <https://www.lablynx.com/forensics/>

At present:

- > Washoe lab uses Lab - Porter Lee LIMS (Dot Net Version) - WCSO Build 1.20355-NET4.0.30319
- > Henderson Lab use uses Justice Trax, version 3.7.36
- > Las Vegas Metro lab uses Forensic Advantage Version 18.1.5.131

Safety and security protocols and biohazard handling

Federal and State regulations impose minimum standards for the safe operation of the lab and the Nevada lab should comply with these requirements. The budget estimates \$3,000 for a security system. Disposal of bio-waste and hazardous materials are contracted services that are estimated to cost \$4,000 annually. The budget currently estimates the costs for biohazard disposal contract. In addition, the SOFT Guidelines contain relevant information regarding the safety and security protocols for labs. Section 13 of the Guidelines describes key components which should be described in a safety manual including, but not limited to:

- > the handling and disposal of biological materials and infectious material, chemicals/solvents/reagents used in the lab and radioactive materials;
- > the handling and disposal of laboratory glassware;
- > addressing spillage and personal injuries resulting from lab specimens, chemicals/solvents/reagents, and radioactive materials;
- > dress code, safety equipment; and,
- > eating, drinking and smoking.

The building should also include standard safety features such as back-up generators to ensure instruments and equipment remain functional as do refrigeration units. Electronic shut-off valves for gas are also essential features.

With respect to security procedures, Section 7 of the SOFT Guidelines describes basic protocols to limit access to the laboratory and protect the integrity of toxicological samples and analyses. Common security features include locking doors, proximity badges permitting access to specific areas, and security codes and alarms. The Lab Director is tasked with authorizing and documenting personnel who are able to enter specific areas of the lab. Similar to many government agencies, unauthorized personnel should sign in and out, specifying the nature of their visit, and be escorted at all times.

Emergency preparedness protocols, generators

Important elements of emergency protocols include back-up generators, dedicated electrical outlets for instrumentation and continuous power sources in lab to support instrumentation.

Human Resources

General assumptions about human resources

- > Various universities located in Nevada have forensic science undergraduate programs and will provide a strong recruiting pool for less technical and junior staff positions. Similarly, universities in surrounding jurisdictions such as California and Colorado will also provide a strong recruiting pool. Costs related to relocation of staff will be nominal.
- > The laboratory will be established as an independent agency not housed within an existing state agency. This strategy is the best approach to establish the independence of the agency and to facilitate the rapid evolution of the lab without the constraints of policies not directly relevant to its core business and services. In addition, this approach creates opportunities to establish a diversified, self-sustaining funding stream to facilitate growth. Potential markets include hospital research in clinical settings, bio-surveillance and workplace testing. As such, qualifications related to business development, business administration and marketing should be considerations for the staffing of senior management and supervisory roles.
- > Pay scales included for staff positions are derived from LinkedIn salary data and experts.
- > Benefits for staff are estimated at 23% as per State of Nevada payroll taxes. This includes 5% for 401(k), three weeks of vacation pay and one week of sick leave.
- > Only a proportion of staff are needed for the set-up/method validation of lab during 18-24 months versus total staff needed for operations.

Organizational structure

This section describes the main laboratory. Requirements for the satellite laboratory are described at the end. The state laboratory is currently organized as a separate entity. It is managed by a Chief Toxicologist / Lab Director who is responsible for oversight of the DUID toxicology lab and operations. Direct reports to the Chief Toxicologist include a Lab Supervisor and Office Manager.

**Note: The development of a crime lab is a longer-term goal beyond the scope of this implementation plan.*

Staffing levels are based upon a segmented, batched workflow to analyze samples described in the Business Operations section. Cross-professional training of staff is ideal to create efficiencies and consistencies in the work process. A visual illustration of the lab structure is provided in Appendix F.

Staff roles

An organizational chart illustrating the main lab staff structure is included in Appendix F. Only a portion of staff are estimated to be hired in the first two years of operation while the lab is being set up. A full contingent of staff is estimated for year 3 when the lab becomes fully operational. Staff in the satellite lab would be on a smaller scale with key support functions provided by the main lab.

The main laboratory would be managed by a Chief Toxicologist / Lab Director possessing complete financial and administrative oversight for all aspects of lab operations. It is proposed this individual have skills relating to business development in order to develop new revenue streams to support the lab in the longer term. This individual may report to the Legislature or other entity depending on how the lab is ultimately structured. Ultimately a Crime Lab Director could also be hired if funding were available to support this initiative. At present, costing of the crime lab is not included in the budget although it is shown in the organizational chart.

The toxicology lab would be managed by a Supervising Toxicologist designated to oversee day-to-day operations of the toxicology department. This individual would report to the Chief Toxicologist.

Common elements of the job description of a Supervising Toxicologist may include:

- > Managing daily operations of the laboratory and providing direction and oversight
- > Developing and updating SOPs and ensuring compliance with them
- > Establishing procedures to validate new assays to be approved by the Chief Toxicologist
- > Reviewing technical reports
- > Training of laboratory staff and observing testimony delivered by analysts
- > Conducting proficiency testing
- > Maintaining lab accreditations

Additional job functions for the Supervising Toxicologist would be associated with oversight of the inspection of private labs conducting cannabis testing and outsourcing of retests to a reference laboratory.

Two reporting toxicologists are needed to start in year 1 with the requisite skills to support the method validation tasks of the lab and set up operations. Ultimately, in year 3 one of these toxicologists could transfer to the satellite lab to serve as the Supervising Toxicologist in the satellite lab. These individuals would provide scientific leadership for the lab and play a central role in

reviewing data, issuing reports, and answering interpretive questions for prosecutors and investigators.

One Quality Assurance Manager would perform the QA function for the toxicology lab and report to the Supervising Toxicologist.

Six Analysts are needed to analyze toxicology samples, document results and review reports. Analysts also provide testimony as needed, perform maintenance of instruments in the laboratories and conduct training for other agencies. It is estimated that two Level I Analysts, three Level II Analysts, and one Level III Analyst would be sufficient to achieve needed capacity and turnaround times. It may be practical to assign one Analyst to support the Supervising Toxicologist and assist with R&D for new method development.

One Accessioner is needed to receive, catalogue and prepare samples for the toxicology lab. This role could also coordinate the reporting of results and responses to questions from stakeholders as well as serving as the property and evidence custodian.

One Drug Chemist is needed to conduct inspections of the private labs performing cannabis testing. It is also possible a toxicologist (Analyst) could serve in this role if they held certification as a technical assessor proficient in accreditation standards. This individual would inspect the ten private labs biannually as well as manage the outsourcing of cannabis products failing initial testing to a reference laboratory, and review results. Inspection reports and test results would be shared with the Department of Taxation.

An Office Manager would be responsible for all administrative operations functions including health and safety protocols, accounting functions, and management of service providers contracted to provide IT management, biohazard disposal, security and custodian/maintenance services.

An Administrative Assistant would perform a variety of clerical functions including staff calendars, coordinating requests for testimony, maintaining office supplies/consumables, scheduling audits, and responding to disclosure requests as well as general bookkeeping functions.

Examples of staff roles and responsibilities included in the SOFT Guidelines and the Washington State Patrol Manual are provided in Appendix G.

Staff required for the satellite laboratory would include a Supervising Toxicologist/Quality Assurance Manager to coordinate with the main lab and oversee analysts and day-to day operations. Three Analysts would be required (Levels 1,2 and 3) as well as an Accessioner and at least one Administrative Assistant.

Hiring and onboarding of staff

Important features of the hiring process and employment contracts include a criminal background check, confidentiality agreements, computer use agreement, a statement of ethical integrity and social media use policy. The accrediting body for the lab also typically has requirements for personnel.

Once staff are hired and the requisite paperwork is completed, the orientation / onboarding process begins and may last a few weeks as staff become familiar with the SOPs and QAPs, and

bloodborne pathogen training. During this time new staff work closely with and ‘shadow’ existing staff. After the onboarding process is completed, new staff continue to be closely supervised for a period of six to eight months to measure proficiencies and ensure protocols are adopted as described in the SOPs. Often new staff may be assigned (formally or informally) a mentor who is more experienced and can provide guidance as needed.

In addition, Nevada also requires analysts conducting alcohol testing to maintain a certification and to renew their certification every two years in accordance with:

NAC 484C.020 Forensic analyst of alcohol: Certification. (NRS 484C.620, 484C.630)

NAC 484C.030 Forensic analyst of alcohol: Renewal of certificate. (NRS 484C.620, 484C.630)

There does not appear to be a certification/re-certification process for drug testing currently, but it would be good practice to consider implementing this practice.

Continuing education

Annual continuing education opportunities are essential for staff to keep pace with advancements in new drugs and assays, instrumentation, and trends. At a minimum, each staff person should receive at least one continuing education opportunity, and ideally, two. Examples of continuing education vary from in-person national and state conferences, online training, and webinars. The budget includes costs for one in-person and one web-based or local training per staff person each year.

The budget estimates a Coverdell training grant could be secured in the amount of \$15,000 annually. Some of the training costs can be defrayed by accessing the Paul Coverdell National Forensic Science Grants available through the Bureau of Justice Assistance. Grant funding can be used for several purposes including education and training for staff as well as reducing caseload backlogs.

Professional memberships are also encouraged and included in the operating budget. For example, membership in the American Academy of Forensic Sciences includes access to the Journal of Forensic Sciences. Similarly, the Society of Forensic Toxicologists includes access the Journal of Analytical Toxicology. These are the leading journals in the field for new research. Membership also enables networking to build lab visibility, access training opportunities and engage in research initiatives. Overall, staff membership in professional organizations furthers the reputation and visibility of the lab.

Customer & Client Requirements

A state toxicology lab would serve five primary customers:

- > Law enforcement agencies (51)
- > Prosecutor offices
- > Coroner offices

- > County and municipal labs
- > Department of Taxation

In Nevada, relationships between law enforcement agencies and prosecutor offices and existing toxicology labs are well-established.

Training is important to law enforcement and prosecutor officers with respect to sample collection and analysis processes, understanding of the magnitude and characteristics of the impaired driving problem in Nevada, the effects of drugs, and recent drug trends. Solid training for police with respect to sample collection can reduce the workload of the lab.

There is a desire to further build relationships between laboratory staff and police officers trained in DRE, SFTS and ARIDE to exchange knowledge and experiences. There is also a desire for cross-professional training.

Prosecutors frequently have questions about toxicological results and impairing effects of drugs. Experiences from other states indicates the preparation of short monographs summarizing the latest knowledge about specific drugs is useful to reduce inquiries from prosecutors for information as well as testimony. Colorado has produced a series of monographs and links to the documents are provided in Appendix H.

In addition, the lab would provide expert witnesses to support the prosecution of impaired drivers and testify with respect to toxicology test results. This task can place considerable demands on labs, particularly when testimony is often requested (in 70-80% of all cases) but rarely needed (only 72 cases per year involve testimony). Lab staff spend considerable time preparing for court, and this time is ultimately wasted when they are not needed to testify. Efforts to manage requests and provide timely notification when cases are dismissed or otherwise resolved is imperative to manage operational costs of the lab. It may also be suitable to impose fees for service as is the case in some states.

The toxicology lab could also provide support services to coroners to assist in the analysis of post-mortem samples (perhaps 300 per year) and reduce demands on local labs.

The Department of Taxation could utilize a state lab to provide strong oversight and inspection of private labs testing cannabis products and working with the toxicology lab to oversee the retesting of some cannabis products which fail initial testing. This is best accomplished through outsourcing to a reference laboratory since the cost to the State of implementing a separate cannabis compliance testing laboratory is substantial. This approach would also reduce liability on the State by ensuring a transparent and independent retest of products distinct from cannabis producers and private labs.

Legal Structure

It is recommended the initial development of the Nevada State Laboratory be undertaken within the auspices of the Department of Public Safety (DPS). A primary responsibility of DPS would be to assume responsibility for convening an Advisory Board of key stakeholders who would provide

input and expertise to establish the main lab and satellite lab. This approach is similar to the structure of the Committee on Testing for Intoxication.

DPS is well-positioned to provide needed leadership and political support, and act as a 'champion' for this initiative during legislative and budget processes. Another important responsibility of DPS is to ensure the state lab builds strong partnership with other state, county and municipal agencies, and it is accessible to provide services to them as needed. This is an essential feature to enable the state lab to draw upon other funding sources, including private sector investment, and reduce its reliance of DPS for budget in the long-term.

Once the main lab and satellite lab become fully operational, the Lab Director would be accountable to the Advisory Board who would provide oversight of lab operations. The Advisory Board would report to the Governor's Office. In this fashion, the state lab would become independent from DPS and act as a self-directed state agency with its own legal authority, however DPS would remain represented on the Advisory Board. This self-directed approach is adopted in five other jurisdictions, including Alabama, Arkansas, District of Columbia, Indiana, and Virginia. In these jurisdictions, a governing body or board representing a cross-section of professionals with expertise and knowledge about the core services provided by the lab provides oversight. This Advisory Board would require the authority to impose and collect fees.

Of note, the longer-term structure of a self-directed agency is essential to position the lab to diversify its funding mechanisms and draw upon potential funding sources in the private sector. This approach is intentionally designed to reduce the burden on taxpayers and state agencies to support lab operations and help the state lab develop a self-sustaining funding model. Examples of authorization legislation for labs are included in Appendix K.

This approach was selected for several important reasons:

- > This model enables the toxicology lab to develop a self-sustaining business model and reduce the burden on taxpayers. An independent entity could more easily secure private partnerships to secure funding for establishing the lab. It could also diversify its revenue streams to reduce appropriations from the State budget. Several sectors are potential sources of funding once the lab becomes operational including:
 - » Hospitals who require surveillance of clinical samples for research and who have access to research funding.
 - » Public health entities interested in bio-surveillance which is essential to identify and respond to emerging health crises. These data are essential as early warning systems for opioid epidemics as well as pandemics such as COVID-19 to ensure hospital and first responders are able to act quickly and efficiently to control and manage the spread. This is essential to reduce risk to citizens as well as reduce costs to state agencies.
 - » Heavy industry employers managing workplace alcohol and drug testing programs and who require access to credible and independent testing facilities and a source of education and training as well as knowledge of drug trends.

- » Grant funding opportunities for appropriate drug research applications through foundations.
- > Moreover, this model permits the lab to establish policies and procedures best-suited for its operations and purpose instead of requiring the lab to adopt and adapt to broader agency policies and priorities not aligned with its core services and day-to-day operations.
- > It is further proposed the state toxicology lab cultivate strong, coordinated working relationships with existing labs, county agencies, police services and related state agencies. Not only can the lab be an important training resource, but it can also provide much needed data to support the operations of these agencies.
- > Structuring the toxicology lab within an existing state agency during the implementation phase can be a source of strong leadership and support. In the longer-term, it is fraught with complexities. The operation of a toxicology lab does not fit neatly or easily into an existing state agency such as the Department of Health, Public Safety or Taxation because their core services are fundamentally different, as are their policies. As such, while the lab is able to provide much-needed support functions to each of these agencies, it should operate as a separate entity.
- > Of course, if the toxicology ultimately expands to become a fully functioning crime lab, consideration of re-integrating it into an appropriate state agency, such as DPS, can be reconsidered.

Business Model & Financial Structure

The business model for the laboratory is based on a diversified funding strategy. Two separate budget scenarios are provided for consideration:

- > Budget scenario 1 is based on establishing the Henderson lab location first.
- > Budget scenario 2 is based on establishing the Carson City lab location first.

A balanced budget is achievable using this cost-sharing approach. In light of the longer-term structure of a self-directed state agency, this would be a viable and politically palatable funding model.

In this regard, 50% of the funding would be obtained through a state appropriation while the remaining 50% of funding is secured from private industry (i.e., the alcohol, cannabis and pharmaceutical industries) who share a vested interest in protecting citizens from alcohol- and drug-impaired drivers. Road crashes are a leading cause of death recognized by the World Health Organization and impaired driving accounts for one in four fatal road crashes in Nevada. It includes:

- > a combination of public/private funding;
- > a \$75 surcharge paid by convicted offenders for designated offenses (which represents an increase of the \$60 chemical analysis fee collected by counties and municipalities; see NRS 484C.510) and this money would now flow to the State;

- > a fee for service strategy charged to police agencies and coroners on a cost-recovery basis;
- > a fee for service strategy charged to cannabis producers and private cannabis labs to undertake due diligence of the State in relation to cannabis product testing.

The State would incur the upfront costs to set up the lab and recoup approximately 50% of the start-up costs from private industries over each five years of operation (as instruments are replaced). Costs are higher in year 1 and 2 in both scenarios due to the first lab not being fully functional until year 3.

- > On average, approximately \$800,000 in private funding (across three industries: alcohol, cannabis, pharmaceutical) is required annually in budget scenario 1 with the main lab in Henderson.
- > In budget scenario 2 with the main lab in Carson City, approximately \$431,000 in private funding would be required annually. This is not an unreasonable amount; for reference Washington State receives \$300,000 from a liquor revolving fund.⁵

The laboratory must possess the authority to impose and collect fees.

A longer-term plan to pursue other revenue streams related to toxicology analysis services provided to hospital clinical populations, bio-surveillance initiatives, and research funding can eliminate the need for continued state funding beyond surcharges and fees. As such, a location in Henderson would be valuable to attract private sector funders which are primarily located in the southern region of the state.

Budget Overview

Two budget scenarios are provided. Of note, the budgets in scenario 1 and scenario 2 are not directly comparable since the set-up of the Henderson lab is a larger facility with more capacity, staff and instruments compared to the lab set up in Carson City

In the first scenario the main larger lab in Henderson is established first to deliver services to the largest population and client base sooner. This has the advantage of generating more revenue earlier and permits the contracted services with Henderson and Las Vegas labs to be discontinued sooner as well as to ensure a larger capacity for service is available to meet demands.

In the second budget scenario, the main but smaller lab is established in Carson City first to take advantage of existing building space available at no cost for a lab set up. However, this location is situated farther away from the main population and client base. This means existing contracted services with labs in Henderson and Las Vegas will be necessary longer which brings additional

⁵ **Washington.** Some funding comes from a liquor revolving fund and disbursement to the toxicological services. The fund collects spirits, beer, and wine licensing fees from restaurants, private clubs, nightclubs, VIP airport lounges and sports entertainment facilities by appropriation from the death investigations of \$300,000. See: RCW 66.08.180 Liquor revolving fund—Distribution—Reserve for administration—Disbursement to universities and state agencies. (Effective until January 1, 2020.) WA Rev Code § 66.08.180 (2019) <https://law.justia.com/codes/washington/2019/title-66/chapter-66-08/section-66-08-180/>.

costs not included in the budget. It will take at least 18 months to open the second lab once the first lab becomes operational. It also includes relocation costs for the Chief Toxicologist and Quality Assurance Manager and Operations Manager to relocate to Henderson to set up the main lab. It makes the most sense for these senior staff to be based in Henderson in the larger facility with more staff and instruments as well as clients. Travel costs for training and maintenance would also be higher to deliver services in the southern region. Finally, in this scenario, the chemist can be hired at the outset to undertake private lab inspections and oversee cannabis product re-testing, however, they will have to be located in Henderson where clients are mainly situated. Hence a work-from-home scenario would have to be adopted during the first two year while the Carson City lab is established, and the chemist would be unavailable to assist with the lab set up as needed.

Additional note: *After the budgets in this report were finalized, it was determined 1 or 1.5 additional FTEs should be added to personnel costs in years 2 and 3 to handle workload related to the certification and servicing of breath testing devices. As such operating costs in the two budget scenarios below would increase by approximately \$60,000 if 1 FTE was added, and \$90,000 each year if 1.5 FTEs were added.*

Budget Scenario 1 – Main Lab in Henderson established first.

The total cost to implement the main lab in Henderson in year 1 is \$6.72M in capital costs and \$1.9M in operating costs. The total cost in year 2 is \$1.9M in operating costs and in year 3 it is \$980,000 in operating costs. These costs have the potential to be reduced with private sector investment. A diversified funding model is proposed for the lab. In addition to private sector funding, other proposed revenues will be fee-based for a wide variety of services to different agencies and clients. As described previously, it is simply not cost-efficient to set up a state lab and only do a portion of testing of all toxicological samples.

> Capital costs

The capital costs in Year 1 total \$6.72 million and include lab fit-up, instrumentation and other equipment. The costs would be paid upfront by the State and 50% of this cost would be recovered from private industry funding over five years. It is assumed none of these costs would be financed.

> Operating costs

The total cost to operate the main lab (including lease):

- » Year 1 – \$1.9 million (State pays \$968,000 and private industry pays \$968,000)
- » Year 2 – \$1.9 million (State pays \$960,000 and private industry pays \$960,000)
- » Year 3 – \$981,000 (State pays \$490,000 and private industry pays \$490,000)

> Revenues

It is anticipated some revenues would be earned in year 1 including the surcharge of \$75 for chemical analysis for designated offenses, training for police services and maintenance of breath testing devices. In addition, it is anticipated inspections of private cannabis testing labs

would occur as well as oversight of retesting of cannabis product samples. In year 3, additional revenues would be earned for toxicology analysis of impaired driving and post-mortem samples.

- » Year 1 - \$2,406, 982
- » Year 2 - \$2,389,520
- » Year 3 - \$3,302,885

> **Cash flow**

The cash flow requirements for the main lab which include the initial capital outlay in year 1 and recouping a portion of this in subsequent years from private industry:

- » Year 1 - \$6.72 million cash out (reduced to 5,707,750,784 after amortization and private industry funding)
- » Year 2 – \$1,019,750 cash in
- » Year 3 – \$1,019, 750 cash in

The cash flow requirements above assume private industry funding will cover 50% of any shortfall. These amounts include (year 1 is 968,000, year 2 is 960,000 and year 3 is 490,000).

> **Satellite lab costs**

In addition, it is estimated the satellite lab requires \$2.98 million capital cost lab fit up and instrumentation and other equipment.

These costs would be incurred during year 3 of the main lab to spread out capital costs and reduce operating cost. The lab cannot be functional until the SOPs and QAP are developed.

The operational costs to run the satellite lab (including amortization, salary expenses and overhead) is \$1.1 million in Year 1 of the satellite lab with comparable costs in Year 2 and Year 3. This is excluding any revenues.

Budget Scenario 2 – Main Lab in Carson City established first.

The total cost to implement the main lab in Carson City in year 1 is \$4.5M in capital costs and \$1.1M in operating costs. The total cost in year 2 is \$1.2M in operating costs and in year 3 it is \$350,000 in capital costs and \$220,000 in operating costs. These costs have the potential to be reduced with private sector investment. A diversified funding model is proposed for the lab. In addition to private sector funding, other proposed revenues will be fee-based for a wide variety of services to different agencies and clients. As described previously, it is simply not cost-efficient to set up a state lab and only do a portion of testing of all toxicological samples.

> **Capital costs**

The capital costs in Year 1 total \$4.5 million and include lab fit-up, instrumentation and other equipment. Year 2 would have \$0 in capital costs and year 3 would have \$350,000. The costs would be paid upfront by the State and 50% of this cost would be recovered from private industry funding over five years. It is assumed none of these costs would be financed.

> **Operating costs**

The total cost to operate the main lab (including lease):

- » Year 1 – \$1.16 million (State pays \$582,000 and private industry pays \$582,000)
- » Year 2 – \$1.2 million (State pays \$602,000 and private industry pays \$602,000)
- » Year 3 – \$220,000 (State pays \$110,000 and private industry pays \$110,000)

> **Revenues**

It is anticipated some revenues would be earned in year 1 including the surcharge of \$75 for chemical analysis for designated offenses, training for police services and maintenance of breath testing devices. In addition, it is anticipated inspections of private cannabis testing labs would occur as well as oversight of retesting of cannabis product samples. In year 3, additional revenues would be earned for toxicology analysis of impaired driving and post-mortem samples.

- » Year 1 - \$1,634,856
- » Year 2 - \$1,675,036
- » Year 3 - \$1,684,028

> **Cash flow**

The cash flow requirements for the main lab which include the initial capital outlay in year 1 and recouping a portion of this in subsequent years from private industry:

- » Year 1 - \$4.5 million cash out (reduced to 3,856,500 after amortization and private industry funding)
- » Year 2 – \$728,500 cash in
- » Year 3 – \$378,500 cash in

The cash flow requirements above assume private industry funding will cover 50% of any shortfall. These amounts include (year 1 is 582,000, year 2 is 602,000 and year 3 is 110,000).

> **Satellite lab costs**

Similar to the previous budget, the set up costs for the second lab would not change significantly, however additional costs for continuing to contract with Henderson and Las Vegas labs would be incurred for the duration of time it takes to establish this lab.

- » In addition, it is estimated the satellite lab requires \$2.98 million capital cost lab fit up and instrumentation and other equipment.
- » These costs would be incurred during year 3 of the main lab to spread out capital costs and reduce operating cost. The lab cannot be functional until the SOPs and QAP are developed.

- » The operational costs to run the satellite lab (including amortization, salary expenses and overhead) is \$1.1 million in Year 1 of the satellite lab with comparable costs in Year 2 and Year 3. This is excluding any revenues.

Surcharges & Fees

Examples of fees imposed to support a toxicology and/or crime laboratory in other jurisdictions range from \$13 to \$100. Descriptions of statutory language and references are provided in Appendix I and summarized below.

- > **Operating costs.** A State surcharge to fund a portion of the operating budget annually could be accomplished through a combination of surcharges for convicted impaired drivers and fees for service to state and county agencies on a limited, cost-recovery basis. These monies would be deposited in a laboratory fund for their exclusive use that is separate from the General Fund.⁶ Examples of strategies used by states to fund laboratory operations include:
 - » **Washington.** The court imposes a \$100 crime laboratory analysis fee for each offense involving laboratory analysis for which an offender is convicted as well as a breath test fee of \$250 of which the toxicology lab receives a portion. *RCW 43.43.690 Crime laboratory analysis fee—Court imposition—Collection and RCW 46.61.5054 Alcohol violators—Additional fee—Distribution.* <https://app.leg.wa.gov/RCW/default.aspx?Cite=43.43.690> <https://app.leg.wa.gov/RCW/default.aspx?cite=46.61.5054>
 - » **New Mexico.** Legislation authorizes the creation of a ‘crime laboratory fund’ in the state treasury. Fees are collected for chemical and other testing upon conviction of impaired driving offenses (\$85) and controlled substances offenses (\$75). See: Section 31-12-9 - Crime laboratory fund created; appropriation. <https://law.justia.com/codes/new-mexico/2018/chapter-31/article-12/>
 - » **Arizona.** Laboratory funding comes from a \$45 surcharge for a defensive driving course fee as part of a diversion program for passenger vehicle drivers and commercial drivers. See: *AZ Rev Stat § 28-3396 (2019) 28-3396. Court diversion fee at* <https://law.justia.com/codes/arizona/2019/title-28/section-28-3396/>
 - » **Virginia.** The funding source is a \$25 fee charged by the Department of Forensic Science for analysis of blood samples when a conviction is entered for specific offenses.
 - » **Wisconsin.** The funding source is a court surcharge of \$13 (with few exceptions) for crime laboratories and drug law enforcement if the court imposes a sentence, places a person on probation, or imposes a forfeiture for a violation of state law or for a violation of a municipal or county ordinance. See *165.755 Crime laboratories and drug law enforcement surcharge at:* <https://docs.legis.wisconsin.gov/statutes/statutes/165/755>
 - » **Arkansas.** Funding sources include fees charged to *non-law enforcement* agencies for reports. Fees are also charged for expert testimony for the courts, consultations,

⁶ A forensic services fund and practices for distribution of the funds already exists in Nevada; see NRS 453.575.

consultations, and research. See: Arkansas State Crime Lab Fees and dispositions Universal Citation: [AR Code § 12-12-314 \(2019\)](#). *Fees are not charged to law enforcement agencies.*

- > In addition, a fixed fee for toxicology analysis could be charged to police agencies and coroner offices on a cost recovery basis to fund a portion of the operating costs for the lab.
- » **Colorado.** The Colorado Bureau of Investigation is authorized to impose a fee for performing the work of the laboratory pursuant to this section. The amount of the fee shall not exceed the total amount of direct and indirect costs incurred by the bureau in performing the work of the laboratory.) The moneys in the fund are subject to annual appropriation by the general assembly to the Bureau to pay the direct and indirect costs associated with performing the work of the laboratory pursuant to this section. Of importance, unspent monies cannot be credited to another fund. See: Colorado State toxicology laboratory [CO Rev Stat § 24-33.5-428 \(2018\)](#).
- > A fee for service to private cannabis laboratories to conduct bi-annual inspections of private cannabis laboratories could be imposed. It is estimated to be \$1,300 per inspection.
- > A fee for service to cannabis producers for the state laboratory to oversee the outsourcing of retests of products to a credible reference laboratory for independent testing and review results which would be shared with the Department of Taxation. This fee is estimated to be \$150.

CONCLUSIONS

A state toxicology lab is a critical need in Nevada and essential for state agencies to ensure the safety and security of its residents. Demand for toxicological analysis is substantial and already surpasses the ability of the State to keep pace, as evidenced by backlogs in impaired driving cases and court caseloads. Moreover, the legalization of recreational cannabis will undoubtedly contribute to increases in the prevalence of impaired driving based on experiences in other jurisdictions. Of equal importance, it is imperative the State is able to demonstrate due diligence in the testing of cannabis products to reduce its liability for poor quality or unsafe products.

To date, the reliance on contracted services from county and municipal labs has been adequate to meet the needs of the State. These labs have provided professional services and worked diligently to accommodate growing demands for toxicology analysis, even in the face of an expanding list of crime lab functions and competing priorities. However, this model is no longer feasible or practical without significant financial investment. As such, it is recommended the State implement a toxicology lab to undertake analyses of all impaired driving toxicological samples. Not only is this approach the most cost-efficient strategy to implement a state lab, but it also makes possible the application of standardized test protocols, drug test panels and cut-off values. This would make Nevada one of the first in the US to do so and provide an important foundation for research studies to investigate the impact of differences in cut-off values, as well as provide insight into the most appropriate cut-off values to use for impaired driving toxicological samples. As such, the standardized and consistent analysis of impaired driving samples would have considerable research value and generate interest among potential funders, thereby creating additional revenue streams for the state lab. More importantly, it would also provide consistent and standardized collection of data to inform policy decisions and measure the magnitude of the impaired driving problem.

Of course, the reduced reliance on contracted services would also permit the county and municipal labs who have provided these services to re-focus activities on essential crime lab functions. This is a recognized need in the state that is under-met. This approach would enable these labs to increase their services in other areas and also expand their services to meet the needs of other police agencies. This proposed division of labor is strategic and cost-efficient to avoid the duplication of lab space, lab infrastructure and lab instrumentation, all required for toxicological analyses.

The location of the lab is a critical issue with important cost and service implications. The inclusion of a main lab in Henderson in the southern region of the state was purposeful to be located in close proximity to the largest population base and ensure ease of access to the majority of clients requiring services while also being sensitive to cost. Furthermore, this location is quite important to ensure the state lab is able to develop a self-sustaining funding model by being near to private industry and able to accommodate their needs. The identification of Carson City for a satellite lab in the northern part of the state was similarly selected to ensure more rural populations are adequately served through a centralized and accessible point of contact.

In this regard, two budget scenarios have been prepared for consideration. These budgets are not directly comparable in cost due to the fact the Henderson lab is much larger with more staff,

instruments and greater capacity to serve clients as compared to the smaller lab in Carson City situated in the Northern region of the state with a much smaller population and client base. Establishing the larger lab in Henderson first has the advantage of reducing existing costs to the state sooner and avoids re-locating the Chief Toxicologist, QA Manager and Operations Manager from Carson City to Henderson to set up the second lab after the northern lab is operational.

Another important consideration relating to the location and staffing of the main lab and satellite lab is the demand for court testimony and training. These are significant demands on the time of lab staff which erode the time available to conduct analyses and finalize reports describing results. Much more efficient approaches to the use of court testimony would enable toxicologists to spend time preparing testimony and delivering it, but also minimize the time required to travel to various court locations. As such, increased adoption and acceptance of video testimony would be greatly beneficial to support the timely prosecution of cases without detracting from the rights of defendants. This would also increase the availability of toxicologists to travel to police agencies to deliver much-needed training with respect to drug-impaired driving, or alternatively, permit the development of webinars and online training models for police as well.

The recommended legal structure and business model proposed in this report are intimately connected with the sole objective of cultivating a self-sustaining business model and reducing the burden on state agencies and, ultimately, taxpayers. Of course, leadership from DPS during the implementation phase of the state lab is paramount to ensure it receives much-needed political support and budget allocations for it to be viable. However, it is equally important that an Advisory Board of key stakeholders is created, comprised of a cross-section of agencies and expertise, to ensure the success of the lab in becoming self-sustaining. A critical objective is to secure private sector funding and investment and pro-actively diversify the revenue streams to support the lab; independence is vital to this goal. A state lab must be unencumbered by overarching policy and protocol which may constrain its ability to do business, enter new partnerships, and adapt to a changing environment.

Finally, it is acknowledged that full compliance testing of cannabis products is a priority in the state. This activity is only described with respect to the inspection of private labs testing cannabis products as well as oversight of re-testing of cannabis products failing initial testing. Developing an implementation plan for a full cannabis testing laboratory is beyond the scope of the technical assistance TIRF can provide. However, it is important to note the implications of conducting cannabis product testing in a state lab. Notably, full physical separation of lab space, lab instruments and ventilations systems would be required between a toxicology lab and cannabis testing lab to avoid cross-contamination. At present and to the knowledge of experts contributing to this report, in other states, cannabis product testing is generally undertaken by private labs, including in Colorado and Washington state. The complexity and specialization of testing requires specific technical expertise which makes it costly and inefficient for state agencies to undertake. The only type of cannabis testing typically performed by a state crime lab is to distinguish between cannabis and hemp for the purpose of criminal charges. Of course, if Nevada wishes to pursue this activity it would be necessary to hire a qualified consultant to conduct an assessment and estimate costs.

Looking forward, as the state makes a determination to move forward with the implementation of a state lab, the hiring of a suitable project director with expertise in lab implementation is an essential step. As described in this report, establishing a state lab involves coordination of many moving pieces, technical expertise and the commitment of dedicated time to ensure the lab meets accreditation standards and is achieved within an approved timeline and on budget. It will also involve coordination with existing labs, state agencies and other stakeholders. As such, a project director can serve as a designated point of contact and authority with full working knowledge of what is required to make the state lab a success.

Many state agencies can gain tremendous value with the strategic and cost-efficient implementation of a state lab. In light of current demands and the state context, it is simply not feasible or practical to wait any longer to create a state lab. The plan and recommendations described in this report is based on current standards, best practices, and knowledge and experience from leading experts. The budget is detailed and conservative to make this an affordable venture with many benefits for the state. Appendices also contain many examples to provide guidance and examples to assist the state as it moves forward. TIRF will continue to be available to provide assistance to the state with respect to important road safety priorities.

APPENDIX A: EXAMPLES OF MISSION & GOALS FOR LABORATORIES

Wisconsin (Analysis of impaired driving samples)

Wisconsin Forensic Toxicology Program mission is “to provide high quality analytical and support services to assist in identifying impaired drivers, documenting the incidence of alcohol and other drugs involved in motor vehicle crashes and deaths, and to aid coroners/medical examiners with death investigations. Support services include interpretation of results, court testimony, consultation, laboratory approval, outreach, training and research. In addition to the above statutes, the program provides alcohol analysis and comprehensive drug screening for coroners and medical examiners to help determine cause of death in non-traffic cases.”

Wisconsin traffic safety testing The Forensic Toxicology section provides alcohol and drug analysis for law enforcement agencies in support of Wisconsin Statute 343.305 (impaired driving). The section also tests specimens collected in the investigation of the impaired operation of boats, snowmobiles and all-terrain vehicles. The section conducts testing for police agencies, sheriffs’ offices, the Wisconsin State Patrol and the Wisconsin Department of Natural Resources. When required, staff members provide testimony in court on laboratory findings, methods of analysis and interpretation of results.

Major goals of the Wisconsin lab include:

1. Provide analyses for alcohol and other drugs.
2. Provide court testimony to support analyses.
3. Provide interpretation of results to attorneys, law enforcement agencies, subjects, coroners and medical examiners.
4. Fulfill statutory obligations of 343.305(6) Wis Stats:
 - a. Provide kits for specimen collection.
 - b. Approve methods of other laboratories providing alcohol and drug testing.
5. Provide breath alcohol testing technical assistance to the Department of Transportation (DOT).
6. Provide training to chemists, laboratory personnel, students, attorneys, judges and law enforcement agencies.
7. Develop and improve analytical methods.

Missouri (Analysis of impaired driving samples)

“The Missouri State Highway Patrol Crime Laboratory is a service-oriented institution where the commitment to excellence prevails. Its purpose is to provide superior forensic science services and

technical support to all local, county, state, and federal law enforcement agencies by utilizing state-of-the-art equipment and techniques and to present objective, unbiased conclusions to the judicial system.”

Main goals include:

1. Treat all agencies and their evidence with care, courtesy, respect, professionalism, and confidentiality
2. Ensure quality, integrity, and accuracy of laboratory examinations through the use of external, intra-laboratory, and interagency proficiency testing.
3. Promote efficiency and uniformity throughout the laboratory system through effective information management and communications.
4. Provide a quality work environment where employees are able to reach their professional potential.
5. Further the professional development of laboratory personnel by providing training opportunities in the latest technological trends and encouraging membership, certification, and active participation in appropriate and reputable international, national and regional forensic science organizations.
6. Interact with other forensic laboratories locally, nationally, and internationally toward advancements in the forensic science field.
7. Provide the highest quality forensic science services through continued adherence to all applicable ANSI National Accreditation Board (ANAB) standards.

Washington (Analysis of impaired driving samples)

“The Washington State Patrol Crime Laboratory Division is committed to providing the highest quality forensic science services and training for criminal justice agencies.

The Washington Toxicology Laboratory Division will provide forensic services to its customers in the discipline of toxicology, to include analysis of biological specimens for alcohol and drugs, training, expert court testimony, and legal discovery. The TLD is committed to providing the highest quality forensic services which ultimately enhances public safety for the citizens of Washington State.

It performs drug and alcohol testing for coroners, medical examiners, law enforcement agencies, prosecuting attorneys and the State Liquor Cannabis Board in all 39 Washington counties. The laboratory receives approximately 16,000 cases per year of which approximately 65 percent are law enforcement DUI cases and 35 percent coroner/medical examiner cases. The laboratory is overseen by the Stat Toxicologist and has staff consisting of a Laboratory Manager, Quality Assurance Manager, two Forensic Supervisors, Technical Lead, 14 Forensic Toxicologists and two Property and Evidence Custodians. Toxicologist accession samples in rotation and spend an average of two days a week testifying in court as experts on alcohol, drugs and their effects.

Its goals are:

1. Make the WSP a great place to work.
2. Make our highways safe.
3. Provide specialized investigative, forensic, and support services.
4. Secure communities from terrorism, fire, and disaster risk.
5. Sustain and enhance agency infrastructure and business processes.

Colorado (Analysis of impaired driving samples)

The mission of the Colorado Bureau of Investigation (which is a full crime lab) is to “pursue justice and ensure a safer Colorado by providing excellence in background and criminal investigations, forensic services and the management of statewide criminal justice information. ”

The goals of the forensic services are National Laboratory Accreditation, coupled with outstanding scientific training and proficiency testing regimens, ensures quality systems and integrity of the forensic examinations conducted on evidence in criminal cases throughout Colorado.

APPENDIX B: WISCONSIN V GRIEP

The analysis from this case is provided verbatim below. A full copy of the case is available at:

<https://wicourts.gov/ca/opinion/DisplayDocument.html?content=html&seqNo=108095>

COURT OF APPEALS OF WISCONSIN PUBLISHED OPINION

Case No.: 2009AP3073-CR

Analysis

¶17 Our state law holds that while “one expert cannot act as a mere conduit for the opinion of another,” nonetheless,

the presence and availability for cross-examination of a highly qualified witness, who is familiar with the procedures at hand, supervises or reviews the work of the testing analyst, and renders [his or] her own expert opinion is sufficient to protect a defendant’s right to confrontation, despite the fact that the expert was not the person who performed the mechanics of the original tests.

Williams, 253 Wis. 2d 99, ¶¶19-20. Under this reasoning, a defendant’s confrontation right is not violated “when [the surrogate], rather than the analyst who performed the tests, testifie[s] in part based on the crime lab report containing the lab test results,” concerning the nature of a tested substance.^[4] *Id.*, ¶26.

¶18 That rule and its underlying reasoning were articulated before the United States Supreme Court decided *Crawford*, which announced a new Confrontation Clause test for hearsay evidence. Under the new test, the alleged reliability of a hearsay statement is not enough to justify its admission at trial; instead, if a statement is “testimonial” hearsay,

it is inadmissible unless the declarant is unavailable to testify and the defendant had a prior opportunity to cross-examine him or her. *Crawford*, 541 U.S. at 68.

¶19 In *Barton*, this court considered how *Crawford* applies to the rule and reasoning in *Williams*, and concluded that *Williams* is still good law, because nothing “prevents a qualified expert from testifying in place of an unavailable expert when the testifying expert presents his or her own opinion.” *Barton*, 289 Wis. 2d 206, ¶20.

¶20 As Griep points out, *Barton* relied in part on reasoning that “the materials on which the expert bases his or her opinion are not elicited for the truth of their contents; they are examined to assess the weight of the expert’s opinion.” *Id.*, ¶22 (citation omitted). This precise logic is one of the core disputes that fractured the court in *Williams v. Illinois*. We also note that, unlike the DNA profiles at issue in *Williams v. Illinois* and *Deadwiller*, which were produced from samples found on victims, before any suspect was identified, the analysis of Griep’s blood was conducted for the very purpose of accusing Griep and creating evidence for use at trial. See *Turner*, 709 F.3d at 1192. If the DNA profile in *Williams*, produced by a lab in Maryland, not for the purpose of accusing anyone in particular but to provide objective data about the DNA found on a victim, which could then be compared with a database of other DNA records, *Williams*, 132 S. Ct. at 2229, was deemed to be offered “for the truth of the matter asserted” by a majority of the justices in *Williams*, it is difficult to understand how the analysis of Griep’s blood alcohol level, which was done for the sole purpose of prosecution, was not also offered “for the truth of the matter asserted.”

¶21 There is also some strength to the logic of Griep’s argument that even when a nontestifying expert’s report is not admitted into evidence, a surrogate expert’s testimony may in effect put the statements in the report into evidence. See *Turner*, 709 F.3d at 1191

(noting that a surrogate expert “had no first-hand knowledge” concerning the procedures followed in the testing and the conclusion based upon that resulting data and reasoning that the surrogate “put ... out-of-court statements before the jury”).^[5]

¶22 Nonetheless, with our supreme court so recently and favorably citing **Barton**, *see Deadwiller*, 350 Wis. 2d 138, ¶¶37-40, we have no choice but to conclude that **Barton** remains the law of our state. Only the state supreme court has the power to overrule our past decisions, **Cook v. Cook**, 208 Wis. 2d 166, 189-90, 560 N.W.2d 246 (1997), except when United States Supreme Court precedent overrules those decisions in such clear terms that the Supremacy Clause compels our adherence to federal law instead, **Jennings**, 252 Wis. 2d 228, ¶43. Under the reasoning of **Barton**, the availability of a well qualified expert, testifying as to his independent conclusion about the ethanol testing of Griep’s blood as evidenced by a report from another state lab analyst, was sufficient to protect Griep’s right to confrontation. No binding federal precedent clearly overrules **Barton**.

¶23 Having said that, we note that **Barton** may not be the last word on the issue. The defendant in **Turner**, 709 F.3d 1187, the Seventh Circuit decision referred to above, has petitioned for certiorari, and the United States Supreme Court has not decided whether to grant or deny that petition, as of today’s date. Various court watchers are predicting that certiorari will eventually be granted in **Turner**, or one of the other similar petitions currently being considered by the Court. *E.g.*, **State v. Brewington**, 743 S.E.2d 626 (N.C. 2013), *petition for cert. filed*, 82 U.S.L.W. 3283 (U.S. Oct. 17, 2013) (No. 13-504); **United States v. James**, 712 F.3d 79 (2d Cir. 2013), *petition for cert. filed*, 82 U.S.L.W. 3368 (U.S. Nov. 22, 2013) (No. 13-632). So, a definitive answer may be on the horizon.^[6]

By the Court.—Judgment affirmed.

APPENDIX C: TIER I & TIER II DRUGS & RECOMMENDED CUTOFF LEVELS

Source: Logan, B. K., D’Orazio, A. L., Mohr, A. L., Limoges, J. F., Miles, A. K., Scarneo, C. E., Kerrigan, S., Liddicoat, L. J., Scott, K. S., & Huestis, M. A. (2018). Recommendations for toxicological investigation of drug-impaired driving and motor vehicle fatalities—2017 update. *Journal of analytical toxicology*, 42(2), 63-68.

Table I: 2017 Recommended scope and cutoffs in ng/mL for screening and confirmation in blood, urine, and oral fluid for Tier I compounds (all concentrations are in ng/mL)

Drug	Blood		Urine		Oral Fluid	
	Screen	Confirm	Screen	Confirm	Screen	Confirm
DRE category; cannabis						
THC	-	1	-	-	4	2
Carboxy-THC	10	5	20	5	-	-
11-OH-THC	-	1	-	-	-	-
DRE category; CNS stimulants						
Methamphetamine	20	20	200	50	20	20
Amphetamine	20	20	200	50	20	20
MDMA*	-	20	-	50	20	20
MDA*	-	20	-	50	20	20
Cocaine*	-	10	-	20	20	8
Benzoylcegonine	50	50	150	50	20	8
Cocaethylene	-	10	-	20	-	8
DRE Category; CNS depressants						
Carisoprodol	500	500	500	500	100	100
Meprobamate*	-	500	500	500	100	100
Zolpidem	10	10	20	20	10	10
Low dose benzodiazepines	10	-	50	-	5	-
Alprazolam	-	10	-	50	-	1
Alpa-Hydroxyalprazolam	-	-	-	50	-	-
Clonazepam	-	10	-	50	-	1
7-Aminoclonazepam	-	10	-	50	-	1
Lorazepam	-	10	-	50	-	1
High dose benzodiazepines	50	-	100	-	5	-
Diazepam	-	20	-	50	-	1
Nordiazepam	-	20	-	50	-	1
Oxazepam	-	20	-	50	-	1
Temazepam	-	20	-	50	-	1
DRE category; narcotic analgesics						
Codeine*	-	10	-	50	-	5
6-Acetylmorphine	-	5	-	10	-	2
Buprenorphine	1	0.5	5	1	1	0.5

Norbuprenorphine	-	0.5	-	1	-	0.5
Fentanyl	1	0.5	1	0.5	1	0.5
Hydrocodone*	-	10	-	50	-	5
Hydromorphone*	-	5	-	50	-	5
Methadone	50	20	300	50	25	10
Morphine	10	10	200	50	10	5
Oxycodone*	10	10	100	50	10	5
Oxymorphone*	-	5	-	50	10	5
Tramadol	100	50	100	50	50	10
O-desmethyiltramadol	-	50	-	50	-	10

* For laboratories screening by immunoassay, the compounds marked should have cross-reactivity equal to at least 80% of the relevant target compound of the designated immunoassay, for example, if MDMA is intended to be detected on the methamphetamine immunoassay, it must have a cross-reactivity of 80% on that assay.

Table II: Recommended compounds for Tier II

DRE category; cannabis
Synthetic cannabinoids
DRE category; CNS stimulants
Cathinones
Methylphenidate
Mitragynine
DRE category; CNS depressants
Atypical antipsychotics
Barbiturates
Carbamazepine
Chlordiazepoxide
Chlorpheniramine
Cyclobenzaprine
Diphenhydramine
Doxylamine
Gabapentin
Gamma-hydroxybutyrate (GHB)
Hydroxyzine
Lamotrigine
Mirtazapine
Novel benzodiazepines
Phenytoin
Pregabalin
Topiramate
Tricyclic antidepressants
DRE category; narcotic analgesics
Fentanyl analogs
Novel opioids
Tapentadol
DRE category; dissociative drugs
Dextromethorphan



Ketamine
PCP
DRE category; inhalants
Inhalant class
DRE category; hallucinogens
Hallucinogens

APPENDIX D: STANDARD OPERATING PROCEDURES (SOPS) EXAMPLES

Source: Washington State Patrol (August, 2019). Operations Manual. Seattle, WA: Washington State Patrol, Toxicology Laboratory Division. Available at: <https://wsp.wa.gov/forensics/toxicology.htm>

Source: Society of Forensic Toxicologists, Inc / American Academy of Forensic Sciences. (2006). Forensic toxicology laboratory guidelines. *SOFT and AAFS, 1*. Retrieved online at: http://www.soft-tox.org/files/Guidelines_2006_Final.pdf

Standard Operating Procedures

- 5.1 The laboratory should have a standard operating procedure manual (SOP) that is complete, up-to-date, and available to all personnel who are performing tests.
- 5.2 The SOP manual should include detailed descriptions of procedures for sample receiving, accessioning, chain-of-custody, analysis, quality assurance and quality control, review of data, and reporting.
- 5.3 The SOP manual should include administrative procedures as well as analytical methods and be reviewed, signed, and dated whenever it is first placed into use or changed.
- 5.4 The SOP manual should include, for each analytical procedure if appropriate, the details of the analytical procedure, d) instructions for preparation of calibrators and controls, e) information about any special requirements for handling reagents or for ensuring safety, f) validation parameters (e.g. LOQ, linearity), g) criteria for the acceptance or rejection of qualitative or quantitative results and h) references.
- 5.5 When the required documentation is not available for infrequently performed assays, it should be added as each is performed for the first time.
- 5.6 The SOP should contain a record of sample signatures and initials of all staff handling specimens and performing analytical work (i.e. a "signature page"). This should be updated as needed to reflect staffing changes.
- 5.7 The laboratory should maintain out-dated copies of the SOP manual and provide a means for their retrieval from archival storage.

APPENDIX E: QUALITY ASSURANCE PROCESSES (QAPS) EXAMPLES

Source: Society of Forensic Toxicologists, Inc / American Academy of Forensic Sciences. (2006). Forensic toxicology laboratory guidelines. *SOFT and AAFS*, 1.

Quality Assurance and Quality Control

9.1 Quality Assurance

- 9.1.1 Quality assurance encompasses all aspects of the analytical process, from specimen collection and reception through analysis, data review and reporting of results. It includes, but should not be limited to, quality control of each analysis and proficiency testing of the laboratory.
- 9.1.2 Quality assurance assumes a unique role in the forensic science disciplines because results are subject to challenge in the adversarial justice system. One purpose of a quality assurance program is to detect error, whether random or systematic, and to initiate appropriate remedial action.
- 9.1.3 Standards used should be appropriate for the test being performed, and documentation should be maintained describing their sources and dates of acquisition. Reference material should be stored so as to ensure its stability and integrity. If a standard is prepared in the laboratory, the source(s) of the chemical reagent(s), the method of preparation, and verification of the final product should be recorded and maintained on file.
- 9.1.4 Where practical, the identity and purity of reference materials should be verified by the laboratory.
- 9.1.5 Labelling should be uniform for all standards and reagents. Date of acquisition or preparation, and the initials of the preparer, should be included on the label. The expiration date should always appear on the label of liquid reagents. An expiration date furnished by a vendor/manufacture determines the useful lifetime of the standard/control unless it can be verified beyond that date.
- 9.1.6 Initially, a sufficient number of calibrators should be run to determine the characteristics of the calibration curve; a blank and at least three calibration points are recommended for the initial calibration process. The stability of the calibration curve should be tested under laboratory conditions by the addition of controls, both positive and negative.
- 9.1.7 Controls are not analyzed for calibration purposes. As a general rule an adequate set of controls should include, at a minimum, a specimen that does not contain the analyte (defined as a negative control) and a specimen containing the analyte at a concentration that realistically monitors the performance of the assay. Additional controls can be used to test the linearity of the calibration over the desired range.

- 9.1.8 The SOP manual should specify corrective action to be taken when control results are outside acceptable limits. Under optimal conditions a laboratory should have a quality control supervisor, but having a staff member dedicated to quality control may be impractical for small laboratories.
- 9.1.9 Forensic toxicology laboratories should participate in an external proficiency testing program which includes, at a minimum, samples for alcohol in blood or serum, and for drugs in at least one type of specimen, representative of that typically analyzed by the laboratory (e.g. whole blood or serum for a postmortem toxicology laboratory). The program should realistically monitor the laboratory's quantitative capability.
- 9.1.10 The laboratory director should regularly review results of quality control and proficiency testing. Signing and dating the record constitutes appropriate evidence of review. It is important that bench personnel be informed of quality control and proficiency test results. Attention should be given to procedures for monitoring potential sources of error. Proficiency test materials should be retained until the summary report is received and any corrective action satisfactorily completed.
- 9.1.11 Appropriate and timely corrective action in the event of proficiency test errors is essential. False positive errors are the most serious and possible causes of the error must be thoroughly investigated, including contamination of glassware and carry-over. A false negative result can be defined as failure to detect a substance which the laboratory claims to be able to detect, or that should have been detected by the method. By this definition, a false negative indicates a failure that should be investigated expeditiously. A false negative can also occur because the routine methods of the laboratory will not detect the analyte at all, or at the spiked concentration. In this instance the laboratory director should decide whether the analytical procedures need revising, or whether the failure to detect that analyte at the spiked concentration is acceptable (e.g. the concentration is below that of toxicological interest). All corrective action should be documented.
- 9.1.12 Quantitative proficiency test errors should also be investigated. Usually, the target concentrations of analytes are expressed in terms of the mean value for all participants in the survey, plus or minus 1 SD or 2 SD. Occasionally, the weighed-in target may be disclosed. Where the magnitude of an error is large, the need for corrective action is obvious and the underlying cause may be easy to determine. For some analytes, especially those infrequently quantitated, 2 SD, a common measure of acceptability, may represent an unacceptably large percentage deviation from the mean. Therefore, a realistic percentage deviation should be used, such as $\pm 20\%$ or $\pm 30\%$. Depending on the magnitude of the error, corrective action may be as simple as review of the assay results to ensure that the calibration was valid, that the assay was in control, and that any transcriptions were accurate. For more serious errors, corrective action may require repeating the analysis, re-validation of the assay, or even redevelopment of the test. All corrective action should be documented.

- 9.1.13 It is good practice to monitor the performance of assays by periodically calculating the coefficient of variation (e.g. % C.V. of controls). For chromatographic assays, coefficients of variation greater than about 15% indicate relatively poor precision and further investigation of assay performance, including troubleshooting or further development.
9. 1.14 Routine maintenance of equipment is an important part of any quality assurance program. It is a good practice to document all routine and non-routine maintenance, including tasks such as changing septa and liners on GCs. Documentation may be in a logbook, which can be kept by larger equipment, or check-sheets filed in a ring binder. Multiple items of similar equipment (e.g. pipettors) should be labelled in order to readily differentiate them.

9.2 Quality Control

- 9.2.1 Control Materials: In the true sense, a control is a test sample, identical to the unknown, but containing the analyte at a known concentration. With each batch of specimens, whether a single specimen or multiple ones, controls would be carried through the procedure in parallel with the unknowns. It is suggested that each batch of specimens include at least 10% controls. The controls must include one positive and one negative control. For qualitative assays positive and negative controls, acceptable results may simply be positive or negative, respectively. For quantitative assays, negative controls should give results that indicate the analyte is absent, or below the LOD for the assay. An acceptable positive control result of $\pm 20\%$ is recommended for most drugs, except for controls that are at or close to the LOQ of the assay, when $\pm 25\text{--}30\%$ may be more realistic. The control must give a result within a predetermined deviation from its mean value, or the test is deemed "out of control" and therefore, the result generated from the unknown specimen is unacceptable.
- 9.2.2 It is a common and accepted practice in clinical laboratory work to obtain or prepare material and then establish the target range by replicate analysis of the control in parallel with existing QC material. For example, control material may be prepared by pooling specimens from multiple cases. While that approach is still accepted in forensic toxicology, it is scientifically less desirable than preparing or purchasing control material with a specific weighed-in target concentration, which will allow independent verification of calibration accuracy. If control target ranges are experimentally determined, it is important for that range to be verified against control material, prepared commercially or independently in-house, prior to it being put into routine use.
- 9.2.3 For some forensic toxicology procedures, providing a true control is no more difficult than any other test. For others, however, in which the matrix may be unique (e.g. decomposed tissues, bone, hair or nails), providing a control is not only difficult, but can never approach the ideal of being identical to the unknown specimen. Controls should be prepared from standard material from a different source than that used in calibration of the assay. Where this is not practical, the control should at least be prepared using a different weighing or dilution than that used to prepare the calibrators. Control material prepared from the same solution used to prepare the calibrators is unacceptable, since any errors made in preparation of the standard solution will not be detected.

- 9.2.4 Open Controls: Open controls are those whose identity and expected result are known to the analyst. They can be purchased from commercial vendors, prepared in the laboratory, distributed by professional organizations or saved and pooled from former cases. Regardless of the source, the concentration of the analyte in the control must be validated. For tissue specimens or other unusual matrices, more innovative approaches may be necessary. Fortifying drug-free matrices, such as tissue homogenates, out-dated blood bank blood, plasma to simulate the unknown specimen is acceptable. A "blank" or negative control may, of course, be the unfortified matrix.
- 9.2.5 Results from quantitative quality control material should be recorded in a manner that readily permits the detection of trends such as the deterioration of reagents, calibrators or controls. For frequently run controls, results may be plotted in a graphical manner such as a Levy-Jennings plot. For less frequently run material, tabulation is acceptable. Determination of the coefficient of variation for the controls may give useful information about the precision of the assay, and may indicate which assays need further development.
- 9.2.6 Blind Controls: As the name implies, these are identical to open controls except their identity is unknown to the analyst. It is generally recognized that this is the ideal way to maintain quality control. A blind control should test the entire laboratory process including receiving, accessioning, analysis and reporting. This can be accomplished by setting up a "dummy account" or by co-operation with the submitting agency. Such blind controls are sometimes called "double blinds". A more practical approach is to have the accessioning section insert blind controls into each batch of specimens. However, either of these processes can be difficult to accomplish in a small laboratory; they are both costly and time consuming.

9.3 Reference Materials

- 9.3.1 The National Institute of Standards and Technology (NIST; <http://www.nist.gov>), refers to these as Standard Reference Material (SRM). For example, a specific RM may have a melting point of such sharpness and reproducibility that it can be offered as an RM for the calibration of a thermometer in a melting point apparatus. However, it may not be appropriate for preparing a calibration curve. A certified reference material (CRM), or SRM, suitable for the preparation of a standard to which calibration material can be compared, must be certified by a method generally recognized by the scientific community as one that validates the CRM for this purpose. The nature of the procedure depends, of course, on the properties of the analyte.
- 9.3.2 It is important to remember that most RMs are not 100% pure. The label or package insert should indicate the purity or the nature of the contaminants or the degree of water of hydration. Further instructions may provide guidance as to how the RM is to be used. For example, perhaps it must be protected from light, or stored at a low temperature or protected from moisture. These instructions must be carefully followed in order to use the RM according to its specifications.
- 9.3.3 Many toxicants, including drugs, may have limited shelf -lives. Degradation due to photo-reactions, oxidation in the air or by other means, requires that periodic assessment of these

changes must be monitored. Methods for detecting such changes are varied but even RMs may not retain their original purity. RMs supplied in solution may have more limited stability than those supplied as pure, dry, solids.

9.3.4 The importance of acquiring pure chemicals used as standards and periodically monitoring their purity, requires the development and implementation of procedures which are part of the standard operating procedure of the laboratory. The steps which can be used are summarized as follows:

1. maintain instruments and all measuring devices at optimal performance with regular calibration checks.
2. acquire chemicals to be used as standards from reliable sources who validate the stated purity, preferably by a certifiable trace to a CRM or SRM, or
3. acquire chemicals as RM, carefully following any instructions accompanying the RM for maintaining anhydrous conditions or to avoid deterioration, or
4. acquire chemicals from other sources but always assess the purity of the material by appropriate measurement of physical constants and/or instrumental methods.
5. regardless of the source of the chemical for preparation of the standard, devise a means by which the standard can be monitored periodically in order to detect any deviation from its original purity.
6. before using a newly prepared standard, compare its properties with a previously validated standard or with a CRM or SRM.

9.4 Metabolites

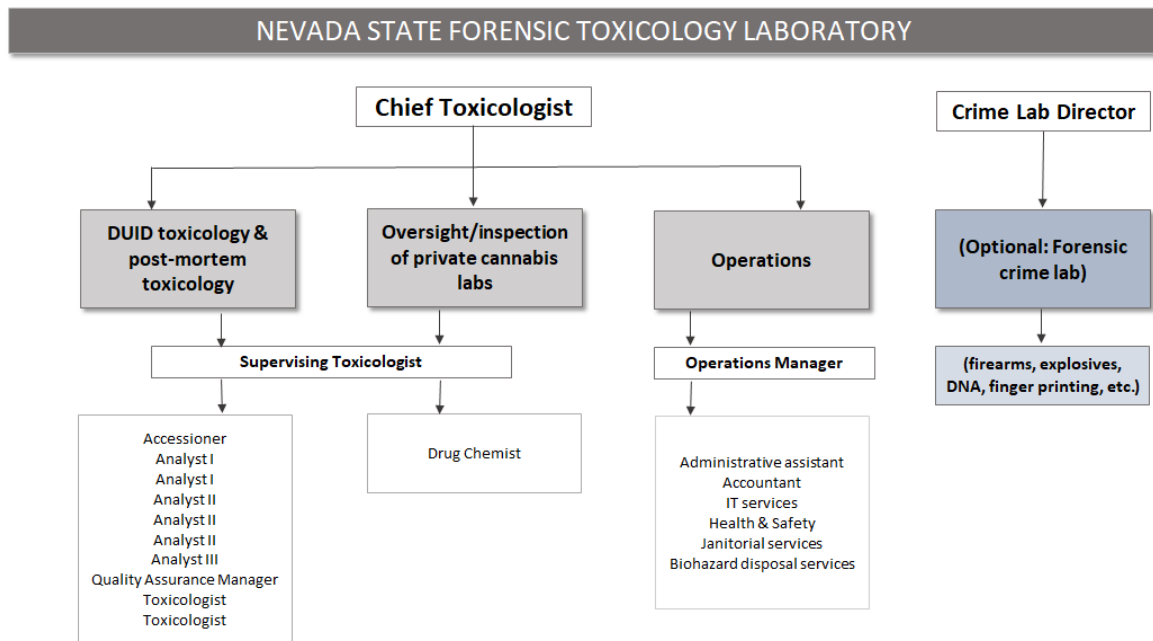
9.4.1 Many testing procedures, particularly immunoassay tests, are targeted to detect drug metabolites. As might be expected, these are more difficult to obtain in pure form, free of interferences and certified as to their authenticity. A number of commercial sources offer drugs and some metabolites, together with deuterated forms useful as internal standards in GC/MS and LC/MS. Frequently the commercial sources will supply a statement of purity with the material. This is not the same as a CRM or SRM, but after verification of purity, may be quite acceptable.

9.4.2 Metabolites of pharmaceutical drugs can, at times, be obtained from the company that manufactures them. This often requires a personal contact with an appropriate official of the company, completion of necessary paperwork and some time delay. The *Physicians' Desk Reference* in its "Manufacturers' Index" lists names and telephone numbers of contact officials.


9.4.3 When the identity of the metabolite has been described in a reputable scientific journal, but no source is evident, a search of catalogs from suppliers of organic chemicals may be fruitful. If this is not successful, then it may be necessary to synthesize the metabolite. In this case its identity should be confirmed by standard, acceptable methods. In all of these alternatives, purity must be assessed.

APPENDIX F: ORGANIZATION CHARTS


Nevada State Forensic Toxicology Laboratory Organization Chart



Arkansas State Forensic Toxicology Organization Chart



Arkansas State Crime Laboratory
Organizational Charts



1 FORENSIC TOXICOLOGY

Chief Forensic Toxicologist

Forensic Toxicologist

Forensic Technician

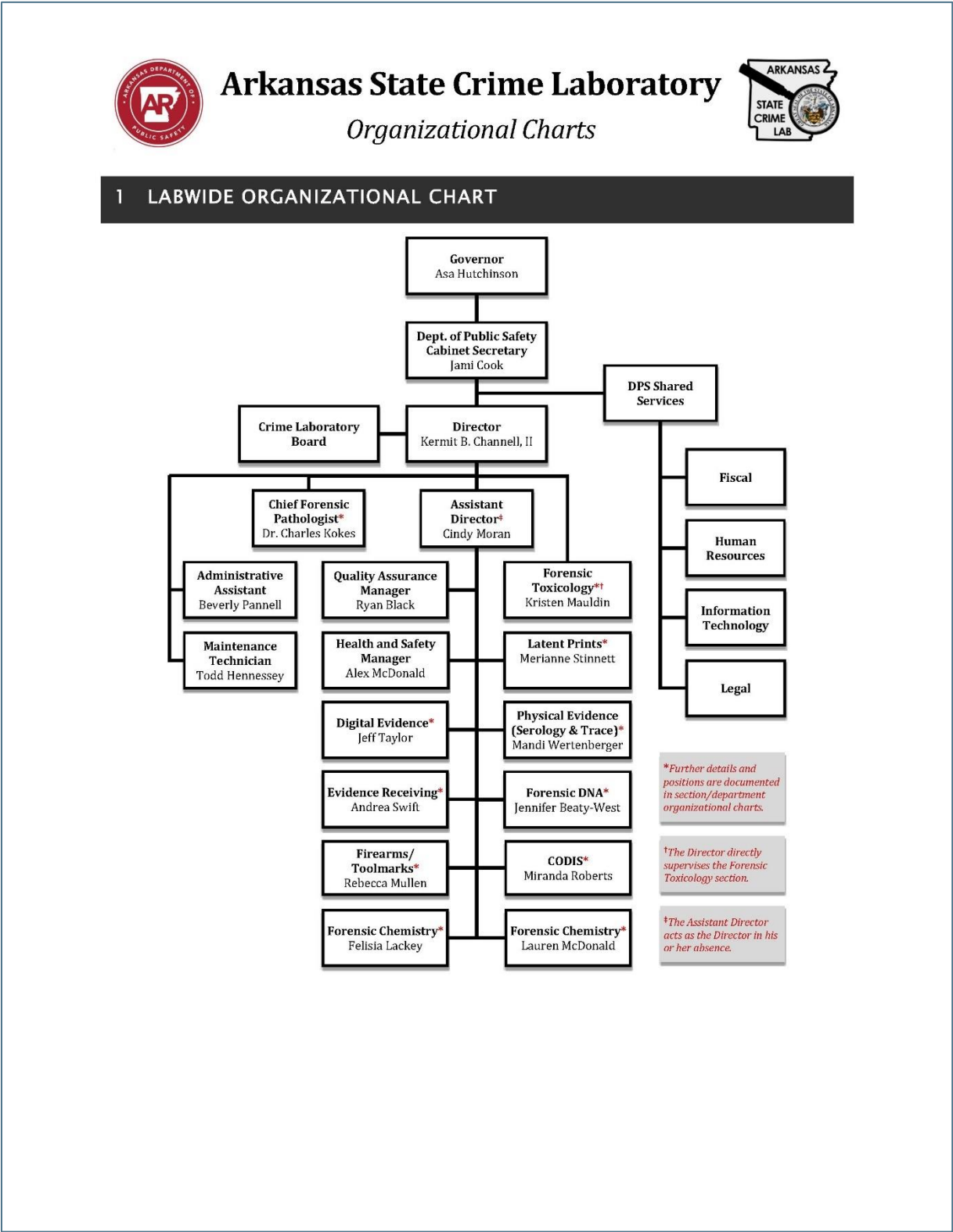
Position	Staff
Chief Forensic Toxicologist	Kristen Mauldin
Forensic Toxicologist (Little Rock)	Krista Buck Lauren Havens [‡] Mary Lynn Heffington Keeley Johnson William Pope [*] Sharon Pulla ^{***} Brittany Reed Eric Westhafer
Forensic Toxicologist (Lowell)	Danny Sanders Carrie Sokol
Forensic Technician (Little Rock)	Meranda Martin Michelle Owenson
Forensic Technician (Lowell)	Nicole Gaile Emily Harris
[†] Section Quality Manager	[‡] Section Safety Officer [*] Section Training Officer ^{***} Technical Leader

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Approved by: Black, Ryan, Mauldin, Kristen

Revision date: 12/10/2019

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Arkansas State Crime Laboratory Organization Chart



APPENDIX G: EXAMPLES OF STAFF ROLES & RESPONSIBILITIES

Examples from Washington State Patrol Manual

1.7.1 TLD Commander/State Toxicologist

By statutory authority, the State Toxicologist (also known as the TLD Commander) has final operational and technical authority over the TLD (RCW 68.50.107). This position is responsible for managing and approving all operational, technical, policy and fiscal aspects of the TLD, and reports to the FLSB Director.

The TLD Commander/State Toxicologist:

- > Has overall Appointing Authority within the TLD
- > Approves/authorizes analytical methods and instrumentation
- > Authorizes personnel to perform testing work and/or review associated documentation and issue (authorize) test reports
- > Directly supervises the Laboratory Manager and QA Manager
- > Prepares the TLD budget
- > Promulgates revisions to the Washington Administrative Code (WAC)
- > Ensures the Division's operational objectives are achieved
- > Ensures resources are utilized to their maximum effectiveness
- > Ensures that all programs are providing the most effective and timely services
- > Ensures that all employees support the Division's QA Program
- > Reviews technical and administrative documentation for testing work
- > Provides factual and expert court testimony where required

1.7.2 Laboratory Manager

The Laboratory Manager has primary responsibility for the daily operations of the Laboratory, and for supervising and monitoring the compliance with policies and procedures for all personnel within the Laboratory. This position reports to the TLD Commander/State Toxicologist.

The Laboratory Manager:

- > Directly supervises the Supervisors and Office Manager
- > Assists with the preparation of the TLD budget

- > Assists the TLD Commander/State Toxicologist in developing and implementing program policy, procedures, and practice
- > Exercises control over discretionary funds for laboratory supplies, overtime, and training
- > Gives input to the Division's QA Program

Ensures the effective application of the Division's QA Program

- > Assists the QA Manager with the annual review of the quality management system
- > Ensures effective communication among all Division personnel regarding Division policies and procedures
- > Authorizes and monitors training and professional development requests
- > Monitors compliance with accreditation and management system criteria
- > Provides factual and expert court testimony where required
- > Provides training to internal and external agencies
- > Reviews technical and administrative documentation for testing work

1.7.3 Quality Assurance (QA) Manager

The QA Manager implements and maintains the QA Program, and monitors the quality of the work product and the personnel of the TLD. This position reports to the TLD Commander/State Toxicologist.

The QA Manager:

- > Directly supervises the Forensic Technical Lead and Laboratory Technician
- > Works to maintain and improve the quality program of the TLD
- > Coordinates the proficiency testing program
- > Directs the testing batch/data review program
- > Assists with the training (and retraining) program for the Division
- > Directs annual technical and quality audits of the Laboratory
- > Maintains and revises quality, operational, technical and training manuals for the TLD
- > Manages document control policies and procedures
- > Maintains the Laboratory's programs of accreditation
- > Makes recommendations to the TLD Commander/State Toxicologist regarding issues of nonconformity
- > Reviews technical and administrative documentation for testing work and quality control data
- > Provides factual and expert court testimony where required

1.7.4 Forensic Scientist Supervisor

- > Forensic Scientist Supervisors have primary responsibility for the supervision of Forensic Scientists. This position reports to the Laboratory Manager.
- > The Forensic Scientist Supervisor (Forensic Scientist 5; FS5):
- > Directly supervises the Forensic Scientists assigned to them
- > Is responsible for training (and retraining) of Forensic Scientists assigned to them
- > Ensures their direct reports comply with program policy and procedures regarding testing work
- > Reviews technical and administrative documentation for testing work
- > Organizes and conducts periodic meetings of direct reports

Observes direct reports annually as they testify in court

- > Provides factual and expert court testimony where required
- > Provides training to internal and external agencies
- > Assigns casework to direct reports
- > Assists with PEC duties, as needed

1.7.5 Forensic Technical Lead

The Forensic Technical Lead works with the QA Manager to implement and monitor the QA Program. This position reports to the QA Manager.

The Forensic Technical Lead (Forensic Scientist 4; FS4):

- > Works with the QA Manager to maintain and improve the quality program of the TLD
- > Performs internal audits of policies/procedures and documentation of testing work
- > Assists with proficiency test assignment, tracking and results submission
- > Coordinates calibration of laboratory equipment
- > Participates in method development and validation
- > Assists with training of Forensic Scientists
- > Reviews technical and administrative documents for testing work and quality control data
- > Assists the QA Manager in preparation for external audits
- > Provides factual and expert court testimony where required

1.7.6 Forensic Scientist 1, 2 and 3 (FS1, FS2, FS3)

The Forensic Scientist is trained by, and assigned to, the TLD to perform testing work. Each Forensic Scientist is accountable to one Supervisor.

The Forensic Scientist:

- > Is responsible for the testing of biological and non-biological specimens submitted to the Laboratory
- > Prepares and maintains documentation for testing performed, including final toxicology reports for dissemination to submitting agencies
- > Is responsible for review of supporting documentation and testing data
- > Is responsible for the maintenance of instruments used in the Laboratory
- > Performs peer review of select technical and administrative documentation for testing work
- > Provides factual and expert court testimony where required
- > Provides training to internal and external agencies

1.7.7 Laboratory Technician 2 (LT 2)

The Laboratory Technician provides maintenance, administrative and quality assurance support to the Laboratory. Responsibilities include assisting with preparation of standard materials, instrument and equipment maintenance, ordering of supplies, and other duties, as assigned. This position reports to the QA Manager.

1.7.8 Office Manager

The Office Manager oversees the administrative, evidential and clerical functions of the TLD, and directly supervises the Property and Evidence Custodians (PEC) and Office Assistant (OA). Responsibilities include internal and external customer service, training of PECs and the OA, coordinating administrative and evidence audits, ordering office and laboratory supplies and consumables and processing payment vouchers. This position reports to the Laboratory Manager.

1.7.9 Office Assistant (OA)

The Office Assistant performs a variety of clerical duties in support of office or Division operations. This position reports to the Office Manager.

1.7.10 Property and Evidence Custodian (PEC)

The Property and Evidence Custodian has responsibility for the receipt, storage, transfer and disposition of evidence (see 7.1.7). Provides factual testimony where required. This position reports to the Office Manager.

1.7.11 Forms and Records Analyst 2 (FRA 2)

The Forms and Records Analyst serves as the public disclosure coordinator for the TLD, ensuring that the Division meets the legal requirements for timely, thorough and accurate responses to public disclosure requests and subpoena duces tecums. This position reports to the SAS Manager/Assistant Crime Laboratory Division Director.

1.7.12 Temporary Designation of Responsibility/Authority

In the absence of the TLD Commander/State Toxicologist, the Laboratory Manager will assume all his/her areas of responsibility and authority(ies). Should a supervisor or manager be unavailable, a

person will be designated as the acting supervisor or manager, when necessary. In the event that no one is available, or has been designated, to take this responsibility the person assuming his/her responsibilities will depend on the authority required. In general, the responsibility/authority of specific personnel will fall to those positions listed in the table below:

In the absence of:	This position assumes his/her responsibility/authority:
TLD Commander/State Toxicologist	Laboratory Manager
Laboratory Manager	Supervisor or TLD Commander/State Toxicologist
QA Manager	FS4 or TLD Commander/State Toxicologist
All Supervisors	FS3 or Laboratory Manager
Office Manager	OA/FRA, Supervisor or Laboratory Manager
All PECs	Supervisor
FRA	Office Manager or Laboratory Manager

SOFT 2006 FORENSIC LAB GUIDELINES PERSONNEL – TAKEN FROM MANUAL

4. PERSONNEL

4.1 Laboratory Director

- 4.1.1 The forensic toxicology laboratory should be directed by a person who is qualified by reason of appropriate education and experience to assume the required professional, organizational, educational, managerial and administrative responsibilities.
- 4.1.2 That education and experience should be comparable to those of persons certified as Diplomates by the American Board of Forensic Toxicology.
- 4.1.3 Alternative acceptable qualifications include a doctoral degree in one of the natural sciences and at least three years of full-time laboratory experience in forensic toxicology; or a Master's degree in one of the natural sciences and at least five years of full-time laboratory experience in forensic toxicology; or a Bachelor's degree in one of the natural sciences and at least seven years of full-time laboratory experience in forensic toxicology.
- 4.1.4 The director should also have documented training and/or experience in the forensic applications of analytical toxicology (such as court testimony, research, participation in continuing education programs, and/or peer review of appropriate manuscripts in the field), including a knowledge of evidentiary procedures that apply when toxicological specimens are

acquired, processed, and stored and when toxicological data are submitted as part of a legal proceeding.

- 4.1.5 The laboratory director should be responsible for ensuring that the laboratory personnel are adequately trained and experienced to conduct the work of the laboratory
- 4.1.6 The laboratory director should be responsible for maintaining the competency of laboratory personnel by monitoring their work performance and verifying their skills. This training and experience should be documented.
- 4.1.7 The laboratory director should be responsible for the development of a complete, up-to-date procedures manual that is available to and followed by all personnel performing tests.
- 4.1.8 The laboratory director should establish a procedure for validating new analytical methodologies, and for maintaining a quality assurance program to ensure the proper performance and reporting of all test results.
- 4.1.9 Since forensic toxicology laboratories handle controlled substances and generate results essential to the criminal justice system, the director, to the extent practical or permitted by law, should exert reasonable efforts to ensure that all personnel meet high ethical and moral standards.

4.2 Other Laboratory Staff

The range and type of duties of other laboratory personnel will vary according to the size and the scope of the laboratory. It is recommended that each laboratory should have the following.

- 4.2.1 A person with the title of deputy director, assistant laboratory director, assistant chief toxicologist, or supervisory toxicologist, who has sufficient training and experience to be familiar with all administrative and testing procedures. He or she may supervise the work of all analysts, and should be capable of performing full scientific review of all test data, and of acting for the laboratory director in the director's absence. It is recommended that such individuals should have a minimum of a Bachelors degree in a natural science and 3 years of training in analytical toxicology, at least 1 year of which is in forensic toxicology.
- 4.2.2 One or more technicians who are capable of performing a variety of test procedures for alcohol, drugs, and other chemicals. A technician may supervise and review the work of less experienced technicians, and may supervise a section in a larger laboratory. It is recommended that such individuals should have a minimum of a Bachelor's degree in a natural science, at least 1 year of experience in analytical toxicology and 6 months experience in the present employment.
- 4.2.3 One or more analysts who are capable of performing tests for one or several analytes, and who are certified in each procedure by the laboratory director. These analysts may be limited in function to perform specified tasks - for example, an analyst who performs only immunoassays

APPENDIX H: COLORADO DRUG MONOGRAPHS EXAMPLES

Drug Effects Monographs

Alcohol General Effects
Alcohol and THC General Effects
Alprazolam General Effects
Amphetamine General Effects
Buprenorphine and Norbuprenorphine General Effects
Butalbital General Effects
Clonazepam General Effects
Cocaine General Effects
Diazepam, Nordiazepam, Oxazepam, and Temazepam General Effects
Difluoroethane (DFE) General Effects
Fentanyl General Effects
Hydrocodone and Hydromorphone General Effects
Lorazepam General Effects
Methadone General Effects
Methamphetamine General Effects
Morphine, Codeine, and Heroin General Effects
Oxycodone and Oxymorphone General Effects
THC General Effects
Tramadol General Effects
Zolpidem General Effects

Source: <https://www.colorado.gov/pacific/cbi/drug-effects-monographs>

APPENDIX I: STATE LAB FUNDING STATUTORY LANGUAGE EXAMPLES

ARKANSAS

2019 Arkansas Code

Title 12 - Law Enforcement, Emergency Management, And Military Affairs

Subtitle 2 - Law Enforcement Agencies And Programs

Chapter 12 - Crime Reporting And Investigations

Subchapter 3 - State Crime Laboratory

Source: <https://law.justia.com/codes/arkansas/2019/title-12/subtitle-2/chapter-12/subchapter-3/>

Arkansas State Crime Lab Fees and dispositions (AR Code § 12-12-314 (2019))

- a. The State Crime Laboratory shall charge certain fees in an amount to be determined by the State Crime Laboratory Board, but subject to the limitations set forth in this section for certain records, reports, and consultations by laboratory physicians and analysts, and expert witness testimony provided in the trial of civil lawsuits, as follows:

(1) A fee shall be charged for records and reports of the laboratory in a reasonable amount to be set by the board when the request for the report shall be from an entity other than a law enforcement or criminal justice system agency;

(2)

(A) A fee shall be charged in an amount to be set by the board for consultations, scientific or medical research, depositions, expert witness testimony, and travel to and from courts.

(B) The fees under subdivision (a)(2)(A) of this section shall be at a rate not to exceed two hundred twenty-five dollars (\$225) per hour or one thousand eight hundred dollars (\$1,800) per day and shall be levied against the requesting individual, agency, or organization for work done in civil cases in which laboratory personnel involvement results from the performance of duties and responsibilities under this subchapter; and

(3) A charge of up to three thousand dollars (\$3,000) for each autopsy requested by non-law enforcement officials.

- b. At no time shall any fee be levied or charge made to or against any law enforcement agency of the State of Arkansas for work performed under the provisions of this subchapter.

c.

(1) All fees collected by the laboratory for copies of the following shall be deposited as a refund to expenditures:

- (A) Autopsy reports;
 - (B) Autopsies requested by the Federal Aviation Administration, the Federal Bureau of Prisons, or the Department of Health for sudden infant death syndrome cases; and
 - (C) Expenses paid employees for testimony as expert witnesses.
- (2) Other moneys derived from the charges provided for and authorized by this section shall be deposited into the State Treasury to the credit of the Miscellaneous Agencies Fund Account of the State General Government Fund.

COLORADO

2018 Colorado Revised Statutes

Title 24 - Government – State

Principal Departments

Article 33.5 - Public Safety

Part 4 - Colorado Bureau of Investigation

Source: <https://law.justia.com/codes/colorado/2018/title-24/principal-departments/article-33.5/part-4/section-24-33.5-428/>

State toxicology laboratory – fund CO Rev Stat § 24-33.5-428 (2018)

- (1) On or before July 1, 2015, and thereafter, the bureau shall operate a state toxicology laboratory for the purpose of assisting law enforcement agencies in executing their duties, including but not limited to the enforcement of laws pertaining to driving under the influence of alcohol or drugs.
- (2)
- a. The bureau is authorized to impose a fee for performing the work of the laboratory pursuant to this section. The amount of the fee shall not exceed the total amount of direct and indirect costs incurred by the bureau in performing the work of the laboratory. The bureau shall transmit all moneys collected pursuant to this subsection (2) to the state treasurer, who shall credit the same to the state toxicology laboratory fund, referred to in this section as the "fund", which fund is hereby created.
 - b. The moneys in the fund are subject to annual appropriation by the general assembly to the bureau to pay the direct and indirect costs associated with performing the work of the laboratory pursuant to this section. The state treasurer may invest any moneys in the fund not expended for the purpose of this section as provided by law. The state treasurer shall credit any interest and income derived from the deposit and investment of moneys in the fund to the fund.
 - c. Any unexpended and unencumbered moneys remaining in the fund at the end of a fiscal year remain in the fund and shall not be credited to any other fund.

NEW MEXICO

2019 New Mexico Statutes

Chapter 31 - Criminal Procedures

Article 12 – Fines, Fees and Costs

Section 9 – Crime laboratory fund created; appropriation

Source: <https://law.justia.com/codes/new-mexico/2019/chapter-31/article-12/section-31-12-9/>

NM Stat § 31-12-9 (2019)

There is created in the state treasury the "crime laboratory fund". All fees collected pursuant to the provisions of Sections 31-12-7 and 31-12-8 NMSA 1978 shall be transmitted monthly to the administrative office of the courts for credit to the crime laboratory fund. All balances in the crime laboratory fund of fees collected pursuant to the provisions of Subsection A of Section 31-12-7 NMSA 1978 are appropriated to the administrative office of the courts for payment upon invoice to the scientific laboratory division of the health and environment department [department of health], the New Mexico state police crime laboratory division and the Albuquerque police crime laboratory for costs related to chemical and other tests and analyses described in those sections and incurred by these laboratories and local law enforcement agencies. Payments out of the crime laboratory fund of fees collected pursuant to the provisions of Subsection A of Section 31-12-7 NMSA 1978 shall be made on vouchers issued and signed by the director of the administrative office of the courts upon warrants drawn by the department of finance and administration. All balances in the crime laboratory fund of fees collected pursuant to the provisions of Subsection B of Section 31-12-7 NMSA 1978 are appropriated to the traffic safety bureau of the transportation program division of the state highway and transportation department to provide funds to approved comprehensive community programs for the prevention of driving while under the influence of alcohol or drugs and for other traffic safety purposes. Payment out of the crime laboratory fund of fees collected pursuant to the provisions of Subsection B of Section 31-12-7 NMSA 1978 shall be made on vouchers issued and signed by the chief of the traffic safety bureau upon warrants drawn by the department of finance and administration.

History: Laws 1981, ch. 367, § 3; 1989, ch. 324, § 22; 1991, ch. 245, § 2.

NM Stat § 31-12-7 (2019)

Notwithstanding the provisions of Section 66-8-102 NMSA 1978 or any municipal ordinance that prohibits driving while under the influence of intoxicating liquor or drugs, a person convicted of a violation of Section 66-8-102 NMSA 1978 or a violation of a municipal ordinance that prohibits driving while under the influence of intoxicating liquor or drugs shall be assessed by the court, in addition to any other fee or fine:

- a. a fee of eighty-five dollars (\$85.00) to defray the costs of chemical and other tests used to determine the influence of liquor or drugs; and
- b. a fee of seventy-five dollars (\$75.00) to fund comprehensive community programs for the prevention of driving while under the influence of intoxicating liquor or drugs and for other traffic safety purposes.

History: Laws 1981, ch. 367, § 1; 1988, ch. 56, § 5; 1991, ch. 245, § 1; 1997, ch. 203, § 1; 2010, ch. 5, § 1.

NM Stat § 31-12-8 (2019)

- a. A person convicted of a violation of the provisions of the Controlled Substances Act [30-31-1 NMSA 1978] or a person convicted of distribution or possession of a controlled substance pursuant to municipal ordinance shall be assessed, in addition to any other fee or fine, a fee of seventy-five dollars (\$75.00) to defray the costs of chemical and other analyses of controlled substances.
- b. Every municipality which has enacted an ordinance making possession or distribution of a controlled substance unlawful shall enact an ordinance to require assessment of the fee pursuant to Subsection A of this section and to provide for transmittal of the money collected to the administrative office of the courts pursuant to Section 31-12-9 NMSA 1978, notwithstanding the provisions of Section 35-14-7 NMSA 1978. All fees collected under this section shall be subject to an audit by the state auditor.

History: Laws 1981, ch. 367, § 2; 1984, ch. 82, § 1; 1988, ch. 14, § 5.

VIRGINIA

2019 Code of Virginia

Title 18.2 - Crimes and Offenses Generally

Chapter 7 – Crimes Involving Health and Safety

Article 2 - Driving Motor Vehicle, Etc., While Intoxicated

Section 268.8 – Fees

Source: <https://law.justia.com/codes/virginia/2019/title-18-2/chapter-7/section-18-2-268-8/>

Fees - VA Code § 18.2-268.8 (2019)

Payment for withdrawing blood shall not exceed \$25, which shall be paid out of the appropriation for criminal charges. If the person whose blood sample was withdrawn is subsequently convicted for a violation of § 18.2-266, 18.2-266.1, or subsection B of § 18.2-272 or of a similar ordinance, or is placed under the purview of a probational, educational, or rehabilitational program as set forth in § 18.2-271.1, the amount charged by the person withdrawing the sample shall be taxed as part of the costs of the criminal case and shall be paid into the general fund of the state treasury.

If the person whose blood sample was withdrawn is subsequently convicted for violation of § 18.2-266, 18.2-266.1, or subsection B of § 18.2-272 or a similar ordinance, a fee of \$25 for testing the first blood sample by the Department shall be taxed as part of the costs of the criminal case and shall be paid into the general fund of the state treasury.

WASHINGTON

2019 Washington Revised Code

Title 68 - Alcoholic Beverage Control

Subchapter 08 - Liquor and Cannabis Board—General Provisions.

Subchapter 180 - Liquor revolving fund—Distribution—Reserve for administration—Disbursement to universities and state agencies

Source: <https://law.justia.com/codes/washington/2019/title-66/chapter-66-08/section-66-08-180/>

RCW 66.08.180 Liquor revolving fund—Distribution—Reserve for administration—Disbursement to universities and state agencies. (Effective until January 1, 2020.) WA Rev Code § 66.08.180 (2019)

Except as provided in RCW 66.24.290(1), moneys in the liquor revolving fund shall be distributed by the board at least once every three months in accordance with RCW 66.08.190, 66.08.200 and 66.08.210. However, the board shall reserve from distribution such amount not exceeding five hundred thousand dollars as may be necessary for the proper administration of this title.

(1) All license fees, penalties, and forfeitures derived under chapter 13, Laws of 1935 from spirits, beer, and wine restaurant; spirits, beer, and wine private club; hotel; spirits, beer, and wine nightclub; spirits, beer, and wine VIP airport lounge; and sports entertainment facility licenses shall every three months be disbursed by the board as follows:

- a. Three hundred thousand dollars per biennium, to the death investigations account for the state toxicology program pursuant to RCW 68.50.107; and
- b. Of the remaining funds:
 - (i) 6.06 percent to the University of Washington and 4.04 percent to Washington State University for alcoholism and drug abuse research and for the dissemination of such research; and
 - (ii) 89.9 percent to the general fund to be used by the department of social and health services solely to carry out the purposes of *RCW 70.96A.050;

(2) The first fifty-five dollars per license fee provided in RCW 66.24.320 and 66.24.330 up to a maximum of one hundred fifty thousand dollars annually shall be disbursed every three months by the board to the general fund to be used for juvenile alcohol and drug prevention programs for kindergarten through third grade to be administered by the superintendent of public instruction;

(3) Twenty percent of the remaining total amount derived from license fees pursuant to RCW 66.24.320, 66.24.330, 66.24.350, and 66.24.360, shall be transferred to the general fund to be used by the department of social and health services solely to carry out the purposes of *RCW 70.96A.050; and

(4) One-fourth cent per liter of the tax imposed by RCW 66.24.210 shall every three months be disbursed by the board to Washington State University solely for wine and wine grape research, extension programs related to wine and wine grape research, and resident instruction in both wine

grape production and the processing aspects of the wine industry in accordance with RCW 28B.30.068. The director of financial management shall prescribe suitable accounting procedures to ensure that the funds transferred to the general fund to be used by the department of social and health services and appropriated are separately accounted for.

[2011 c 325 § 7; 2009 c 271 § 3; 2007 c 370 § 14; 2000 c 192 § 1. Prior: 1999 c 281 § 1; 1999 c 40 § 7; prior: 1997 c 451 § 3; 1997 c 321 § 57; 1995 c 398 § 16; 1987 c 458 § 10; 1986 c 87 § 1; 1981 1st ex.s. c 5 § 6; 1979 c 151 § 166; 1967 ex.s. c 75 § 1; 1965 ex.s. c 143 § 2; 1949 c 5 § 10; 1935 c 13 § 2; 1933 ex.s. c 62 § 77; Rem. Supp. 1949 § 7306-77. Formerly RCW 43.66.080.]

Crime laboratory analysis fee—Court imposition—Collection WA Rev Code § 43.43.690 (2019) <https://law.justia.com/codes/washington/2019/title-43/chapter-43-43/section-43-43-690/>

(1) When an adult offender has been adjudged guilty of violating any criminal statute of this state and a crime laboratory analysis was performed by a state crime laboratory, in addition to any other disposition, penalty, or fine imposed, the court shall levy a crime laboratory analysis fee of one hundred dollars for each offense for which the person was convicted. Upon a verified petition by the person assessed the fee, the court may suspend payment of all or part of the fee if it finds that the person does not have the ability to pay the fee.

(2) All crime laboratory analysis fees assessed under this section shall be collected by the clerk of the court and forwarded to the state general fund, to be used only for crime laboratories. The clerk may retain five dollars to defray the costs of collecting the fees.

[2015 c 265 § 30; 1992 c 129 § 2.]

Alcohol violators—Additional fee—Distribution. RCW §46.61.5054

(1)

- a. In addition to penalties set forth in *RCW 46.61.5051 through 46.61.5053 until September 1, 1995, and RCW 46.61.5055 thereafter, a two hundred fifty dollar fee shall be assessed to a person who is either convicted, sentenced to a lesser charge, or given deferred prosecution, as a result of an arrest for violating RCW 46.61.502, 46.61.504, 46.61.520, or 46.61.522. This fee is for the purpose of funding the Washington state toxicology laboratory and the Washington state patrol for grants and activities to increase the conviction rate and decrease the incidence of persons driving under the influence of alcohol or drugs.
- b. Upon a verified petition by the person assessed the fee, the court may suspend payment of all or part of the fee if it finds that the person does not have the ability to pay.

(2) The fee assessed under subsection (1) of this section shall be collected by the clerk of the court and, subject to subsection (5) of this section, one hundred seventy-five dollars of the fee must be distributed as follows:

- a. Forty percent shall be subject to distribution under RCW
** 3.46.120, 3.50.100, 35.20.220, 3.62.020, 3.62.040, or 10.82.070.

- b. The remainder of the fee shall be forwarded to the state treasurer who shall, through June 30, 1997, deposit: Fifty percent in the death investigations' account to be used solely for funding the state toxicology laboratory blood or breath testing programs; and fifty percent in the state patrol highway account to be used solely for funding activities to increase the conviction rate and decrease the incidence of persons driving under the influence of alcohol or drugs. Effective July 1, 1997, the remainder of the fee shall be forwarded to the state treasurer who shall deposit: Fifteen percent in the death investigations' account to be used solely for funding the state toxicology laboratory blood or breath testing programs; and eighty-five percent in the state patrol highway account to be used solely for funding activities to increase the conviction rate and decrease the incidence of persons driving under the influence of alcohol or drugs.

(3) Twenty-five dollars of the fee assessed under subsection (1) of this section must be distributed to the highway safety fund to be used solely for funding Washington traffic safety commission grants to reduce statewide collisions caused by persons driving under the influence of alcohol or drugs. Grants awarded under this subsection may be for projects that encourage collaboration with other community, governmental, and private organizations, and that utilize innovative approaches based on best practices or proven strategies supported by research or rigorous evaluation. Grants recipients may include, for example:

- a. DUI courts;
- b. Jurisdictions implementing the victim impact panel registries under RCW 46.61.5152 and 10.01.230; and
- c. Pilot programs in King and Spokane counties that are designed for persons with two or more prior offenses in seven years and include evidence-based assessment, enhanced intensive outpatient substance use disorder treatment, monitoring, and, when needed, priority entry into voluntary or involuntary detoxification services or residential substance use disorder treatment, if state funding is provided specifically for this purpose.

(4) Fifty dollars of the fee assessed under subsection (1) of this section must be distributed to the highway safety fund to be used solely for funding Washington traffic safety commission grants to organizations within counties targeted for programs to reduce driving under the influence of alcohol or drugs. A minimum of three hundred thousand dollars of these grant funds shall support pilot programs in King and Spokane counties that are designed for persons with two or more prior offenses in seven years, as described in subsection (3)(c) of this section.

(5) If the court has suspended payment of part of the fee pursuant to subsection (1)(b) of this section, amounts collected shall be distributed proportionately.

(6) This section applies to any offense committed on or after July 1, 1993, and only to adult offenders.

[2017 c 336 § 13; 2015 c 265 § 32; 2011 c 293 § 12. Prior: 1995 c 398 § 15; 1995 c 332 § 13; 1994 c 275 § 7.]

WISCONSIN

2019 Wisconsin Statutes & Annotations

Chapter 165 - Department of Justice

Subchapter 755 – Crime laboratories and drug law enforcement surcharge

Source: <https://law.justia.com/codes/wisconsin/2019/chapter-165/section-165-755/>

165.755 Crime laboratories and drug law enforcement surcharge. WI Stat § 165.755 (2019)

(1)

- a. Except as provided in par. (b), a court shall impose under ch. 814 a crime laboratories and drug law enforcement surcharge of \$13 if the court imposes a sentence, places a person on probation, or imposes a forfeiture for a violation of state law or for a violation of a municipal or county ordinance.
- b. A court may not impose the crime laboratories and drug law enforcement surcharge under par. (a) for a violation of s. 101.123 (2) or (2m), for a financial responsibility violation under s. 344.62 (2), or for a violation of a state law or municipal or county ordinance involving a nonmoving traffic violation, a violation under s. 343.51 (1m) (b), or a safety belt use violation under s. 347.48 (2m).

(2) If the court under sub. (1) (a) imposes a sentence or forfeiture for multiple offenses or places a person on probation for multiple offenses, a separate crime laboratories and drug law enforcement surcharge shall be imposed under ch. 814 for each separate offense.

(3) Except as provided in sub. (4), after the court determines the amount due under sub. (1) (a), the clerk of the court shall collect and transmit the amount to the county treasurer under s. 59.40 (2) (m). The county treasurer shall then make payment to the secretary of administration under s. 59.25 (3) (f) 2.

(4) If a municipal court imposes a forfeiture, after determining the amount due under sub. (1) (a) the court shall collect and transmit such amount to the treasurer of the county, city, town, or village, and that treasurer shall make payment to the secretary of administration as provided in s. 66.0114 (1) (bm).

(5) If any deposit of bail is made for a noncriminal offense to which sub. (1) (a) applies, the person making the deposit shall also deposit a sufficient amount to include the surcharge under sub. (1) (a) for forfeited bail. If bail is forfeited, the amount of the surcharge under sub. (1) (a) shall be transmitted monthly to the secretary of administration under this section. If bail is returned, the surcharge shall also be returned.

(6) If an inmate in a state prison or a person sentenced to a state prison has not paid the crime laboratories and drug law enforcement surcharge under sub. (1) (a), the department shall assess and collect the amount owed from the inmate's wages or other moneys. Any amount collected shall be transmitted to the secretary of administration.



(7) All moneys collected from crime laboratories and drug law enforcement surcharges under this section shall be deposited by the secretary of administration and used as specified in ss. 20.455 (2) (jb), (kd), and (Lm) and 20.475 (1) (km).

APPENDIX J: PROPOSED IMPLEMENTATION & OPERATIONAL BUDGETS

APPENDIX K: STATE LAB STATUTORY LANGUAGE EXAMPLES

Arkansas

Arkansas State Crime Lab is an independent authority overseen by a State Crime Laboratory Board

2019 Arkansas Code

Title 12 - Law Enforcement, Emergency Management, And Military Affairs

Subtitle 2 - Law Enforcement Agencies And Programs

Chapter 12 - Crime Reporting And Investigations

Subchapter 3 - State Crime Laboratory

Source: <https://law.justia.com/codes/arkansas/2019/title-12/subtitle-2/chapter-12/subchapter-3/>

Arkansas State Crime Lab establishment AR Code § 12-12-301 (2019)

- a. There is established a State Crime Laboratory.
- b. The laboratory shall offer services to law enforcement in:
 1. Forensic pathology;
 2. Toxicology;
 3. Physical evidence analysis;
 4. DNA analysis;
 5. Drug analysis;
 6. Latent fingerprint identification;
 7. Firearms and toolmarks analysis;
 8. Digital evidence analysis; and
 9. Other such areas as the State Crime Laboratory Board deems necessary and appropriate.

State Crime Lab Board creation, members and meetings AR Code § 12-12-302 (2019)

- a.
 - (1) There is created a State Crime Laboratory Board.
 - (2)
 - (A) The members of the board shall be appointed by the Governor and confirmed by the Senate.

(B) However, a vacancy may be temporarily filled by the Governor until the Senate shall next meet.

- b. The members appointed by the Governor shall be composed of:
 - (1) One (1) member of the active judiciary;
 - (2) One (1) practicing member of the legal profession;
 - (3) One (1) active county sheriff;
 - (4) One (1) active chief of police;
 - (5) One (1) active prosecuting attorney;
 - (6) Two (2) physicians engaged in the active practice of private or academic medicine; and
 - (7) One (1) member at large from the state.
- c.
 - (1) Appointments to the board shall be for a term of seven (7) years.
 - (2)
 - (A) All appointments made at any time other than the day following the expiration of a term shall be made for the unexpired portion of the term.
 - (B) If, however, the Governor shall not make an appointment by January 15 of the year in which the term expires, that member shall continue to serve until he or she is reappointed or a successor is appointed, and the term of that member shall run for seven (7) years from January 15 in the year the term expired rather than for seven (7) years from the date of actual appointment.
- d.
 - (1) The board shall meet and elect one (1) of its members as chair and one (1) as vice chair.
 - (2) The chair shall have the power to call meetings of the board upon due notice of the meeting to all members of the board.
- e. A majority of the members of the board shall constitute a quorum to transact the business of the board.
- f. The board shall meet a minimum of one (1) time every three (3) months. Failure of any appointee to attend three (3) consecutive meetings shall constitute cause for removal from the board by the Governor.
- g. Members of the board may receive expense reimbursement and stipends in accordance with § 25-16-901 et seq. The sums shall be paid from the appropriated maintenance and general operations funds of the State Crime Laboratory.

Arkansas State Crime Lab Board powers and duties AR Code § 12-12-303 (2019)

- a. The State Crime Laboratory Board shall promulgate such policies and rules as shall be necessary to carry out the intent and purpose of this subchapter along with the specific duties and responsibilities set out in this subchapter.
- b. The board is authorized to accept gifts, grants, or funds from persons, associations, corporations, foundations, and federal or state governmental agencies and to use the gifts, grants, or funds for purposes of carrying out this subchapter or for any other purposes not inconsistent with the purposes and intent of this subchapter which may be authorized by the board.
- c. The board is further authorized by this subchapter to enter into contracts, not inconsistent with law, and to do such things as it may deem necessary or appropriate to properly carry out the purposes and intent of this subchapter.

ARIZONA**2019 Arizona Revised Code**

Title 41 - State Government

Chapter 12 - Public Safety

Article 5 - Scientific Criminal Analysis Section

Subsection 1771 - Crime laboratory; branch crime detection laboratories; equipment and operation

Source: <https://law.justia.com/codes/arizona/2019/title-41/section-41-1771/>

Crime laboratory; branch crime detection laboratories; equipment and operation AZ Rev Stat § 41-1771 (2019)

There shall be a scientific criminal analysis section, staffed by a superintendent and other necessary personnel, and established for the purpose of giving assistance to the officers of the state charged with law enforcement.

COLORADO**2018 Colorado Revised Statutes**

Title 24 - Government – State

Principal Departments

Article 33.5 - Public Safety

Part 4 - Colorado Bureau of Investigation

Source: <https://law.justia.com/codes/colorado/2018/title-24/principal-departments/article-33.5/part-4/section-24-33.5-428/>

Bureau established CO Rev Stat § 24-33.5-401 (2018)

(1) There is hereby created as a division of the department of public safety the Colorado bureau of investigation, referred to in this part 4 as the "bureau".

(2) The Colorado bureau of investigation and the office of the director shall exercise their powers and perform their duties and functions under the department of public safety and the executive director as transferred to the department by a type 2 transfer, as such transfer is defined in the "Administrative Organization Act of 1968", article 1 of this title.

Functions of bureau - legislative review - interagency cooperation with reporting functions - processing time for criminal history record checks - computer crime - synthetic cannabinoids enforcement CO Rev Stat § 24-33.5-412 (2018)

(1) The bureau has the following authority:

- a.
 - (I) When assistance is requested by any sheriff, chief of police, district attorney, head of a state agency, or chief law enforcement officer and with the approval of the director, to assist such state agency or law enforcement authority in the investigation and detection of crime and in the enforcement of the criminal laws of the state.
 - (II) For purposes of subparagraph (I) of this paragraph (a), "state agency" means any department or agency of the executive branch and the office of the state auditor.
- b. When assistance is requested by any district attorney and upon approval by the director, to assist the district attorney in preparing the prosecution of any criminal case in which the bureau had participated in the investigation under the provisions of this part 4;
- c. (c) To establish and maintain fingerprint, crime, criminal, fugitive, stolen property, and other identification files and records; to operate the statewide uniform crime reporting program; and to arrange for scientific laboratory services and facilities for assistance to law enforcement agencies, utilizing existing facilities and services wherever feasible;

(c.5) To maintain a computerized data file of motor vehicle information received from the department of revenue accessible to law enforcement agencies through the telecommunications network operated by the bureau, and, by January 1, 2001, to allow law enforcement agencies to search multiple fields in the motor vehicle files including but not limited to vehicle license plate numbers, vehicle identification numbers, manufacturers, models, years, tab, and primary body colors, or any combinations thereof;
- d. To investigate suspected criminal activity when directed to do so by the governor;
- e. To procure any records furnished by any law enforcement agency of this state, including local law enforcement agencies, at the expense of the bureau;
- f. To enter into and perform contracts with the department of human services for the investigation of any matters arising under the "Uniform Interstate Family Support Act", article 5 of title 14, C.R.S., or a substantially similar enactment of another state;
- g. Repealed.
- h. To compile, maintain, and distribute a list of missing children as required by section 24-33.5-415.1;

- i. To develop and maintain a computerized data base for tracking gangs and gang members both within the state and among the various states;
- j. When assistance is requested by the P.O.S.T. board, to investigate the backgrounds of applicants for certification as peace officers by the P.O.S.T. board, by a review of fingerprint files or records;
- k. To carry out the duties described in article 22 of title 16, C.R.S., including but not limited to promptly transmitting to the federal bureau of investigation upon receipt any fingerprints and conviction data concerning a person convicted of unlawful sexual behavior, as defined in section 16-22-102 (9), C.R.S.;
- l. To carry out the duties set forth in section 24-33.5-424 concerning the national instant criminal background check system ("NICS") in connection with the transfer of firearms;
- m. To carry out the duties described in section 18-6-803.7, C.R.S.;
- n. To carry out the duties of maintaining information related to crimes involving acts of domestic violence or sexual assault as required by article 21 of title 16, C.R.S.;
- o. To carry out the duties set forth in part 2 of article 12 of title 18, C.R.S.;
- p. Repealed.
- q. To locate and apprehend persons who are fugitives from the law;
- r. To conduct criminal history records checks pursuant to section 24-72-305.3; and
- s. When requested by the chief of a fire department or his or her designee, and approved by the director or his or her designee, the bureau may assist in the investigation of a possible crime related to arson. When such a request is made by a fire department, the fire department shall notify the appropriate law enforcement agency that a request for assistance from the bureau has been made.

(2) In order to enable the bureau to carry out the functions enumerated in this section, it shall establish and maintain statewide telecommunications programs consistent with telecommunications programs and policies of the state telecommunications director.

(3)

- a. Any other provision of law to the contrary notwithstanding and excluding title 19, C.R.S., except as provided in paragraph (b) of this subsection (3), on and after July 1, 1971, in accordance with a program to be established by the bureau, every law enforcement, correctional, and judicial entity, agency, or facility in this state shall furnish to the bureau all arrest, identification, and final charge dispositional information on persons arrested in Colorado for federal, state, or out-of-state criminal offenses and on persons received for service of any sentence of incarceration. The department of corrections shall furnish its information to the bureau within twenty-four hours of the time a person is received into the custody of the department for service of sentence and prior to twenty-four hours of the time of the person's final discharge from supervision. The department shall also report

to the bureau a person's release to parole or to a community correctional facility or program prior to twenty-four hours of such release. The provision of information required by this subsection (3) shall be made in a manner prescribed by the bureau; except that the provision of information by judicial entities, agencies, and facilities shall be under procedures to be established jointly by the state court administrator and the director.

- b. On or after July 1, 1983, the bureau may establish a program under which every entity, agency, or facility specified in paragraph (a) of this subsection (3) shall furnish to the bureau the information specified in section 19-1-306 (3), C.R.S.
- c. For purposes of improving the performance of criminal background checks and the implementation of the integrated criminal justice information system established in article 20.5 of title 16, C.R.S.:
 - (I) The criminal justice information program task force created in section 16-20.5-103, C.R.S., shall establish and require the use of uniform identifiers in the information required by this subsection (3) in order to facilitate the matching of criminal records in the bureau's databases and in the ICON system at the state judicial department, and such identifiers may be any identifiers existing on or after May 30, 2001; and
 - (II) Except as otherwise provided in this subsection (3), every law enforcement, correctional, and judicial entity, agency, or facility in this state shall forward to the bureau the information required by this subsection (3) within seventy-two hours after receiving such information; except that the time period shall not include Saturdays, Sundays, or legal holidays. The information forwarded to the bureau shall include, but need not be limited to, the fingerprints of said arrested persons.
- d. The bureau shall electronically forward the information required by this subsection (3) to the judicial department through the integrated criminal justice information system program established by article 20.5 of title 16, C.R.S., within twenty-four hours after the receipt of:
 - (I) An electronic version of the suspect's arrest and fingerprint information by the bureau; or
 - (II) A paper copy of the suspect's arrest and fingerprint information by the bureau if the information is from a jurisdiction that does not use an electronically-based fingerprint transmission system.

(4) The bureau is charged with the responsibility to investigate organized crime which cuts across jurisdictional boundaries of local law enforcement agencies, subject to the provisions of section 24-33.5-410.

(5)

- a. To assist the bureau in its operation of the uniform crime reporting program, every law enforcement agency in this state shall furnish such information to the bureau concerning crimes, arrests, and stolen and recovered property as is necessary for uniform compilation

of statewide reported crime, arrest, and recovered property statistics. In cases involving child abuse or sexual assault on a child and in all other cases involving murder, sexual assault, or robbery, the law enforcement agency shall furnish information to the bureau concerning the modus operandi of such crimes in order to facilitate the identification of cross-jurisdictional offenders. Information required to be submitted pursuant to this section shall be submitted in a form specified by the bureau; except that the bureau shall adopt a form and reporting standards consistent with the development of the strategic plan for an integrated criminal justice information system, in accordance with article 20.5 of title 16, that shall be consistent with applicable federal and state laws and regulations such as the national criminal justice information system standards. The cost to the law enforcement agency of furnishing such information shall be reimbursed out of appropriations made therefor by the general assembly; except that the general assembly shall make no such reimbursement if said cost was incurred in a fiscal year during which the Colorado crime information center was funded exclusively by state or federal funds.

- b. Beginning in 2018, and every year thereafter, the department shall include as part of its "State Measurement for Accountable, Responsive, and Transparent (SMART) Government Act" hearing required by section 2-7-203 information concerning the reports submitted by law enforcement agencies pursuant to subsection (5)(a) of this section, including but not limited to information concerning reports of bias-motivated crimes, as described in section 18-9-121.

(6) The bureau is charged with the responsibility of implementing, administering, complying with the terms of, and serving as the state's criminal history record repository as defined in the "National Crime Prevention and Privacy Compact" established in accordance with the provisions of part 27 of article 60 of this title. For purposes of said compact, the compact officer for the state of Colorado shall be the director of the bureau or a designee of the director.

(7) Notwithstanding any provision of law to the contrary, if a department or agency of the executive branch is required by statute to request a fingerprint-based criminal history record check from or through the bureau and obtain and process the results within a specified time, whether for purposes of issuance of a professional license or for any other reason, and, due to a backlog in requests pending with the bureau or due to other factors beyond the control of the department or agency, the department or agency is unable to act within the time required by statute:

- a. The department or agency is allowed an extension of time within which to obtain and process the results of the record check;
- b. The department or agency shall notify the applicant and other interested persons of the reason for the delay; and
- c. The status of the person whose criminal history is the subject of the record check, and his or her rights and responsibilities as specified in the statute that set forth the original period for agency action, do not change as a result of the delay.

(8)

- a. The bureau has the authority to conduct criminal investigations relating to cybercrime violations pursuant to section 18-5.5-102, when violations are reported or investigations requested by law enforcement officials or the governor or when violations are discovered by the bureau. All investigations conducted by the bureau must be in cooperation and coordination with local, state, or federal law enforcement authorities, subject to the provisions of section 24-33.5-410.
- b. The bureau shall develop and collect information with regard to cybercrime in an effort to identify, charge, and prosecute criminal offenders and enterprises that unlawfully access and exploit computer systems and networks, impact functionality, and access sensitive data and shall report such information to the appropriate law enforcement organizations. The bureau must also provide awareness training and information concerning cyber-security and security risks to the information technology critical infrastructure industry.
- c. The bureau shall prepare reports at least annually concerning any activities of cybercrime in Colorado for use by local or federal law enforcement officials or the governor. The reports are available for public inspection unless the material in the reports is exempt under article 72 of this title 24.
- d. The director of the bureau may enter into any contract that is necessary to carry out the duties and responsibilities set forth in this subsection (8).

(9) On and after September 1, 2014, the bureau shall purchase and maintain materials and equipment to be made available by the bureau to law enforcement agencies and to the liquor enforcement division in the department of revenue, for the presumptive identification of synthetic cannabinoids or any other designer drugs.

NEW MEXICO

2019 New Mexico Statutes

Chapter 9 - Executive Department

Article 19 - Department of Public Safety

Section 7 - Organizational units of department; powers and duties specified by law; access to information.

Source: <https://law.justia.com/codes/new-mexico/2019/chapter-9/article-19/section-9-19-7/>

Organizational units of department; powers and duties specified by law; access to information NM Stat § 9-19-7 (2019)

- a. The organizational units of the department and the officers of those units specified by law shall have all the powers and duties enumerated in the specific laws involved. However, the carrying out of those powers and duties shall be subject to the direction and supervision of the secretary, who shall retain the final decision-making authority and responsibility for the administration of any such laws as provided in Subsection B of Section 9-19-6 NMSA 1978. The department shall have access to all records, data and

information of other state departments, agencies and institutions, including its own organizational units, not specifically held confidential by law.

- b. The New Mexico state police division shall consist of the commissioned officers and civilian personnel of the New Mexico state police and such other personnel as may be assigned by the secretary or by the governor pursuant to an executive order as authorized in the Department of Public Safety Act. The New Mexico state police division shall also include:
 - (1) the special investigations unit, which shall consist of the enforcement personnel of the former special investigations division and civilian personnel as may be assigned by the secretary or by the governor pursuant to an executive order as authorized in the Department of Public Safety Act. The unit is responsible for the enforcement of the New Mexico Bingo and Raffle Act [60-2F-1 to 60-2F-26 NMSA 1978] and the Liquor Control Act [60-3A-1 NMSA 1978];
 - (2) the training and recruiting bureau, which shall consist of the personnel of the New Mexico state police training division and all civilian personnel and functions of the department as the secretary may transfer to the bureau;
 - (3) the motor transportation police bureau, which shall consist of the enforcement and civilian personnel of the former motor transportation division. The bureau is responsible for enforcing the Motor Carrier Act [65-2A-1 to 65-2A-41 NMSA 1978], the Motor Transportation Act [Chapter 65, Articles 1, 3 and 5 NMSA 1978], the Motor Vehicle Code [Chapter 66, Articles 1 through 8 NMSA 1978, except 66-7-102.1 NMSA 1978] and the Criminal Code [Chapter 30 NMSA 1978]; and
 - (4) civilian employees of the former motor transportation division or the former special investigations division, who shall be subject to the provisions of the Personnel Act [Chapter 10, Article 9 NMSA 1978].
- c. The New Mexico law enforcement academy shall consist of personnel of the New Mexico law enforcement academy and such other functions as the secretary may transfer to it.
- d. The technical support division shall consist of functions such as crime laboratory and records.
- e. The administrative services division shall consist of the administrative services as the secretary deems necessary.
- f. The information technology division shall consist of such functions as computer and technology support as the secretary deems necessary.

History: 1978 Comp., § 9-18-7, enacted by Laws 1987, ch. 254, § 7; 1989, ch. 204, § 6; 2007, ch. 291, § 8; 2015, ch. 3, § 3.

Annotations

Cross references. — For the Liquor Control Act, see 60-3A-1 NMSA 1978 and notes thereto.

The 2015 amendment, effective July 1, 2015, provided for the reorganization of the department of public safety by placing the special investigations division, the training and recruiting division, and the motor transportation division as bureaus under the New Mexico state police division of the department of public safety, and by clarifying the functions of other divisions within the department of public safety; in the introductory paragraph of Subsection B, after "personnel", deleted "including all communications equipment operators" and after the second occurrence of "New Mexico state police", deleted "uniform division and the commissioned officers and civilian personnel of the New Mexico state police criminal division", and added the last sentence; redesignated Subsection C as Paragraph 1 of Subsection B; in the first sentence of Subsection B, Paragraph 1, after the first occurrence of "special investigations", deleted "division" and added "unit, which", after "personnel of the", deleted "department of alcoholic beverage control" and added "former special investigations division", after "division", deleted "such other" and added "and civilian", in the second sentence of Subsection B, Paragraph 1, deleted "division" and added "unit", and added "New Mexico" to the "Bingo and Raffle Act"; added Paragraphs 2 through 4 of Subsection B; added a new Subsection C relating to the New Mexico law enforcement academy; in Subsection D, after "such as", deleted "communications"; deleted former Subsection E and redesignated former Subsection F as the new Subsection E; in Subsection E, after the second occurrence of "services", deleted "and services divisions of the New Mexico state police and those administrative support personnel of the other existing departments, divisions or offices"; and added a new Subsection F relating to the information technology division.

Temporary provisions. — Laws 2015, ch. 3, § 43 provided:

On July 1, 2015:

- a. all personnel, appropriations, money, records, equipment, supplies and other property of the special investigations and motor transportation divisions of the department of public safety shall be transferred to the New Mexico state police division of the department of public safety;
- b. all contracts pertaining to the special investigations and motor transportation divisions of the department of public safety shall be binding and effective on the department of public safety; and
- c. all references in law to the special investigations or motor transportation division of the department of public safety shall be deemed to refer to the New Mexico state police division of the department of public safety.

Laws 2015, ch. 3, § 44 provided:

On July 1, 2015:

- a. all personnel, appropriations, money, records, equipment, supplies and other property of the training and recruiting division of the department of public safety shall be transferred to the New Mexico law enforcement academy division of the department of public safety;

- b. all contracts pertaining to the training and recruiting division of the department of public safety shall be binding and effective on the New Mexico law enforcement academy division of the department of public safety; and
- c. all references in law to the training and recruiting division of the department of public safety shall be deemed to refer to the New Mexico law enforcement academy division of the department of public safety.

The 2007 amendment, effective July 1, 2007, eliminated the staff of the governor's organized crime prevention commission as a part of the special investigations division, and in Subsection D, provided that the technical support division shall perform functions such as communications, crime laboratory and records.

VIRGINIA

2019 Code of Virginia

Title 9.1 - Commonwealth Public Safety

Chapter 11 - Department of Forensic Science

Source: <https://law.justia.com/codes/virginia/2019/title-9-1/chapter-11/>

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

There is hereby created in the executive branch of state government, a Department of Forensic Science (the Department), which formerly existed as a division within the Department of Criminal Justice Services. The Department shall be headed by a Director appointed by the Governor, subject to confirmation by the General Assembly if in session when such appointment is made, and if not in session, then at its next succeeding session. In making his appointment, the Governor shall choose a candidate meeting the qualifications recommended by the Forensic Science Board created pursuant to § 9.1-1109. The Director shall serve for a term of six years, or until his successor shall be appointed and qualified. Any vacancy shall be filled for the unexpired term in the same manner as the original appointment.

The Director, under the direction and control of the Governor, shall exercise the powers and perform the duties conferred or imposed upon him by law and perform such other duties required by the Governor or requested by the Forensic Science Board created pursuant to § 9.1-1109.

2005, cc. 868, 881.

Powers and duties of the Department. § 9.1-1101.

- a. It shall be the responsibility of the Department to provide forensic laboratory services upon request of the Superintendent of State Police; the Chief Medical Examiner, the Assistant Chief Medical Examiners, and local medical examiners; any attorney for the Commonwealth; any chief of police, sheriff, or sergeant responsible for law enforcement in the jurisdiction served by him; any local fire department; the head of any private police department that has been designated as a criminal justice agency by the Department of Criminal Justice Services as defined by § 9.1-101; or any state agency in any criminal

matter. The Department shall provide such services to any federal investigatory agency within available resources.

b. The Department shall:

Provide forensic laboratory services to all law-enforcement agencies throughout the Commonwealth and provide laboratory services, research, and scientific investigations for agencies of the Commonwealth as needed;

Establish and maintain a DNA testing program in accordance with Article 1.1 (§ 19.2-310.2 et seq.) of Chapter 18 of Title 19.2 to determine identification characteristics specific to an individual; and

Test the accuracy of equipment used to test the blood alcohol content of breath at least once every six months. Only equipment found to be accurate shall be used to test the blood alcohol content of breath.

c. The Department shall have the power and duty to:

Receive, administer, and expend all funds and other assistance available for carrying out the purposes of this chapter;

Make and enter into all contracts and agreements necessary or incidental to the performance of its duties and execution of its powers under this chapter including, but not limited to, contracts with the United States, units of general local government or combinations thereof in Virginia or other states, and with agencies and departments of the Commonwealth; and

Perform such other acts as may be necessary or convenient for the effective performance of its duties.

d. The Director may appoint and employ a deputy director and such other personnel as are needed to carry out the duties and responsibilities conferred by this chapter.

2005, cc. 868, 881; 2006, cc. 327, 551; 2009, Sp. Sess. I, cc. 1, 4; 2011, c. 638.

Functions of Forensic Science Board. § 9.1-1110.

a. The Board shall have the power and duty to:

1. Adopt regulations, pursuant to the Administrative Process Act (§ 2.2-4000 et seq.), for the administration of (i) this chapter or (ii) §§ 18.2-268.6, 18.2-268.9, 19.2-188.1, and 19.2-310.5 and for any provisions of the Code as they relate to the responsibilities of the Department. Any proposed regulations concerning the privacy, confidentiality, and security of criminal justice information or DNA identification shall be submitted for review and comment to any board, commission, or committee or other body that may be established by the General Assembly to regulate the privacy, confidentiality, and security of information collected and maintained by the Commonwealth or any political subdivision thereof;

2. Develop and establish program and fiscal standards and goals governing the operations of the Department;
 3. Ensure the development of long-range programs and plans for the incorporation of new technologies as they become available;
 4. Review and comment on all budgets and requests for appropriations for the Department prior to their submission to the Governor and on all applications for federal funds;
 5. Monitor the activities of the Department and its effectiveness in implementing the standards and goals of the Board;
 6. Advise the Governor, Director, and General Assembly on matters relating to the Department and forensic science in general;
 7. Review, amend, and approve recommendations of the Scientific Advisory Committee;
 8. Monitor the receipt, administration, and expenditure of all funds and other assistance available for carrying out the purposes of this chapter;
 9. Approve Department applications for grants from the United States government or any other source in carrying out the purposes of this chapter and approve of acceptance of any and all donations both real and personal, and grants of money from any governmental unit or public agency, or from any institution, person, firm or corporation, and may receive, utilize and dispose of the same. With regard to any grants of money from a governmental or public agency, the Board may delegate or assign the duties under this subdivision to the chairman of the Board who may, with the concurrence of the vice-chairman and in consultation with the Director, make such determinations. Any grants or donations received pursuant to this section shall be detailed in the annual report of the Board. The report shall include the identity of the donor, the nature of the transaction, and the conditions, if any. Any moneys received pursuant to this section shall be deposited in the state treasury to the account of the Department;
 10. Monitor all contracts and agreements necessary or incidental to the performance of the duties of the Department and execution of its powers under this chapter, including but not limited to, contracts with the United States, units of general local government or combinations thereof, in Virginia or other states, and with agencies and departments of the Commonwealth; and
 11. Recommend actions to foster and promote coordination and cooperation between the Department and the user programs that are served.
- b. By November 1 of each year, the Board shall review and make recommendations to the Chairmen of the House Committee on Appropriations, the Senate Committee on Finance, and the Crime Commission concerning:
1. New major programs and plans for the activities of the Department and elimination of programs no longer needed;

2. Policy and priorities in response to agency needs;
3. General fiscal year operational budget and any major changes in appropriated funds;
4. Actions to foster and promote coordination and cooperation between the Department and the user programs which are served;
5. Rules and regulations necessary to carry out the purposes and intent of this chapter; and
6. Any recommendations submitted to the Board or the Director by the Scientific Advisory Committee.

2005, cc. 868, 881; 2006, cc. 327, 551.

Functions of the Scientific Advisory Committee. § 9.1-1113.

- a. The Committee may review laboratory operations of the Department and make recommendations concerning the quality and timeliness of services furnished to user agencies.
- b. The Committee shall review and make recommendations as necessary to the Director of the Department and the Forensic Science Board concerning:
 1. New scientific programs, protocols, and methods of testing;
 2. Plans for the implementation of new programs, sustaining existing programs and improving upon them where possible, and the elimination of programs no longer needed;
 3. Protocols for testing and examination methods, and guidelines for the presentation of results in court; and
 4. Qualification standards for the various scientists of the Department, including the Director.
- c. Upon request of the Director of the Department, the Forensic Science Board, or the Governor, the Committee shall review analytical work, reports, and conclusions of scientists employed by the Department. The Committee shall recommend to the Forensic Science Board a review process for the Department to use in instances where there has been an allegation of misidentification or other testing error made by the Department during its examination of evidence.

2005, cc. 868, 881.

WISCONSIN

2019 Wisconsin Statutes & Annotations

Chapter 165 - Department of Justice

Section 75 - Crime Laboratories

Source: <https://law.justia.com/codes/wisconsin/2019/chapter-165/section-165-75/>

Crime laboratories. WI Stat § 165.75 (2019)

(1) In this section and ss. 165.77 to 165.81:

- a. (a) "Department" means the department of justice.
- b. (b) "Employee" means any person in the service of the laboratories. "Employee" does not include any division administrator.
- c. (c) "Laboratories" means the crime laboratories.

(2) The personnel of the laboratories shall consist of such employees as are authorized under s. 20.922.

(3)

- a. The purpose of the laboratories is to establish, maintain and operate crime laboratories to provide technical assistance to local law enforcement officers in the various fields of scientific investigation in the aid of law enforcement. Without limitation because of enumeration the laboratories shall maintain services and employ the necessary specialists, technical and scientific employees for the recognition and proper preservation, marking and scientific analysis of evidence material in the investigation and prosecution of crimes in such fields as firearms identification, the comparison and identification of toolmarks, chemistry, identification of questioned documents, metallurgy, comparative microscopy, instrumental detection of deception, the identification of fingerprints, toxicology, serology and forensic photography.
- b. The employees are not peace officers and have no power of arrest or to serve or execute criminal process. They shall not be appointed as deputy sheriffs and shall not be given police powers by appointment or election to any office. Employees shall not undertake investigation of criminal conduct except upon the request of a sheriff, coroner, medical examiner, district attorney, chief of police, warden or superintendent of any state prison, attorney general or governor. The head of any state agency may request investigations but in those cases the services shall be limited to the field of health, welfare and law enforcement responsibility which has by statute been vested in the particular state agency.
- c. Upon request under par. (b), the laboratories shall collaborate fully in the complete investigation of criminal conduct within their competence in the forensic sciences including field investigation at the scene of the crime and for this purpose may equip a mobile unit or units.
- d. The services of the laboratories available to such officer shall include appearances in court as expert witnesses.
- e. The department may decline to provide laboratory service in any case not involving a potential charge of felony.
- f. The services of the laboratories may be provided in civil cases in which the state or any department, bureau, agency or officer of the state is a party in an official capacity, when requested to do so by the attorney general.

- g. Deoxyribonucleic acid testing ordered under s. 974.07 shall have priority, consistent with the right of a defendant or the state to a speedy trial and consistent with the right of a victim to the prompt disposition of a case.

(4) The operation of the laboratories shall conform to the rules and policies established by the attorney general.

(5) Except as provided in s. 20.001 (5), all moneys received as restitution payments reimbursing the department for moneys expended by the laboratories shall be deposited as general purpose revenue — earned.

History: 1973 c. 272; 1977 c. 260; 1981 c. 314; 1983 a. 189; 1985 a. 29 ss. 2000 to 2006, 3200 (35); 1987 a. 27; 1989 a. 65; 1991 a. 39; 1993 a. 16; 2005 a. 60; 2013 a. 20.

Sub. (1) (b) refers to employees as persons in the service of the laboratories. However, sub. (2) explicitly states that "the personnel of the laboratories shall consist of such employees as are authorized under s. 20.922." Section 20.922 authorizes state agencies to appoint employees. The Department of Justice is the state agency of which the crime laboratories are a part. Thus the crime laboratory is not a suable entity separate from the department. *Odogba v. Wisconsin Department of Justice*, 22 F. Supp. 3d 895 (2014).

An evaluation of drug testing procedures. Stein, Laessig, Indriksons, 1973 WLR 727.

Washington

2019 Washington Revised Code

Title 68 - Cemeteries, Morgues, and Human Remains

Subchapter 50 - Human Remains

Subchapter 107 - State toxicological laboratory established – State toxicologist

Source: <https://law.justia.com/codes/washington/2019/title-68/chapter-68-50/section-68-50-107/>

Washington State toxicological laboratory established—State toxicologist. WA Rev Code § 68.50.107 (2019)

There shall be established in conjunction with the chief of the Washington state patrol and under the authority of the state forensic investigations council a state toxicological laboratory under the direction of the state toxicologist whose duty it will be to perform all necessary toxicologic procedures requested by all coroners, medical examiners, and prosecuting attorneys. The state forensic investigations council, after consulting with the chief of the Washington state patrol and director of the bureau of forensic laboratory services, shall appoint a toxicologist as state toxicologist, who shall report to the director of the bureau of forensic laboratory services and the office of the chief of the Washington state patrol. Toxicological services shall be funded by disbursement from the spirits, beer, and wine restaurant; spirits, beer, and wine private club; spirits, beer, and wine nightclub; spirits, beer, and wine VIP airport lounge; and sports entertainment facility license fees as provided in RCW 66.08.180 and by appropriation from the death investigations account as provided in RCW 43.79.445.



[2011 c 325 § 9; 2009 c 271 § 11. Prior: 1999 c 281 § 13; 1999 c 40 § 8; 1995 c 398 § 10; 1986 c 87 § 2; 1983 1st ex.s. c 16 § 10; 1975-'76 2nd ex.s. c 84 § 1; 1970 ex.s. c 24 § 1; 1953 c 188 § 13. Formerly RCW 68.08.107.]



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