

State of Hawai'i
Department of the Attorney General



REPORT ON FORENSIC LABORATORIES
IN THE STATE

Requested By
House Resolution No. 81, House Draft 1
Regular Session of 2017

Submitted to
The Twenty-Ninth State Legislature
Regular Session of 2018

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A. House Resolution No. 81, H.D. 1

House Resolution No. 81, H.D. 1, hereinafter referred to as "HR 81", was adopted by the House of Representatives on April 5, 2017. Through HR 81, the House requested that the Department of the Attorney General establish a working group to study forensic laboratories in the State and collect information to help assess "opportunities to improve the application of forensic science for law enforcement purposes."

The HR 81 Working Group was requested to "study the capabilities, staffing levels, case loads, and task completion times of forensic laboratories in the State; and accreditation requirements and other issues related to the operation of forensic laboratories."

The Working Group was also requested to address the following:

- (1) The number of forensic tests conducted annually by the Honolulu Police Department and other crime laboratories in this State;
- (2) The sources of requests to the Honolulu Police Department and other crime laboratories in this State for forensic testing;
- (3) The number of requests to the Honolulu Police Department and other crime laboratories in this State from state agencies for forensic testing;
- (4) Methods in which the Honolulu Police Department sends evidence to other states for forensic testing;
- (5) The number of times each year that the Honolulu Police Department sends evidence to other states for forensic testing;
- (6) The costs for forensic testing that is conducted in other states for the Honolulu Police Department;
- (7) Additional costs related to forensic testing, including costs for experts from other states to travel to this State to testify as prosecution witnesses;
- (8) Any projected increases in costs for forensic testing in this State;
- (9) The sources of funding for DNA testing of felons who are convicted in this State; and
- (10) The sources of funding for equipping and operating forensic laboratories in this State and in other states.

The Working Group was requested "to provide a report, including any findings, recommendations, and proposed legislation, through the Attorney General, to the Legislature no later than twenty working days prior to the convening of the regular session of 2018."

The Working Group was not provided with any funds to defray costs for meeting expenses or research effort.

B. The HR 81 Working Group

The HR 81 Working Group included representatives from the following agencies:

- Honolulu Police Department
- Hawai'i County Police Department
- Kaua'i Police Department
- Maui Police Department
- Department of the Prosecuting Attorney, Honolulu
- Office of the Prosecuting Attorney, Hawai'i County
- Office of the Prosecuting Attorney, Kaua'i
- Department of the Prosecuting Attorney, Maui
- Department of Transportation
- Department of Public Safety (NEDFL)
- Department of the Attorney General

All of the members, except for the Department of the Attorney General and the Department of Transportation, provide forensic laboratory services of some kind. The Department of Public Safety's Narcotics Enforcement Division forensic laboratory (NEDFL) provides drug analysis services.

The Working Group met on September 6, 2017, to interpret the House of Representatives' requests under HR 81, and establish the details and parameters of the study. The members then worked to try to collect the study data that is the subject of this report.

C. The Data Set

The Working Group decided to try to provide data for the last three fiscal years (FYs 2014-2015, 2015-2016, and 2016-2017). To assess forensic analysis caseloads and capabilities, the Working Group decided to focus on the following seven primary forensic disciplines:

1. Forensic Biology Unit
 - a. DNA Analysis
 - i. Biological screening (body fluid identification)
 - ii. DNA analysis in forensic casework
 - iii. DNA analysis for upload to database (CODIS)
2. Drug Analysis Unit
 - a. Controlled pharmaceuticals, illicit drugs, and related chemicals
 - i. Botanical material
 - ii. Alcohol
3. Firearms/Tool Marks Unit
 - a. Weapons and ammunition
 - b. Tool marks
 - c. Serial number restoration
 - d. Distance determination

4. Trace Evidence Unit
 - a. Flammables
 - b. Hair
 - c. Fireworks
 - d. Gunshot Residue
5. Questioned Documents Units
 - a. Handwriting comparison
 - b. Questioned documents
 - c. Shoeprints and Tire tread
6. Crime Scene Unit
 - a. Crime scene response
 - b. Latent print processing
7. Fingerprint Comparison

The Working Group did not include an assessment of forensic digital and cellular analysis capabilities because those capabilities are generally situated with units outside the forensic science laboratories.

The Working Group, in assessing costs for forensic testing conducting in other states, did not include the outsourcing of DNA testing of sexual assault kits under Act 207, Session Laws of Hawaii 2016. Act 207 established a special project to inventory and test the collection of untested sexual assault kits. Those numbers, if counted, would not be an accurate reflection of typical costs for forensic testing.

All Working Group members supplied data; however the quality of the data varied. Some respondents provided data with a high level of detail. Others, while supplying detailed information on some matters, were unable to provide other requested data. Some respondents provided estimated data for some of their responses.

The collected data were then plotted by: (1) totals of forensic analysis by lab and discipline; (2) accreditations held by the labs; (3) full time analysts (FTE's) for each lab; (4) costs by county for off-island prosecution witness; (5) average task completion times; and (6) agencies requesting analysis.

D. Lab Capabilities, Accreditation, and Staffing

Table 1 sets out the capabilities of the forensic laboratories by forensic discipline. It also identifies the accreditations the labs have achieved in certain disciplines.

Accreditation is the process in which third-party professional forensic science accreditation bodies assess a crime lab's policies and procedures to evaluate technical competency and ability to generate valid forensic findings and interpret results. The accreditation process includes reviews of the crime lab's management practices, staff competence, training, test methods, maintenance of test equipment, testing environment, handling of test items, sampling, documentation, and quality assurance of data. Professional accreditation organizations periodically monitor accredited labs to ensure crime labs maintain the standards required to remain compliant with industry best practices.

State labs are accredited by two accreditation bodies, the American National Standards Institute-American Society of Quality (ANSI-ASQ) and the American Society of Crime Laboratory Directors, Laboratory Accreditation Board (ASCLD-LAB). ANSI-ASQ and ASCLD-LAB became affiliated in 2016 and offer accreditation to forensic laboratories based upon the International Organization for Standardization (ISO), and International Electrotechnical Commission (IEC) international standards for laboratories contained in ISO/IEC 17020 and ISO/IEC 17025. The accreditation process is complex, time consuming, and expensive.¹

Table 2 sets out the staffing for each of the laboratories. It describes the types and numbers of staff positions in the labs including vacant positions.

¹ See <http://www.anab.org/forensic-accreditation> (last visited 11/29/2017).

Table 1: 2017 Lab Capabilities by Disciplines, Accreditations 2017

LAB	DISCIPLINE	ACCREDITATION
HAWAII		
	Crime Scene	
	Drug Analysis	ASCLD-LAB
	Firearm/Toolmark ²	ASCLD-LAB
	Forensic Biology ³	
KAUAI		
	Crime Scene	
	Firearm/ Toolmark ⁴	
	Forensic Biology ⁵	
	Fingerprint Comparison ⁶	
MAUI		
	Crime Scene	
	Drug Analysis	
	Fingerprint Comparison	
NEDFL		
	Drug Analysis	ANSI-ASQ
HONOLULU SIS		
	Crime Scene	Accredited (unkn.)
	Drug Analysis	ANSI-ASQ
	Firearm /Toolmark	ANSI-ASQ
	Forensic Biology	ANSI-ASQ
	Questioned Documents	ANSI-ASQ
	Trace Evidence	ANSI-ASQ

² Serial number restoration and operability.

³ Limited to presumptive screening and collection. Presumptive screening establishes the possibility that a specific bodily tissue or fluid is present.

⁴ Limited to firearms operability.

⁵ Limited to presumptive screening, and collection.

⁶ Fingerprint comparison capability lost in February 2017.

Table 2: Lab Staffing

LAB	ANALYST POSITIONS (FTE's)	VACANT FTEs
HAWAII⁷		
	(3) Criminalists	
	(2) Evid. Sp.	
KAUAI⁸		
	(1) Criminalist	(1) CS Specialist
	(1) ID Tech	
MAUI⁹		
	(1) Evid. Sp.III	
	(1) Evid. Sp. I	
	(1) Criminalist I	(1) Evid. Sp. I
	(1) FP ID Tech	(1) Criminalist II
NEDFL¹⁰		
	(2) Inv. Chemists	
HONOLULU SIS¹¹		
	(1) Forensic Lab Director	(3) Criminalists
	(2) Forensic Lab Supervisors	
	(23) Criminalists	
	(15) Evidence Specialists	
	(2) Questioned Document Examiners	
	(3) Photographic Technicians	

⁷ Two analysts with certifications from the American Board of Criminalistics Drug Analysis Fellows.

⁸ One analyst holds three certifications as a Crime Scene Investigator, a Physical Analyst, and in Underwater Investigations.

⁹ One analyst with a certification in Crime Scene Investigation.

¹⁰ Two analysts with certifications from the American Board of Criminalistics Drug Analysis Fellows.

¹¹ SIS's staff certifications include: International Association for Identification; American Board of Criminalistics; the Association of Firearms and Tool Marks Examiners; and the American Board of Questioned Document Examiners.

E. Forensic Analysis Totals by Discipline

Table 3: Forensic Analysis Totals by Lab and Discipline FY 2015-2017 ¹²

LAB / DEPT.	CRIME SCENE	DOCUMENTS/ IMPRESSIONS	DRUG ANALYSIS	FINGERPRINT COMPARISON	FIREARMS& TOOLMARKS	FORENSIC BIOLOGY/ DNA	TRACE EVIDENCE
HAWAI'I							
2017	94		787	† ¹³	28	34 ¹⁴	
2016	77		882		36	26	
2015	85		865		31	14	
KAUA'I							
2017	186			665	13	57 ¹⁵	
2016	273			665*	13 *	8	
2015	241			665*	13 *	0	
MAUI							
2017	351		†† ¹⁶	460			
2016	330			537			
2015	306			509			
NARCOTICS ENFORCMENT DIVISION FORENSIC LAB (NEDFL/PSD)							
2017			3315				
2016			2140				
2015			1828				
HONOLULU SCIENTIFIC INVESTIGATIVE SECTION (SIS)							
2017	1471	42	3957	††† ¹⁷	146	752	177
2016	1279	32	5090		150	442	96
2015	1351	36	4566		138	471	81

It is important to recognize that capabilities by discipline vary widely between labs. By way of example, a county lab reporting Firearm/Toolmark analysis may only have the basic capability to test fire firearms for functionality only or to restore obliterated serial numbers, whereas SIS may have conducted the full range of firearm analysis (restoration, operability, distance determination, and projectile trajectory). Similar ranges in capabilities exist with respect to Forensic Biology/DNA, and Trace Evidence. Thus, direct comparisons between labs (with the exception of drug analysis and fingerprint comparisons) are not possible. Additionally, some labs have since lost capabilities Table 1 indicates they possess. This is attributable to the departure of trained analysts, and an inability

¹² * Indicates estimated data.

¹³ † Fingerprint comparisons conducted by Records and Identification Section.

¹⁴ Presumptive screening and collection only.

¹⁵ Presumptive screening and collection only.

¹⁶ †† Drug Analysis capability became operational as of August 8, 2017.

¹⁷ ††† Fingerprint Comparisons conducted by Identification Section, Records Division.

to hire qualified replacement analysts, or secure additional training that would permit current staff to conduct that analysis.

F. Reported Costs for Off-Island Prosecution Witnesses Related to Forensic Analysis

The county prosecutors were asked to provide costs for off-island expert witnesses, including costs for travel, lodging, per diem, and expert fees. Data were provided for fiscal years 2014-2015, 2015-2016, and 2016-2017.

Table 4: Reported Costs for Off-Island Prosecution Witnesses by County (Asterisk represents estimated cost)

COUNTY	TRAVEL/ PER DEIM	EXPERT WITNESS FEES NOT SPECIFIED
HAWAI'I		
2017	4,449.61	15,680.00
2016	1,971.54	17,209.64
2015	3,591.68	11,135.26
KAUA'I		
2017	594.70	
2016	924.00	
2015	875.00	
MAUI		
2017	649.00	41,226.00
2016	2,472.87	60,667.52
2015	1,567.00	41,226.11
HONOLULU		
2017		5,500.00*
2016		5,500.00*
2015		5,500.00*

G. Task Completion Times

The forensic laboratories were asked to provide average task completion times by case priority and forensic discipline within each prioritization category. The Working Group decided on this approach because completion times could vary, depending on case priority. The Working Group decided to work with the following four case priority categories:

1. Cases with a definite due date
2. Major crimes of violence
3. Property crimes
4. Misdemeanors

Under each of these four priority categories, the average completion times were requested for each of the seven forensic disciplines. The completion times were to be determined from the time of the request to the time of the completion and issuance of the written report. A range of time, rather than an exact number, was acceptable.

The data set for task completion times proved to be difficult to collect. Some laboratories were unable to break down the completion times by forensic discipline, while others were unable to break down the completion times by case priority.

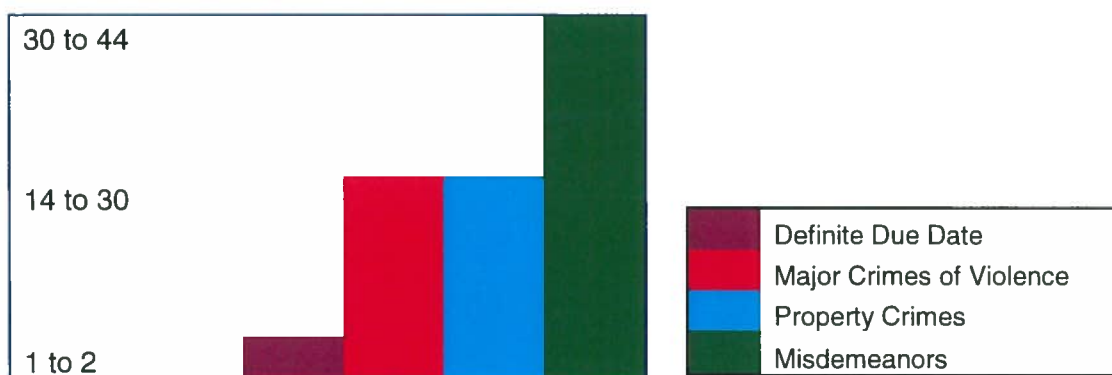
NEDFL provided the following comments:

Cases are prioritized for completion based on necessity, rather than by time. The NEDFL is a relatively small operation affected by such forces as limited budget, limited resources, staffing, etc. All of these factors affect task completion time.

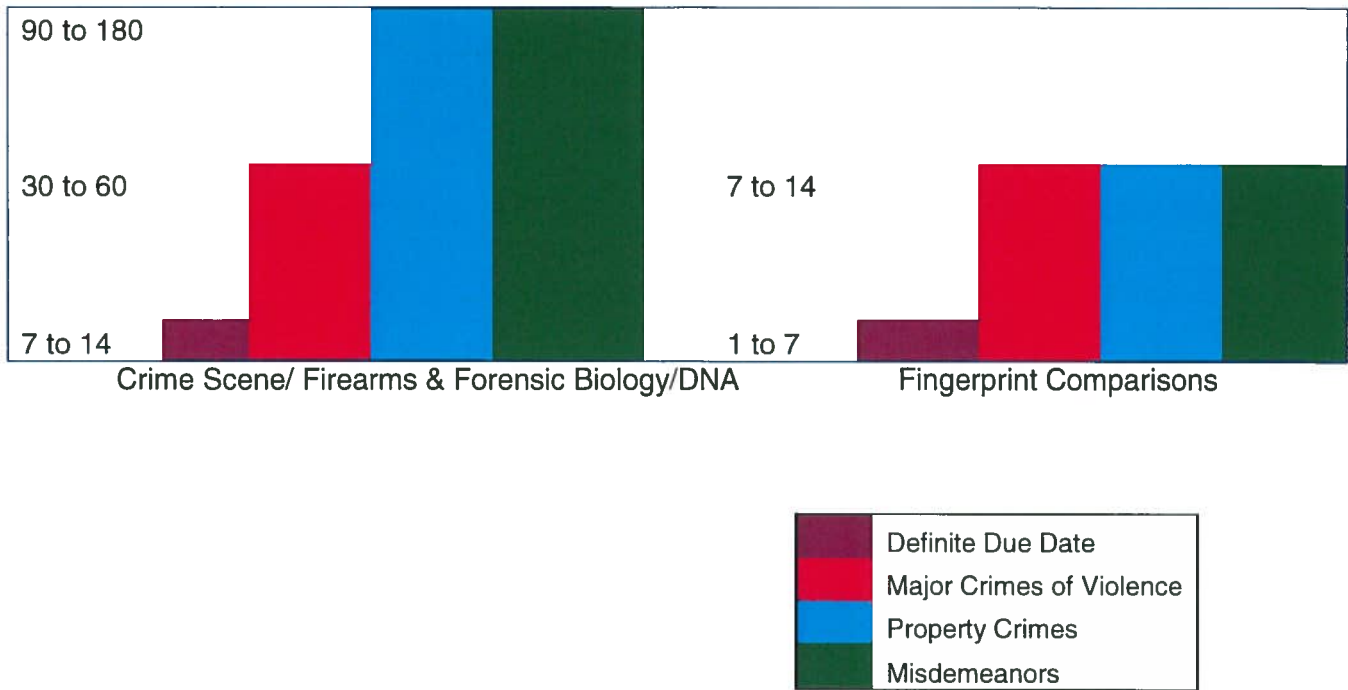
The Honolulu Police Department's Scientific Investigation Section provided the following comments:

Completion times for units like Drug Analysis and DNA are influenced heavily by our staffing levels. They have increased for Drugs as we have lost a number of analysts and decreased for DNA as we have hired and trained more analysts.

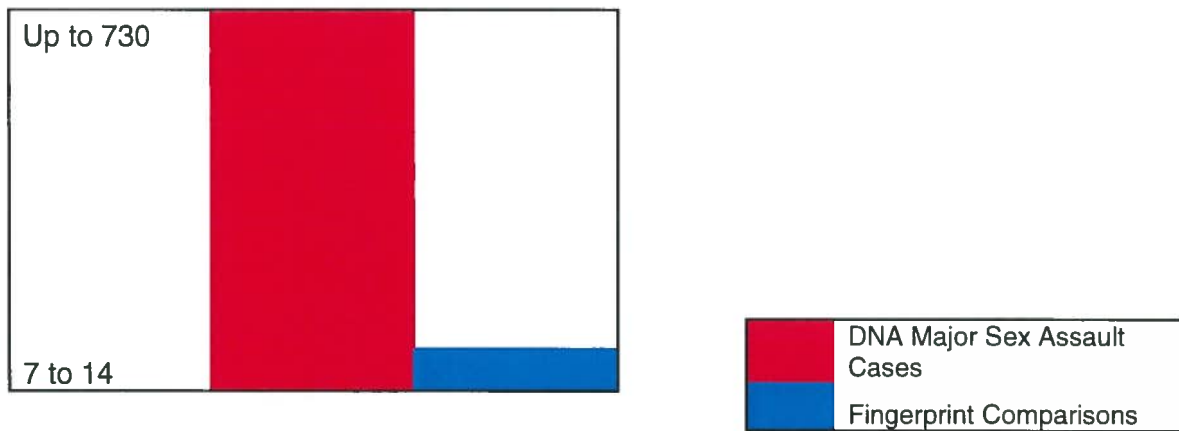
*Table 5:
Hawai'i County Completion Times
(In Days to Report)*



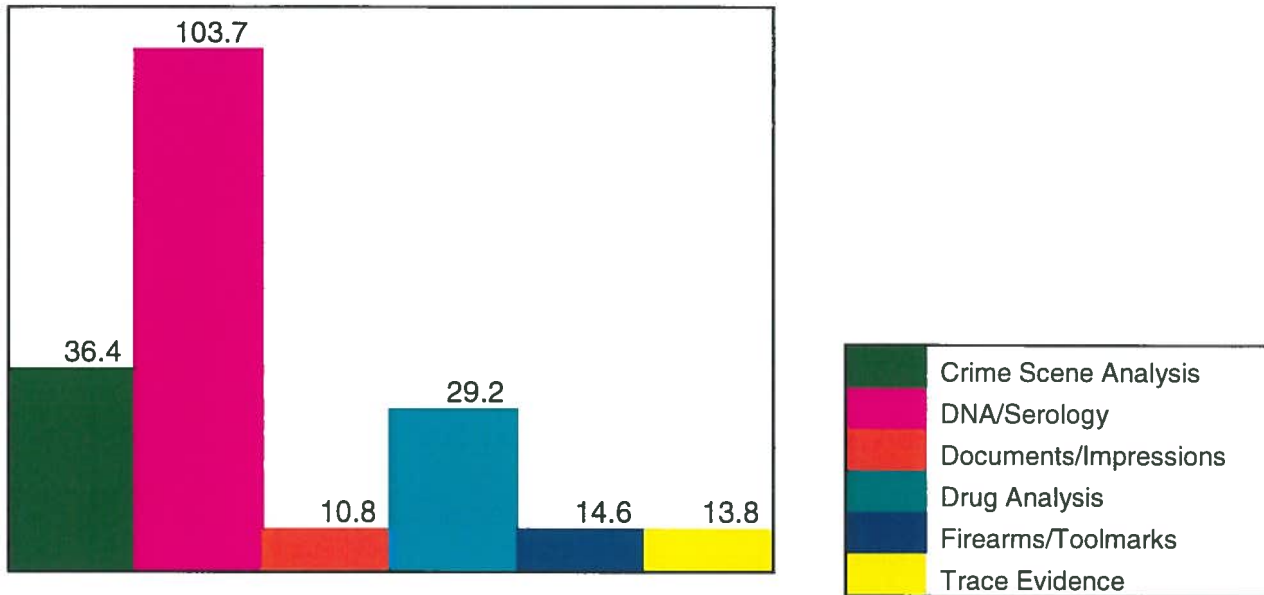
*Table 6:
Kaua'i County Completion Times by Discipline
(In Days to Report)*



*Table 7:
Maui County Completion Times by Discipline
(In Days to Report)*



*Table 8:
Honolulu County Average Completion Times by Discipline
(In Days to Report)*



H. Agencies Requesting Analysis

The forensic laboratories were asked to provide a list of the other agencies that have made requests to the laboratories for forensic analysis. They were also asked to provide the number of requests for forensic analysis received from State agencies.

The Honolulu Police laboratory provided an extensive list of federal, state, and county agencies that have requested laboratory services for FY 2014-2015, 2015-2016, and 2016-2017. It also provided the number of requests made by these agencies. See Table 9.

The NEDFL provided the following list of agencies who request laboratory analysis by NEDFL: Public Safety/Sheriff Division and Internal Affairs Office, Kaua'i Police Department, Kaua'i Prosecutor's Office, Maui Police Department, Maui Prosecutor's Office, Military Law Enforcement, Federal Protective Service, National Security Agency Police, and the Department of the Attorney General. In 2017, NEDFL received 949 requests for analyses by State government agencies.

Hawai'i County provided the following list of agencies that may make requests for assistance: Honolulu Police Department, Hawai'i County Prosecutor, Hawai'i County Office of Liquor Inspectors, Department of Public Safety, Department of Land and Natural Resources, and Hawai'i Volcanoes National Park.

Kaua'i noted that usually it only receives a couple of requests for assistance from State agencies every year. Maui did not identify any requests for assistance from other agencies.

*Table 9:
Honolulu SIS Requests for Analysis by State and Federal Agencies*

AGENCY NAME	FY14-15	FY15-16	FY16-17
<i>Bureau of Alcohol Tobacco, Firearms and Explosives</i>	0	10	0
<i>Corporation Counsel</i>	0	0	1
<i>Dept. of Commerce and Consumer Affairs</i>	0	2	0
<i>Dept. of Human Services</i>	2	1	3
<i>Dept. of Land and Natural Resources</i>	5	1	1
<i>Dept. of Taxation</i>	1	1	0
<i>Dept. of the Attorney General</i>	9	7	7
<i>Prosecuting Atty. Hawaii</i>	1	1	0
<i>Prosecuting Atty. C & C Honolulu</i>	70	66	42
<i>Prosecuting Atty. Kauai</i>	0	9	1
<i>Prosecuting Atty. Maui</i>	0	1	0
<i>FBI</i>	1	0	0
<i>Hawaii Police Department</i>	47	70	97
<i>Honolulu Liquor Commission</i>	31	19	22
<i>Honolulu Police Department</i>	6432	6823	6306
<i>Kauai Police Department</i>	14	12	19
<i>Maui Police Department</i>	57	55	22
<i>Office of the Public Defender</i>	1	0	0
<i>Dept. Public Safety Sheriff</i>	14	5	10
<i>USAF</i>	5	0	4
<i>US Army</i>	6	3	7
<i>US Dept. of the Interior</i>	1	2	0
<i>USMC</i>	0	1	0
<i>Dept. Homeland Security</i>	0	0	03
TOTALS	6607	7091	6502

I. Sources of Funding for Equipping and Operating Forensic Laboratories

A. Kaua'i: County budget, federal Violence Against Woman Act grant, federal Justice Assistance Grant.

B. Maui: Funding for Personnel, Operations, and Equipment for the MPD Forensic Lab/Facility & Crime Lab has been through the department's budget process.

C. NEDFL: Generally, funding for the NEDFL has come from general and special fund moneys from the Department of Public Safety. Over the last several years, the NEDFL has received several federal grants under the Paul Coverdell National Forensic Sciences Improvement Act that have supplemented the NEDFL's ability to purchase supplies, equipment, and ongoing continuing education courses.

J. Other Issues

A. Keeping Trained Employees

Kaua'i: Despite Hawai'i being on the higher side nationally for cost of living it is on the lower side of compensation to its forensic science specialists. In addition, this is a highly specialized field therefore the number of local individuals able to be hired into the field does not equal the positions needing to be filled. With the low pay scale it has been difficult to attract highly qualified candidates into the positions and even harder to keep them in positions as the quality of living that can be achieved doing the same work in other states or for private entities is much higher.

B. Projected Increases in Costs

1. Hawai'i County: Replacement/maintenance of instrumentation used to conduct drug analyses. Extending the period within which med/legal (SANE) sexual assault examinations are conducted from 72 hours to 120 hours will obviously result in the collection of more sexual assault evidence kits that will need to be tested.
2. Kaua'i: Funds will be needed for the repair and replacement of equipment; to create more effective and streamlined processing systems in order to save future time and expenditures; for accreditation and certification preparation and cost; for additional personnel needed to keep up with current and future demands for service; and for laboratory space and equipment expansion needed to broaden the types of services we can provide, improve the quality of these services, and keep up with the demand.
3. Maui: For the MPD FY 2018-2019 Budget Proposal, a total of \$163,250.00 has been requested for contracts, licenses, certifications, calibrations, maintenance, replacement/new equipment, and training related to the Forensic Lab/Facility & Crime Lab.

4. NEDFL: The NEDFL expects that its 2018-2023 budgets will increase from approximately \$93,000 in FY 2017-2018 to \$125,000 in FY 2022-2023. Beginning in 2019 and going forward, the NEDFL expects that it will have to begin the process of replacing its major analytical equipment (GC/MS and FTIR devices). These pieces of equipment are expected to cost in the sums of hundreds of thousands of dollars.

K. Forensic Toxicology Services

It should be noted that State law enforcement agencies often need forensic toxicology services to analyze blood or urine to determine if an individual had alcohol or drugs in the person's system. Such analysis may be needed in cases of operating a vehicle while under the influence of an intoxicant, or in manslaughter or negligent homicide cases. It may also be needed in other types of cases, where the condition of an offender or victim may be of concern. But none of the county police forensic laboratories are set up to provide such forensic toxicology services. The data in this report concerning lab capabilities focuses on seven primary forensic disciplines, and does not include forensic toxicology.

Forensic toxicology services are extremely important to law enforcement efforts. Those services are largely provided by a private entity, Clinical Laboratories of Hawaii. Clinical Labs does blood alcohol testing for all of the counties, except Honolulu. In Honolulu, the blood alcohol tests are conducted by the county lab under the Health Services Branch of the Honolulu Emergency Services Department. Clinical Labs also takes care of the urine and blood drug testing for all of the counties.