

State of Missouri
Department of Public Safety

Crime Laboratory Review Commission



2019 Annual Report

December 2019

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FOREWORD

The Missouri Crime Laboratory Review Commission (hereafter “Commission”) was established within the Department of Public Safety to provide independent review of any state or local Missouri crime laboratory receiving state-administered funding. In addition, the Commission is tasked with assessing the capabilities and needs of Missouri’s crime laboratories, as well as their ability to deliver quality forensic services in a timely manner to the law enforcement agencies in the state of Missouri.

The 2019 Annual Report is a comprehensive report summarizing the activities of the Commission during calendar year 2019.

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SUMMARY OF ACTIVITIES

The Missouri Crime Lab Review Commission (hereafter “Commission”) was established in 2009, pursuant to House Bill 62, within the Department of Public Safety to provide independent review of any state or local Missouri crime laboratory receiving state-administered funding.

Pursuant to 690.059 RSMo, the Commission shall have the power to:

- (1) Assess the capabilities and needs of Missouri crime laboratories, as well as their ability to deliver quality forensic services in a timely manner to law enforcement agencies in the state of Missouri;
- (2) Authorize independent external investigations into allegations of serious negligence or misconduct committed by employees or contractors of a crime laboratory substantially affecting the integrity of forensic results. The commission shall solicit input and guidance from any appropriate expert as it deems necessary in the investigation process;
- (3) Appoint members to inspection or investigative teams to assist in carrying out the duties described in subdivisions (1) and (2) of this subsection;
- (4) Issue reprimands to crime laboratories and to employees or contractors of crime laboratories found to be negligent or engaging in misconduct in the execution of their responsibilities;
- (5) Make recommendations for changes in procedure of crime laboratories found to be negligent in the execution of their responsibilities; and
- (6) Issue reports to the director of the department of public safety summarizing any findings of negligence or misconduct of a crime laboratory or an employee or contractor of a crime laboratory and making recommendations regarding revocation or suspension of grant funding that the commission deems warranted.

During the 2019 calendar year, the Commission convened three (3) meetings: 1/18/19, 8/16/19, and 12/16/19.

During each meeting, the Commission discussed the vacant prosecuting attorney position on the Commission. Ted Hunt submitted his resignation letter on 06/20/2017, effective 07/24/2017.

The notification was forwarded to the Missouri Boards and Commissions on 06/21/2017 and communications continued with the Missouri Boards and Commissions for the remainder of 2017 and throughout 2018 and 2019. The position is still vacant as of the publication of this report.

During the 08/16/2019 meeting, the Commission met with the crime laboratory directors (or their representatives) via teleconference in Jefferson City, MO. The Commission received reports (see Appendix A) from each director (or their representative) regarding 1) any updates, successes, challenges, etc. experienced during the last year, 2) backlog and turnaround statistics for the past 3 years, and 3) any plans for expansion or closure of sections, or lab renovations, in the coming year.

RECOMMENDATIONS

The following recommendations were previously included in the 2015, 2016, 2017, and 2018 Annual Reports, but the Commission is re-including them in this 2019 Annual Report because they are still relevant and require attention:

1) The Need for Better Communication and Coordination Between Missouri Crime Laboratories, Law Enforcement, and Prosecuting Attorneys

The Commission identified the need to improve communication and coordination between Missouri's crime laboratories, law enforcement, and prosecuting attorneys to help the state's labs make the most efficient and effective use of their limited resources while making real progress toward the long-term reduction of testing backlogs.

Progress on this issue will require 1) law enforcement agencies that submit evidence analysis requests to more precisely identify the investigative questions that forensic analysis of submitted items may help answer in the factual context of each case; 2) better communication between law enforcement, prosecutors, and laboratories at the inception of major cases to more effectively "triage" submitted evidence and make reasoned and targeted requests for analysis of the most probative items of evidence in light of case context; 3) ongoing communication between prosecutors and laboratories after criminal charges have been filed to facilitate timely supplemental analysis requests as contested issues and case theories evolve; 4) timely notification by prosecuting attorneys to laboratories that cases in which evidence was submitted for analysis have been disposed of by declination of charges, dismissal, or other judicial disposition; and 5) regular meetings between top management of crime laboratories and their regional customers to discuss ways in which to enhance the overall ability of Missouri's crime laboratories to most efficiently and effectively deliver high quality outputs to the criminal justice system.

The Commission believes that the statewide and consistent implementation of these five recommendations will help maximize available resources while improving the timeliness and quality of laboratory services.

2) The Need for More Funding to Reduce the Backlog and Assist With Case Triage

The Commission identified the need for additional funding for Missouri's crime laboratories to reduce case backlogs and assist with case triage. Additional funding will enable crime laboratories to more effectively process backlogged cases. While limited federal funding is available to reduce DNA backlogs, sustainable funding is needed to address the backlogs in other forensic disciplines such as firearms, drugs and toxicology. Funding to improve communication and coordination between submitting agencies, prosecutors, and laboratories when evidence is submitted from major cases will enable laboratories to better evaluate requests for forensic analysis.

The Commission believes that additional funding for backlog reduction and case triage will improve the effectiveness and timeliness of the forensic services provided by Missouri's crime laboratories.

APPENDIX A

The following reports were submitted to the Commission by the crime laboratory directors for the 08/16/2019 meeting:



2645 Brooklyn Avenue

Kansas City Police Crime Laboratory

Main: 816-349-3200
Fax: 816-929-2740



Kansas City, MO 64127

- Any updates, successes, challenges, etc. experienced in last year?
Successes would include a steady decline of backlogs in all disciplines except DNA. Other successes include added technology and techniques, property crimes backlog reduction in DNA due to a grant and increased staffing in Firearms to improve NIBIN outcomes.

Challenges would include, increasing demands on DNA to include all rape kits being submitted, CSI turnover, and governance of the Property and Evidence Section was given to the Lab Director.

- Any plans for expansion or closure of sections, or even lab renovation, in coming year?
No.
- Backlog and turnaround numbers for past 3 years:

Backlogs January Each Year and YTD 2019				
Section	2017	2018	2019	2019 YTD
Chemistry	2026	808	251	200
Crime Scene	138	113	81	69
Digital	18	33	28	10
DNA	1364	1391	987	1315
Firearms	655	362	326	74
Latent Prints	1634	917	151	64
Trace	79	77	36	31

Turnaround Time from Analysis Request January Each Year and YTD 2019				
Section	2017	2018	2019	2019 YTD
Chemistry	326	409	145	122
Crime Scene	43	63	48	14
Digital	51	40	53	23
DNA	216	222	263	229
Firearms	245	102	37	27
Latent Prints	610	574	226	52
Trace	143	207	179	116

Of note regarding turnaround time, our lab also tracks turnaround time of violent offenses versus non-violent. The above reported turnaround times are an overall average for all offenses. In situations where a section is approaching 30 days or less turnaround time, that typically negates the concept of a backlog as labs have typically reported on grants etc. and suggests that both violent and non-violent cases are fairly even regarding turnaround time. For two sections, DNA and Latent Prints, there is a more significant difference. Violent crimes turnaround time for DNA is currently 105 days as opposed to 353 days for non-violent crimes.

In Latent Prints, the violent turnaround time is 33 days versus 71 for non-violent. The latter situation is due to difficulty getting the non-violent cases to the lab as these tend to come from the field divisions whereas violent crimes tend to come from the internal CSI section.

4. If the numbers decreased, what might have assisted with that decrease and what is the plan to maintain such progress?

There are many factors that have led to the decreases in both backlogs and turnaround time, which include improved technology, processes, staff retention, and increased accountability on case management by detectives. Retention is likely the most important factor because training new analysts is very labor intensive and pulls several people from casework. However, every section is forced to look at its processes and workflow each year and it is not unusual for some improvement in either quality or efficiency is gained. For example, Latent Prints traditionally looked at every latent lift in every case. Now the section uses a "1 hit and done" process instead. This does require a bit more communication with detectives to determine if the hit is of value to the case, but it prevents them from having to perform a great deal more work on each case. This workflow does not apply to violent offenses however.

The MCLUP Grant has also played a significant role in the backlog reduction in Latent Print Section that has taken years. For at least two years we were able to hire a contractor and pay overtime to achieve significant backlog reduction. This allowed us to work property crimes on overtime and to complete the training of three newer analysts in a more timely manner. Key to this outcome however is that this section has not experienced a turnover event since 2016 when in the decade before the entire section turned over more than 100%. Several times examiners would complete their competency training and shortly after, leave for another lab or different job. This was devastating in terms of backlogs and morale.

It should also be noted that turnover for the lab has overall decreased since salaries were adjusted to be more competitive. This occurred in 2013 and likely has played a role.

If the numbers increased, what might have caused the increase and what is the plan to address?

Demands for DNA analysis continue to increase while staffing has remained fairly static.

Retention is excellent in the section but with increasing demand, this section will continue to have serious backlogs. Rush requests tend to be for this section as well, which is tremendously disruptive to workflow.

New technology could increase our backlogs in Latent Prints. This section had over 1,000 cases in backlog in 2017 and currently has 64 cases pending with an average turnaround of 54 days. New technology designed to get fingerprints off of fired shell casings is now available. This could create literally thousands of cases in backlog in a very short period of time if it is implemented. Over 1,000 shell casings are recovered in KC every month. The plan would involve workflow adjustments, shift work potentially, and cross training others (CSI and/or Firearms) technicians to use the technology.



- Any updates, successes, challenges, etc. experienced in last year?
 - It has been status quo for the last year. Unfortunately, we are in the same predicament as most other labs. Money is tight, and expanding the manning table is a challenge financially. Our biggest challenge is the influx on new personnel and training, especially in Firearms, Latent Prints, and Ten Print. Because of decades old training program beliefs, these disciplines' training programs have not evolved with the growth of forensically college-educated individuals now applying and accepting these positions. Historically, these positions employed individuals not familiar with forensic science, and the training program was designed around this type of individual. Our new applicants have a minimum of at least a theoretical forensic backlog and some have a practical background from their higher education. It has been a challenge convincing experienced supervisory/technical staff that their training programs need to evolve as applicants do. I would love to see a summit of sorts with both the state's total ID and Firearms personnel, separately of course, with management to discuss how to better streamline training and to discuss training requirements.

- Backlog and turnaround numbers for past 3 years
 - If either of the numbers decreased, what might have assisted with that decrease and what is the plan to maintain such progress?
 - Our numbers have been at the same level for a while. They vary slightly from year to year within a discipline but ultimately remain at a level where an elimination of any discipline's backlog is not realistic with the current staffing levels. We did attempt to outsource some of this work, but the outsourcing attempt wasn't as successful as we hoped. We are doing the best we can with the trained staff we have.
 - If either of the numbers increased, what might have caused the increase and what is the plan to address?

- The lab as a whole has individually addressed each discipline backlog. We have doubled our Firearms Examination staff to six examiners in the last several years. Currently there is still one examiner in training. We are seeing this discipline's numbers go down. We did recently expand using ATF as a contractor for NIBIN correlations. We had some growing pains thus far, but we are working on our procedures to streamline the process.
 - DNA has changed instruments and amplification kits to improve throughput. We have increased our capacity; however, the request to work evidence is increasing with us showing our increased results from improved methods. It is a catch-22, improved science causes more scientific requests.
 - Hopefully our Identification Section will stabilize. Turnover is the highest in this section. We did increase pay for this section because the section believed personnel was leaving due to low pay. Turnover is still high. As mentioned above, I hope an ID summit would help our situation.
 - We have developed a priority status program in the lab to help the detectives and the lab determine when science is needed to help solve the crime or is needed for court. This way we are working cases in an order most beneficial to the department and citizens of St. Louis.
- Any plans for expansion or closure of sections, or lab renovations, in coming year?
- none

MSHP Commission Report

1. Any updates, successes, challenges, etc. experienced in last year?

In FY 2019 The MSHP Lab was successful in securing permission from the legislature to spend \$2.9 Million in surplus funds from the DNA databasing program (CODIS) to build an addition to the main laboratory in Jefferson City. This building will be an 8000 sq. ft. building and will house all of our DNA operations, DNA Casework and CODIS. We anticipate construction to begin 10/1/2019.

Pursuant to the aforementioned building being constructed, the DNA casework section will vacate the roughly 2000 sq. ft. space they currently occupy. When vacated, that space will be available for other sections in the lab to occupy and gain more functional space.

In addition to the above, in the FY 2020 budget, Governor Parson provided 5 new FTE in his budget for DNA. These 5 new positions will constitute a new DNA screening section that will focus on high throughput DNA screening of sexual assault kits.

The passage of 595.220 RSMo requiring all SA kits to be submitted to a lab for testing within 14 days has been a challenge; the MSHP Lab has realized a 75% increase in SA kits being submitted. Consequently, we now face a 595 SA kit backlog in house this time last year it was 179.

In early 2018, the AGO conducted a survey that discovered over 5000 sexual assault kits on law enforcement agency shelves. Where the MSHP lab will likely not have to analyze all of those, many are turning to us to resolve the problem. This has been a consistent challenge. We are working with the AGO on the SAKI grant to help resolve the problem.

We purchased an LCMS last year and we have secured funding to purchase two more LCMS this year. These instruments will enable our toxicology discipline to pivot toward new challenges with drug derivatives and analytes found in the blood and be more accurate in our analysis methods.

In early CY 2019 we purchased a Rapid DNA instrument. We are presently in the process of validating the instrument. We have an MOU in place with Thermo Fisher/LifeTechnologies to purchase additional instruments. We have a plan in place to put Rapid DNA instruments in a couple of our labs to allow DDCC and potentially local law enforcement to access and use the instruments.

Pursuant to a retirement of one of our Lab evidence techs, we found an opportunity to repurpose the position somewhere else in the lab system and essentially replace the LET with a locker system, where law enforcement officers can lock evidence securely in a locker and not encumber a full-time employee to take in the evidence. If this system is successful, we intend to replace LETs with lockers through attrition and repurpose those full-time positions throughout the lab system where we have greater needs.

Pursuant to the change in the marijuana laws, industrial hemp containing less than 0.3% THC was made legal. Effectively the law decriminalized Marijuana by classifying all cannabis as either legal or illegal industrial hemp based on the threshold of 0.3% THC. Consequently, our laboratory has discontinued reporting Marijuana as a scheduled drug and has pivoted to reporting whether the substance tested has the characteristics of the genus Cannabis.

During the 2019 legislative session we were successful at extending the DNA Profiling sunset law to 2029. This law secures the funding from court costs to financially support the DNA Profiling system.

2. Backlog and turnaround numbers for past 3 years

If either of the numbers decreased, what might have assisted with that decrease and what is the plan to maintain such progress?

If either of the numbers increased, what might have caused the increase and what is the plan to address?

MSHP Backlog

Section	2017	2018	2019	Percent Change
Drug Chemistry	4841	5430	4127	-15%
Toxicology	2082	1248	748	-64%
DNA Casework	1803	2175	2852	58%
Latent Prints	1565	1031	702	-55%
Trace	227	190	107	-53%
Firearms	181	96	97	-46%

MSHP Turnaround Time (days)

Section	2017	2018	2019	Percent Change
Drug Chemistry	76	90	73	-4%
Toxicology	170	111	67	-61%
DNA Casework	275	255	311	13%
Latent Prints	222	208	181	-18%
Trace	145	102	80	-45%
Firearms	161	83	59	-64%

As shown above, we have made significant progress toward backlog and turnaround reduction over the last three years. With the exception of DNA casework, every other section is reducing backlog and turnaround time. The increase in sexual assault kits can explain backlog growth in DNA; however, DNA-centric investigations, parental leave and being understaffed are major contributors as well.

Our Toxicology discipline has demonstrated the most significant improvement over the affected three year period. In August 2018, we conducted a Process Mapping exercise of our toxicology discipline, which discovered 26 opportunities for improvement. Although many variables are likely responsible for the dramatic turnaround of toxicology, not the least of which was hiring 3 additional FTE and remodeling our GHQ tox lab, process improvement has been a significant contributor.

3. Any plans for expansion or closure of sections, or lab renovations, in coming year?

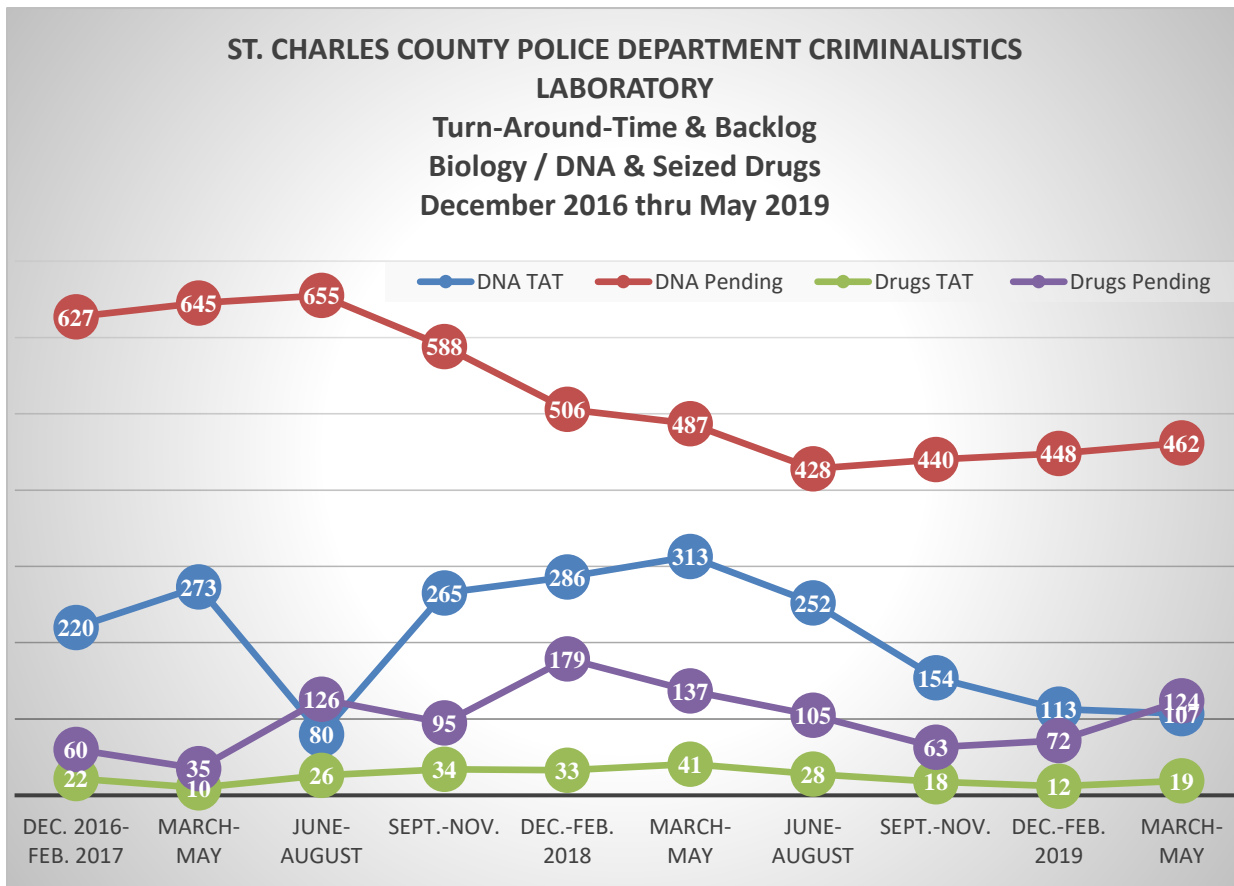
As mentioned above, we are expanding by building an addition to the lab, hiring 5 FTE, and standing up a high throughput DNA screening section. We do not plan on closing any sections, but do plan in short order to discontinue distance determination.

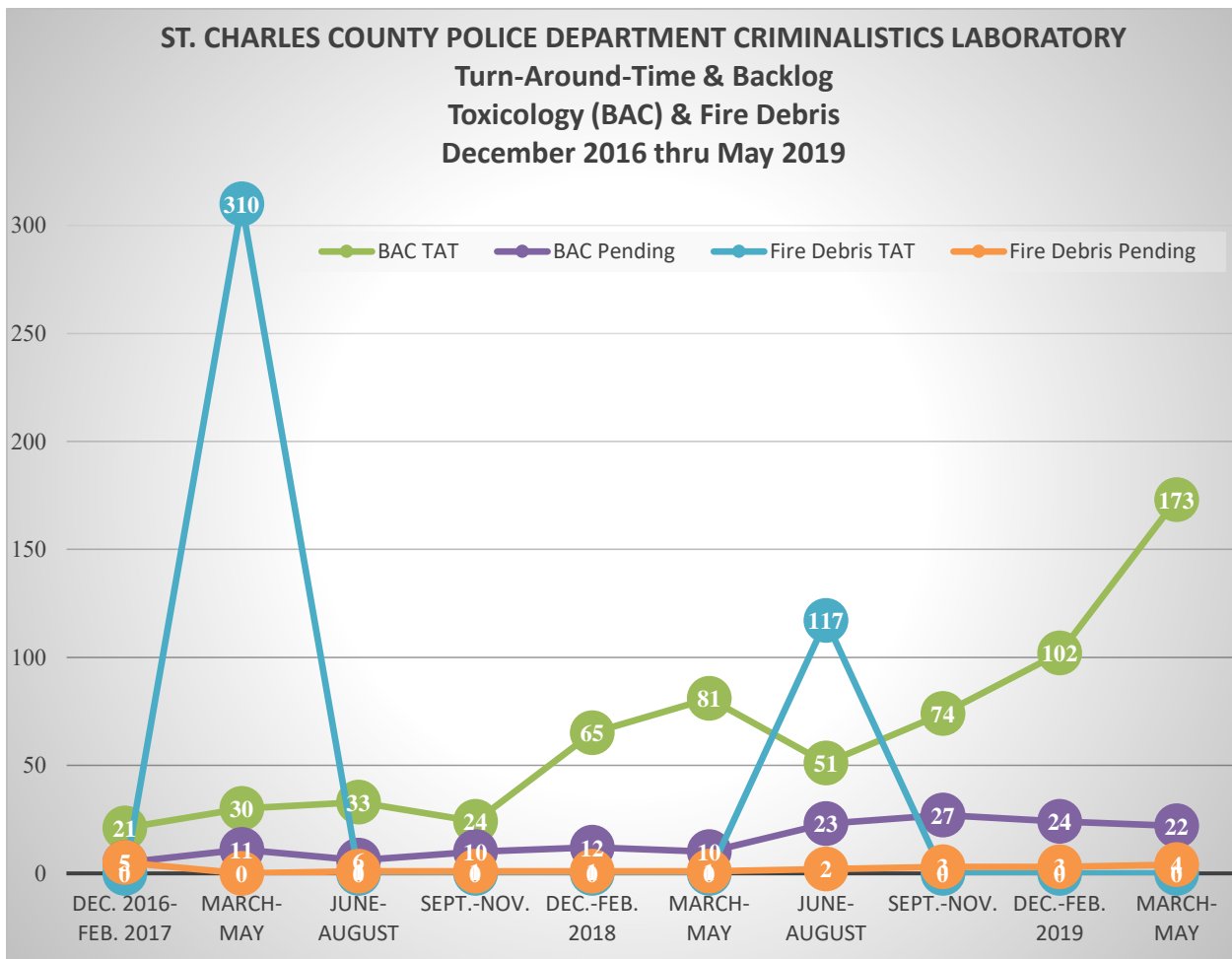


Updates, successes, challenges, etc.

- DNA identification of suspect in 25-year old cold case
- DNA mixture interpretation challenges
 - Armed Expert – planned implementation in first half of 2020
- Reaccredited in January 2019 (ISO/IEC 17025:2005 & ANAB AR 3028)
- Transitioned to newest accreditation requirements (ISO/IEC 17025:2017 & AR 3125) in July 2019
- CODIS hits: ~65% forensic hit rate
- Walk-in Freezer for long-term DNA storage (purchased in part with FY19 MCLUP funds)
- New DNA QA Standards (effective July 2020)
- Additional DNA Analyst – starting in August 2019
- *TruNarc* - hand-held drug analyzer (FY19 MCLUP purchase)
 - provides reviewable presumptive data and the safe screening of potentially hazardous exhibits
- Evaluating purchase of LC-MS to increase drug confirmation capabilities

Backlog and turnaround time for past 3 years





Backlog & TAT Contributing Factors

- DNA
 - CEBR grants help decrease DNA TAT and increase casework capacity
- Drugs
 - Decrease in “new” drugs reduce TAT
- Tox / BAC
 - Dual blood draws increase TAT
- FA
 - Increase in priority federal requests

Plans for expansion or closure of sections, or lab renovation

- Considering discontinuation of BAC & Fire Debris testing
- Expansion of Firearm services – NIBIN & additional personnel
- Preliminary conversations to expand current facility or build new laboratory (current laboratory is almost 15 years old)

August 2019



St. Louis County Police Crime Laboratory

Date: 08/13/19

Prepared: Lisa Campbell

1. Updates, successes, and challenges experienced in the last year:

The laboratory was reaccredited by ANSI National Accreditation Board (ANAB) on 06/08/2019. This was the first accreditation for the Digital Evidence Unit. [St. Louis County Crime Laboratory - Scope of Accreditation](#)

Our biggest challenge has been loss of personnel and training of new personnel. Some of the loss was due to retirements, separation for opportunities for better pay, or not successfully completing the training program.

2. Plans for expansion, closure of sections, or lab renovations in the coming year:

None

3. Backlog and Turnaround Numbers: *(only 2017 to date reported, we switched to a new LIMS on January 1, 2017. Current method counts "requests" previous method counted "cases")*

2017 (end)	Labwide	Controlled Substances	Trace (Fire Debris/ Explosives)	Biology Screening	DNA	Firearms/ Toolmarks	Digital
Incoming	8,395	2,551	54	1191	1,318	3,281	N/A
Released	7,833	2,052	46	1111	912	3,712	N/A
Pending	3,387	823	8	695	406	1,455	N/A
Turnaround (average days)	163	101	67	184	87	151	N/A



St. Louis County Police Crime Laboratory

Date: 08/13/19

Prepared: Lisa Campbell

2018 (end)	Labwide	Controlled Substances	Trace (Fire Debris/ Explosives)	Biology Screening	DNA	Firearms/ Toolmarks	Digital
Incoming	10,571	2,373	60	1,261	1,793	4,919	208
Released	12,142	2,524	54	1,821	1,852	5,750	182
Pending	2,134	670	14	61	352	955	55
Turnaround (average days)	105	92	106	18	84	127	37



St. Louis County Police Crime Laboratory

Date: 08/13/19

Prepared: Lisa Campbell

2019 (end of July, 2019)	Labwide	Controlled Substances	Trace (Fire Debris/ Explosives)	Biology Screening	DNA	Firearms/ Toolmarks	Digital
Pending	1,637	600	15	63	511	382	63
Turnaround (average days)	90	104	197	15	122	84	133

-Process changes in Biology/DNA and Firearms has resulted in increased throughput in both disciplines. We will continually monitor these process changes for additional improvements as well as evaluate the other disciplines for process improvements.