North Carolina Department of Justice

ANNUAL REPORT

FISCAL YEAR 2021-2022

North Carolina State Crime Laboratory

Director Vanessa Martinucci

February 8, 2023

Senator Danny Britt
Representative Ted Davis, Jr.
Co-Chairs, Joint Legislative Oversight Committee on Justice and Public Safety
North Carolina General Assembly
Raleigh, NC 27601-2808

RE: Report on work of the NC State Crime Laboratory during FY 2021-2022

Dear Members:

Pursuant to Session Law 2013-360, Section 17.2, the Department of Justice is pleased to submit the Fiscal Year 2021-2022 Annual Report for the North Carolina State Crime Laboratory to the Joint Legislative Oversight Committee on Justice and Public Safety. In addition to the data on evidence submissions, case completions, and other workload measures, the report provides updates on significant achievements and internal improvements that focus on quality, efficiency, and transparency.

Thank you for the opportunity to provide this information. We would be happy to respond to any questions you may have regarding this report.

Sincerely,

Seth Dearmin
Chief of Staff

SD/vjm

Cc: Mark White, Fiscal Research Division

Executive Summary

The State Crime Laboratory (SCL) continues to provide forensic services that meet the highest quality standards possible. The SCL has successfully maintained ISO/IEC 17025 (2017) accreditation and compliance with DNA Quality Assurance Standards (QAS). In 2021, the SCL celebrated 33 years of consecutive accreditation.

The SCL has worked diligently since 2013 to apply continuous process improvement principles using Lean Six Sigma methodology. The Laboratory has implemented advanced computerized systems, increased robotic instruments, streamlined evidence management processes, strategically redistributed casework and staff, and improved coordination with the courts and other partners in the criminal justice system.

We are extremely grateful for the 8 scientists included in the biennium budget and the 4 additional scientists in the 2022-2023 appropriation. However, given this competitive market, we need competitive salaries to recruit and retain employees who fill those positions. **We are respectfully requesting a recurring salary adjustment fund appropriated to address recruitment and retention needs for the Forensic Scientist series, including salary increases and promotional opportunities.** This fund will allow us to offer more competitive salaries thus filling current vacancies more quickly, and then facilitating retention of our forensic scientists. By retaining highly qualified, well-trained employees we can meet the state's public safety needs while being fiscally responsible with state appropriations. Each time a scientist resigns, the Laboratory spends approximately $100,000 to train a new employee to fill the vacated position. In FY 2021-2022 alone, approximately 30 people were trained to fill those open scientist positions, equating to **$3M** of state funds that were spent to pay employees who are **not yet contributing to the pending caseload**. **No evidence was analyzed by those analysts during that time period.** This figure does not include the monetary loss of time set aside by other trained scientists to train the new hires. A recurring salary adjustment fund would help to retain employees who have historically left for higher paying salaries and will give the state a larger return on investment.

Another challenge we would like to highlight is the need for a recurring funding source for the purchase of scientific instruments and supplies. There is limited funding of $160,000 in the current appropriations. **A $1M recurring appropriation** would allow for a ten-year replacement schedule for instruments, which would be consistent with industry standards. A special revenue reserve fund would provide contingency funding to offset periodic reductions in crime laboratory court fees authorized pursuant to NCGS 7A-304(a)(7).

With continued support, the SCL will continue to provide quality and timely forensic analysis and impartial expert testimony for the benefit of our criminal justice system.

NORTH CAROLINA STATE CRIME LABORATORY REPORT

FISCAL YEAR 2021-2022[1]

This report is presented to the Chairs of the North Carolina General Assembly Joint Legislative Oversight Committee on Justice and Public Safety and to the North Carolina General Assembly Fiscal Research Division as directed by Section 17.2 of S.L. 2013-360, the Appropriations Act of 2013.

I. Preface

State Crime Laboratory Director Vanessa Martinucci continued her work to ensure all laboratory operations are focused on achieving the mission to conduct the highest quality, technically-proficient forensic analysis in a timely manner and provide impartial expert witness testimony.

II. Quality (Accreditation and Certification)

The SCL's forensic services continue to meet the highest quality standards possible. The SCL maintains accreditation under strict ISO/IEC 17025 requirements and is accredited by the ANSI National Accreditation Board (ANAB). ANAB is a signatory to the International Laboratory Accreditation Cooperation (ILAC) as required by Session Law 2011-19 on accreditation for the SCL. The Laboratory was assessed in May of 2022 by ANAB using ISO/IEC 17025:2017 standards, the FBI Quality Assurance Standards for Forensic DNA Testing Labs, and the FBI Quality Assurance Standards for DNA Databasing Laboratories. As a result of the assessment, ANAB renewed the Lab's accreditation in the Field of Forensic Testing.

III. Case Submissions and Completions[2] and Pending Case Load

1. Case Submissions

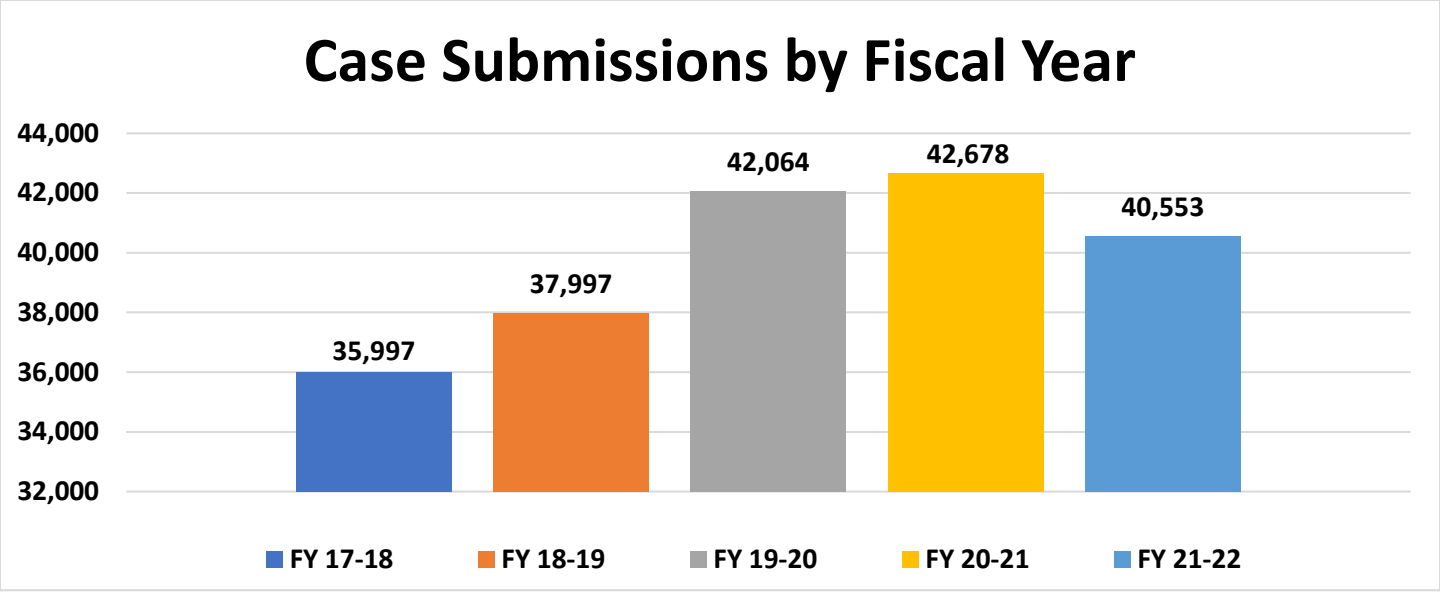
In FY 2021-2022, **40,553** examination submissions, including over **58,304** items of evidence, were accepted at the SCL's three locations. (See Appendix A

Case submissions are broken down as follows:

- The **main SCL in Raleigh** received 19,378 case record submissions and 16,347 DNA Database submissions for a total of 35,725 submissions.
- The **Triad Regional Crime Laboratory** received 9,372 case record submissions.
- The **Western Regional Crime Laboratory** received 11,803 case record submissions.

[1] *This Report addresses the statutorily mandated "previous fiscal year" (July 1, 2021 - June 30, 2022), and thus only briefly mentions, when required by context, important Crime Lab developments occurring on or after July 1, 2022.*

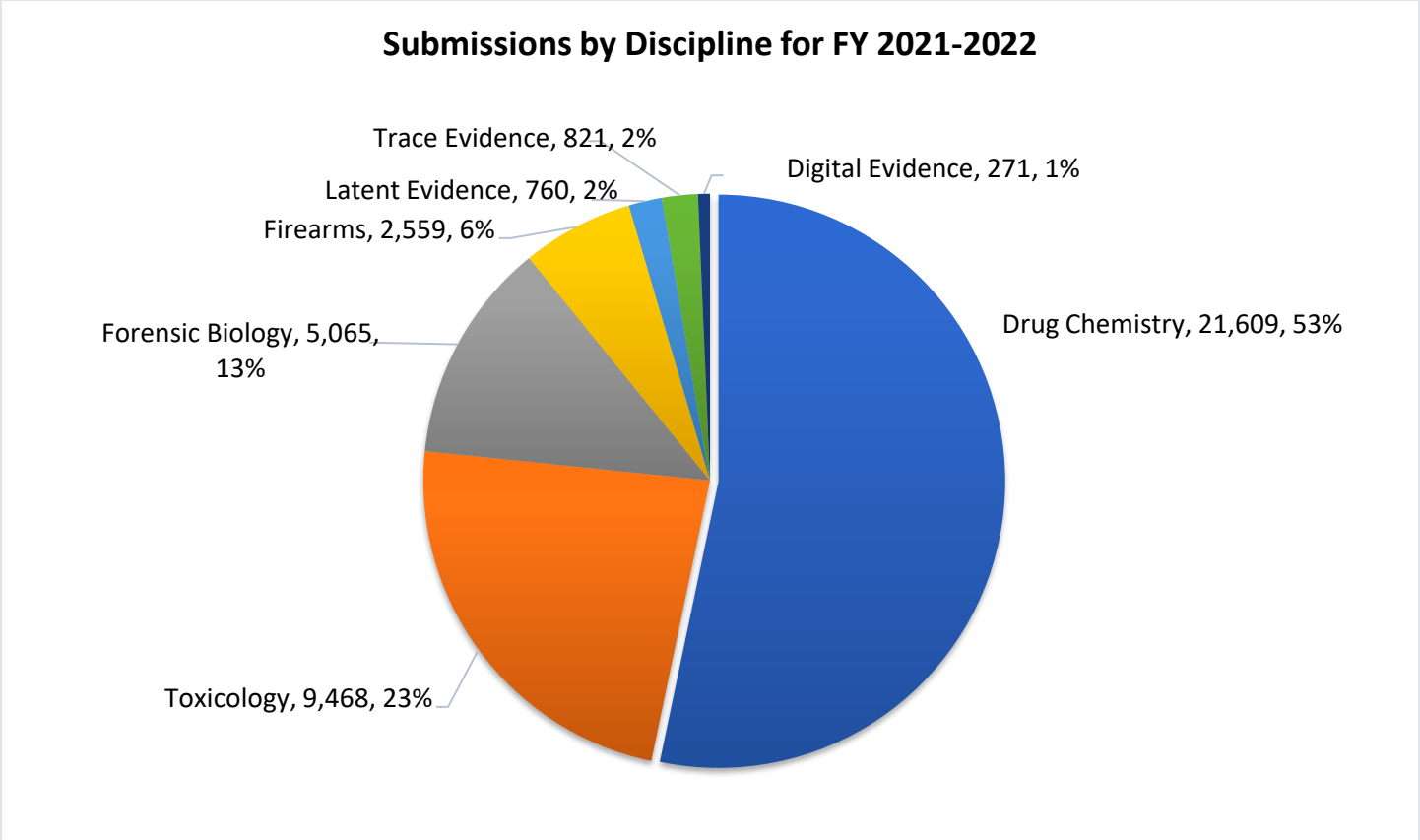
[2] *This information is provided in compliance with* S.L. *2013-360 (1) and (2) which requires that the Annual Crime Laboratory Report contain "(1) Information about the workload of the Laboratory during the previous fiscal year, including the number of submissions, identified by the forensic discipline, received at each location of the Laboratory. (2) Information about the number of cases completed in the previous fiscal year, identified by forensic discipline, at each location of the Laboratory."*



a. Case Submissions by Forensic Discipline and Laboratory Location

In FY 2021-2022, the SCL received the following cases, broken down by forensic discipline and laboratory location:

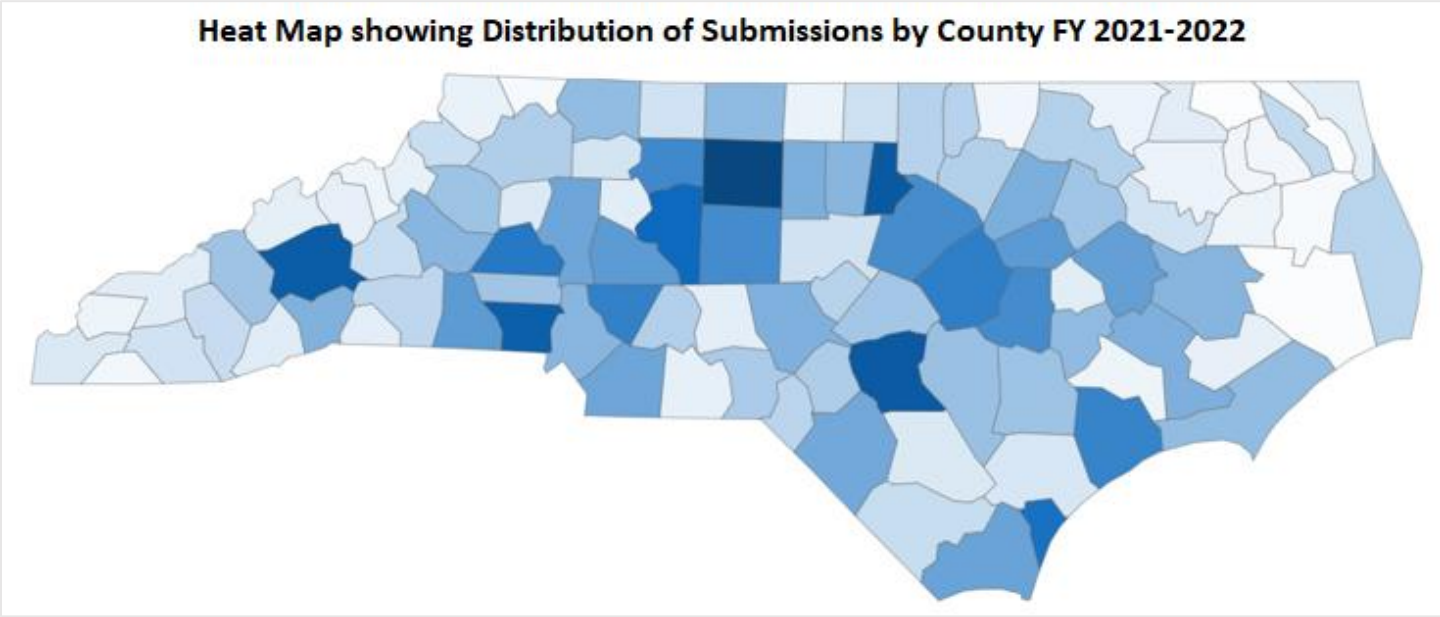
	Raleigh	Triad	Western	TOTALS
Drug Chemistry	9,343	4,693	7,573	21,609
Toxicology	4,124	2,847	2,497	9,468
Forensic Biology	3,193	996	876	5,065
Firearms	1,504	434	621	2,559
Latent Evidence	472	196	92	760
Trace Evidence	504	182	135	821
Digital Evidence	238	24	9	271
TOTALS	**19,378**	**9,372**	**11,803**	**40,553**



In FY 2021-2022 approximately 3,457 samples received were duplicates. The number of duplicates (an additional sample from the same individual) has decreased by almost 50% since FY 2017-2018. However, duplicate submission and improper use of kits during collection continues to impact the DNA Database Section. The Laboratory pays approximately $6.00 per kit (includes postage cost), which are provided to law enforcement agencies at no cost. **The duplicates submitted in FY 2021-2022 cost approximately $20,000. There have been ongoing efforts** to better educate the members of law enforcement on duplicate submissions, including sending letters to agencies with a high duplicate submission rate and providing training to the Department of Public Safety (DPS) prison staff. The DNA Database Section also partnered with Department of Justice (DOJ) IT and the Government Data Analysis Center (GDAC) to integrate the DNA Database SpecMan specimen manager system with Criminal Justice Law Enforcement Automated Data Systems (CJLEADS). This partnership resulted in another method of collecting that officers can use to verify the need for a new DNA sample. It also enables the Laboratory to identify instances where a sample was not collected. To maximize taxpayer resources, the Laboratory encourages ongoing training in efficient collection procedures for submitting law enforcement agencies. Training to reduce duplicate sample submissions is available on the North Carolina Justice Academy website.

b. Case Submissions by County[3]

Evidence item submission data for the past five fiscal years per North Carolina County may be found in Appendix A. Here is a chart to display these submissions by case record; the lighter color represents the fewest submissions and the darker blue represents the most.

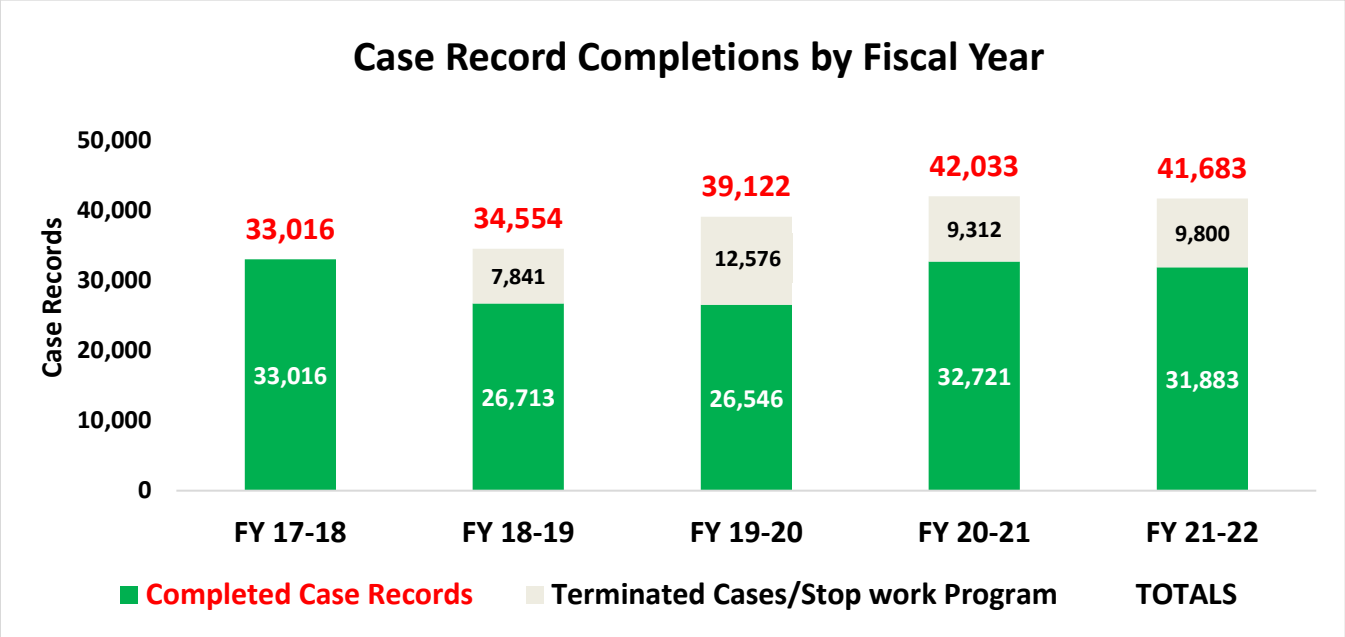


[3]*This information is provided in compliance with S.L. 2013-360 (3) which requires that the Annual Crime Lab Report contain "A breakdown by county of the number of submissions received by the Laboratory in the previous fiscal year." The numbers in these tables do not include Convicted Offender or DNA upon Arrest submissions.*

2. Case Completions

For FY 2021-2022, scientists in the SCL system worked 41,683 case records, broken down as follows:

- The full service **Crime Laboratory in Raleigh** worked 21,950 case records.
- The **Triad Regional Crime Laboratory** worked 6,436 case records.
- The **Western Regional Crime Laboratory** worked 13,297 case records.



Note: The Stop work program went into effect starting FY 18-19. This chart above breaks down the completed case srecord examinations and the stop worked case records terminated by the customer.

In FY 2021-2022, the SCL completed the following cases, broken down by discipline and laboratory location:

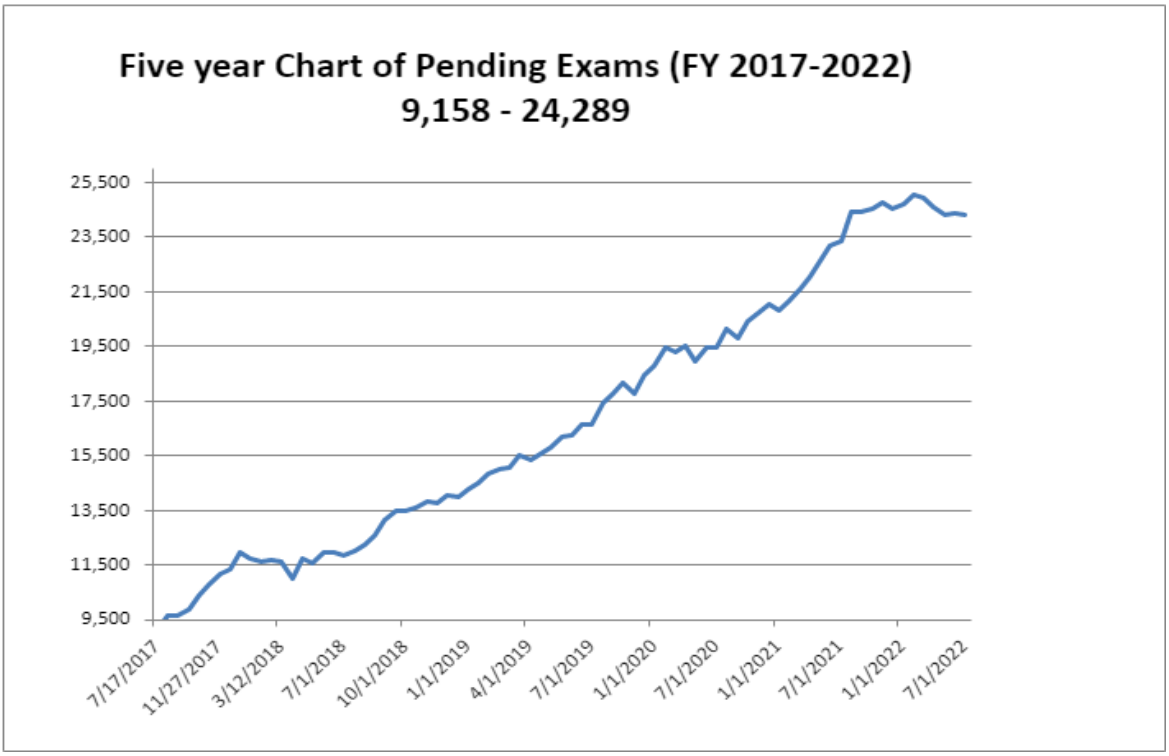
	Raleigh	Triad	Western	TOTALS
Drug Chemistry	9,117	3,680	7,666	**20,463**
Toxicology	4,787	2,602	2,922	**10,311**
Forensic Biology	4,543	5	1,676	**6,224**
Firearms	1,701	1	788	**2,490**
Latent Evidence	592	148	177	**917**
Trace Evidence	862	0	68	**930**
Digital Evidence	348	0	0	**348**
TOTALS	**21,950**	**6,436**	**13,297**	**41,683**

DNA Database CODIS samples processed: Notable successes of the DNA Database Section include a **record 1,211 hits to the DNA database in FY 2021-2022**, which now contains more than **400,000 DNA profiles**. Of the 1,211 hits, 701

or approximately **58% of them are from sexual assault offenses**. The increases noted in SAK submissions and the CODIS hits is directly related to the increased focus that has been placed on testing sexual assault kits. New technology now allows faster input of DNA samples into the database where it can be used to identify suspects in unsolved cases.[4]

3. Pending Case Load over a five year period

A five year study of the Laboratory's pending caseload shows an increase of exams waiting for analysis overall. The cause for the increase is due to two major factors, the increase in submissions and the complexity of the cases, specifically in the disciplines of toxicology and drug chemistry. A major milestone was reached in FY 2021-2022; the Laboratory saw **no significant increase** in pending cases, holding steady with approximately 24,000 for the entire fiscal year.



a. Lead Times[5]

Lead times at the SCL continue to improve as additional scientists complete their required training and begin to work on active cases. **Average lead time for the SCL (the time the customer feels) calculated for the last reportable quarter of the fiscal year is 294 days.** Lead times for individual cases vary depending on the amount of evidence submitted and the type or types of analysis requested. The average turn around time to complete a laboratory exam from start to finish is 59 days.

b. Rush Case Program

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[4] At the writing of this report, the average time to receive convicted offender (CO) or arrestee (AR) samples and input into the database is approximately 18 days.

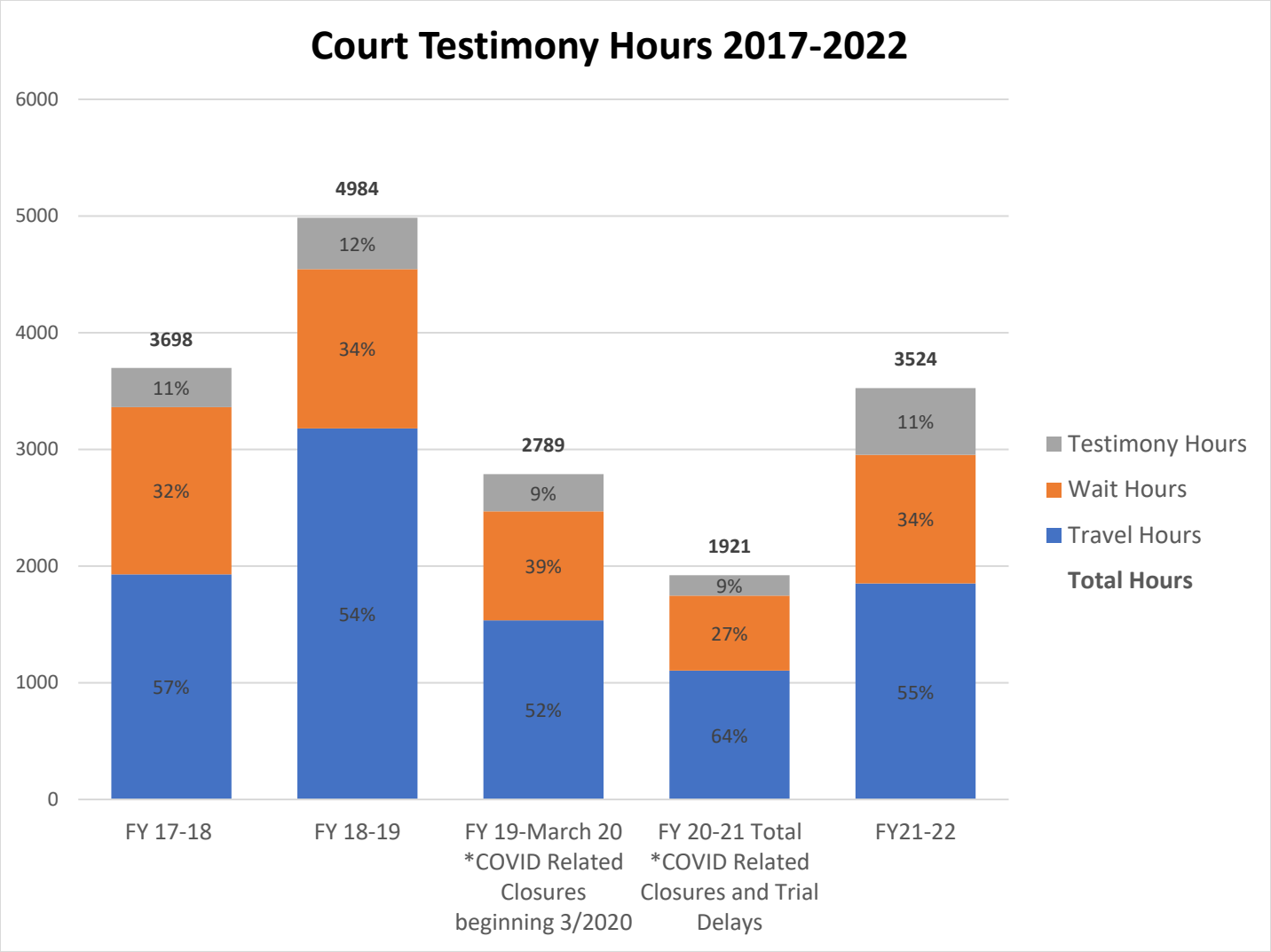
*[5] **Lead Time** is defined as the time from when the evidence is submitted to the SCL to when the report is published. This includes time the evidence sits in the Laboratory evidence vault waiting to be assigned to an analyst. **Turnaround time** is defined as the time from when the analyst receives the evidence until the time, they publish a report at the completion of their analysis.*

The SCL continues to operate a successful rush case program to give Law Enforcement Agency Heads or District Attorneys the option to expedite cases when appropriate. Upon the request of a Law Enforcement Agency Head or District Attorney, **the SCL can rush or expedite a case for public safety or court purposes.** Depending on the evidence submitted and the type(s) of analysis requested, rush cases can be worked in a matter of days. Laboratory management welcomes inquiries from Law Enforcement Agency Heads or District Attorneys about cases when a rush request may be needed.

c. Court Testimony and Judicial Efficiencies

In FY 2021-2022, Laboratory scientists spent a total of **3,524 hours traveling to court**, waiting to testify, or testifying. Of those hours, SCL scientists spent **1,852 hours traveling to court, 1,101 hours waiting to testify**, and **571 hours testifying**. **Assistance is still needed from our criminal justice stakeholders** to minimize the time forensic scientists spend in court and away from the laboratory. **Only 11% (388 hours of the 3,524 hours) of the time an analyst spent outside the laboratory for court purposes was spent testifying.** More time spent by scientists waiting in court or traveling to court means less time in the laboratory working on cases. The seventeen recommendations from the *UNC School of Government's Report of the Crime Laboratory Working Group: Administrative Solutions to Alleviate Lab Backlog* specifically outlines recommendations to minimize wait time for our analysts.

The SCL acknowledges the positive attention given to this important matter and continues to request assistance from our criminal justice stakeholders to minimize time forensic scientists spend in court and away from the laboratory. The SCL appreciates the updates to the General Statutes in the biennium budget making district court **remote testimony** more easily available to our scientists. This change will help to reduce the time that the scientist is outside of the laboratory and unable to be working cases. Multiple counties have completed pilot programs, and remote testimony has been held in several jurisdictions to date with positive feedback.



d. Outsourcing and Untested Sexual Assault Evidence Collection Kits (SAECK)

In June 2017, the legislature, in consultation with DOJ, enacted Section 17.7 of Session Law 2017-57 to require every law enforcement agency to conduct an inventory of untested Sexual Assault Evidence Collection Kits (SAECKs) located throughout the state and report their findings to DOJ no later than January 1, 2018. On March 1, 2018, DOJ reported that there were 15,160 untested SAECKs in NC. A more recent follow up certified inventory found the total number of untested SAECKs in local law enforcement custody was 16,219.

In 2018, the DOJ requested the General Assembly provide funding to get a jump start on testing, authorize the creation of a tracking system for SAECKs, and authorize a multidisciplinary working group made up of representatives from law enforcement, district attorneys, community advocates, and lab scientists to develop a strategic plan to address the statewide backlog. While the legislature did not provide any funding in 2018, it did approve the creation of a tracking system and the multidisciplinary working group.

During the interim, before the 2019 session of the General Assembly, DOJ spearheaded an initiative to test previously untested SAECKs located throughout the state. To obtain the necessary resources for testing, DOJ/SCL secured $2M in funding from the Bureau of Justice Assistance Sexual Assault Kit Initiative (SAKI) and $2M from the Victims of Crime

Act funding (VOCA) to help cover the costs associated with the identification and testing of SAECKs. After securing these funds, the SCL began working with local law enforcement to outsource their inventoried untested SAECKs.

In December 2018, the multidisciplinary working group completed their work and provided the Attorney General a report recommending a best practice process to test all testable SAECKs. This report served as the basis for the Standing Up For Rape Victims Act Of 2019, or Survivor Act, (House Bill 29 and Senate Bill 46), which the General Assembly passed and became law in September of 2019.

The Survivor Act appropriated $6M of general funds to aid to test remaining SAECKS and created a statutory process for testing all SAECKs. This new law ensures that a backlog will not develop in North Carolina again, but it has resulted in a drastic increase in submissions of SAECKS from law enforcement to the SCL.

Law enforcement are now required to submit both previously untested SAECKs and SAECKs from current sexual assault cases. Necessarily, the Survivor Act has dramatically increased the workload for both the Evidence Control Unit and the Forensic Biology Section. The Evidence Control Unit accepts submissions of the SAECKs from law enforcement for current sexual assault cases they are investigating. These SAECKs from current cases are then forwarded to the Forensic Biology Section for analysis. In addition, our Forensic Biology Section has an increased workload, as it prepares SAECKs for the vendor lab to analyze. They are tasked with: receiving the requests from agencies for SAECK testing; reviewing the outsourcing request form to ensure that the case will be CODIS eligible and meets the requirements of the Survivor Act for testing; approving the case for shipping to a vendor laboratory; and coordination with the vendor laboratory on shipping/receiving of kits from all law enforcement agencies. The vendor laboratory processes the cases and reports the results directly to the law enforcement agencies as well as the SCL. The SCL also reviews qualifying data from the vendor laboratories for upload into CODIS.

Additionally, the SCL had an outsourcing contract with a vendor laboratory that ended on June 30, 2020. Due to the nationwide demand for SAECK testing as well as the inclusion of courtroom testimony fees, the cost per kit in the new contract increased from $695 per kit to $1,245 per kit, a 79% increase.

With the increased cost per kit and the return of the VOCA grant funds, an additional $9M was requested to test the backlog of previously untested SAECKs located throughout the state. The SCL is very appreciative of the appropriation of those funds in the biennium budget.

Testing these old kits is solving crimes. As of the writing of this report, 11,010kits are in the process of being tested or have been tested. Testing has been completed on approximately 8,600 kits, while the others are currently with the vendor lab for testing or are in review and approval for shipping. These completed tests have led to numerous arrests in longstanding cold cases – as approximately 40% of those tested kits with an eligible CODIS profile have a CODIS hit to a known offender or another case, allowing law enforcement to move forward.

Here are some examples of the impact we are seeing of testing these kits:

- A Wilson man was charged with two counts of first-degree rape and one count each of first degree kidnapping, assault with a deadly weapon inflicting serious injury, and first-degree burglary resulting from two cold-cases occurring in 1997 and 2002
- A North Carolina man was charged with First degree rape for Two victims that were sexually assaulted in Silver Spring,Maryland in 1981. He was released in 2020 from a North Carolina prison after serving 22 years for a series of first-degree rapes.
- Wilmington PD charged a suspect with first degree kidnapping, first degree rape, first degree sexual offense, and common law robbery for a 1995 assault.

- A suspect was charged with first-degree rape, burglary and kidnapping for the 2005 assault in Durham
- A former Hendersonville man who was in custody in South Carolina was charged based on active warrants in NC stemming from a 2005 sexual assault case.

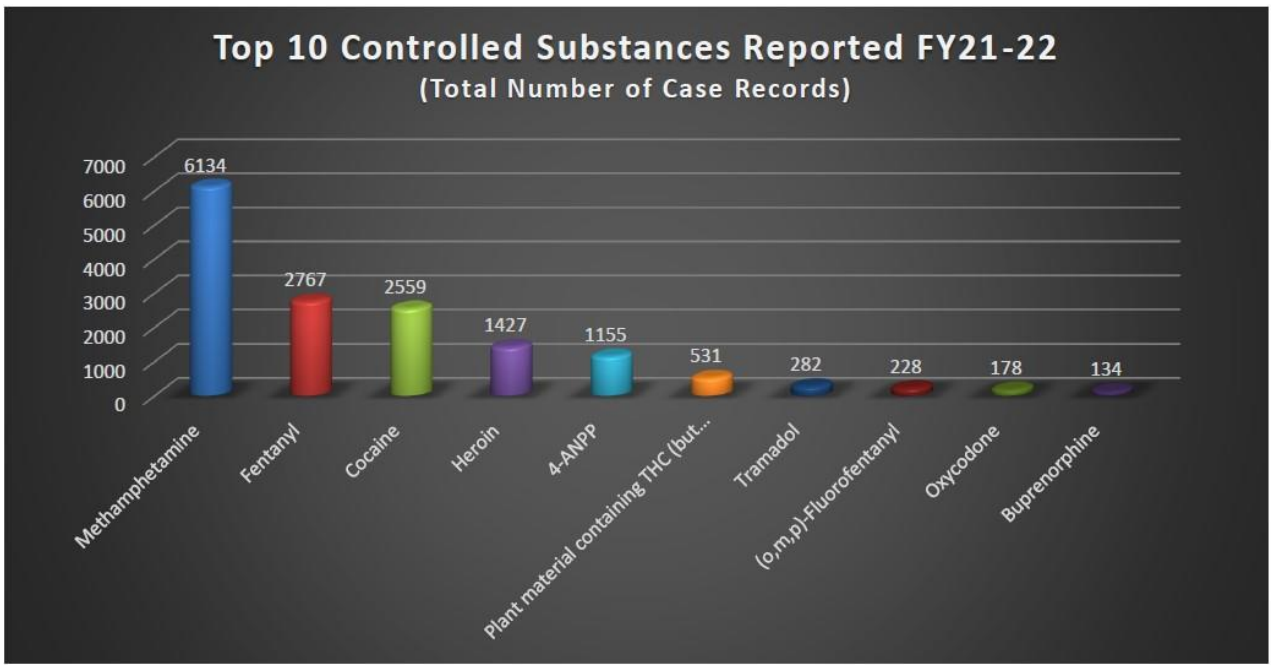
Over $6M of the Survivor Act funding was encumbered by mid-2022. With the additional $9M in funding, and assuming the private lab performs to their contract, we project that all previously untested SAECKs that require testing based upon the Survivor Act could be tested by the end of 2023.

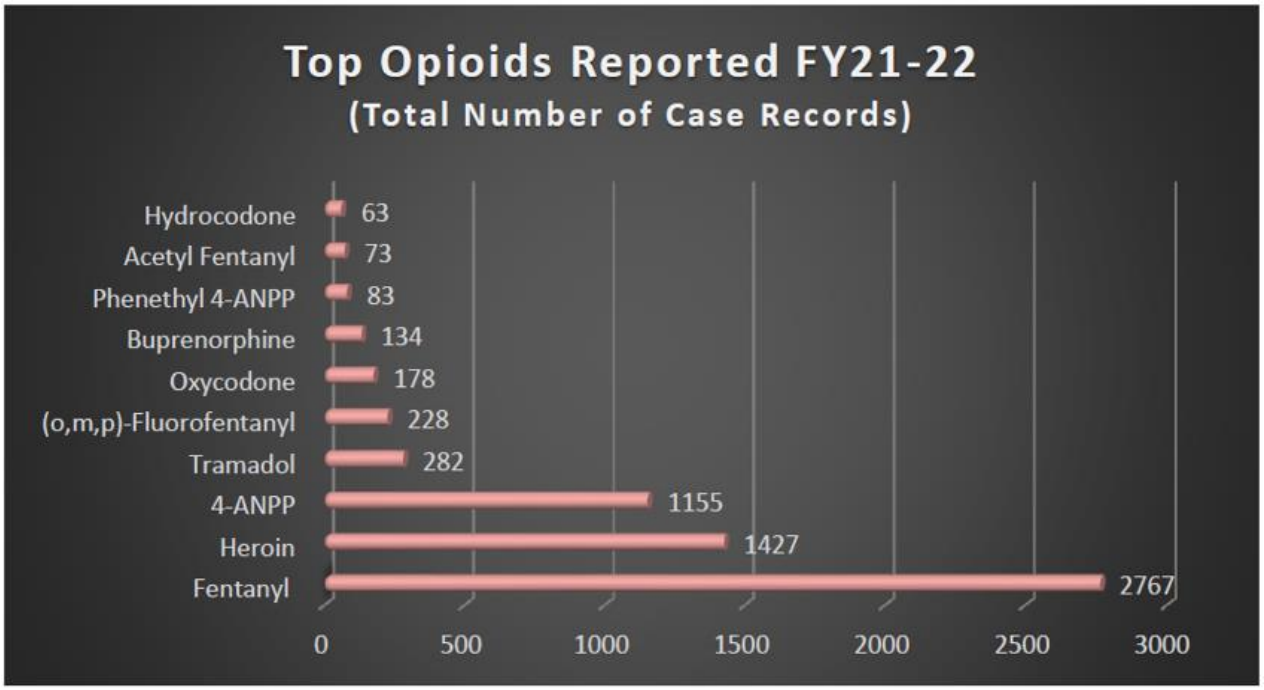
All information regarding the STIMS project has been reported in the legislatively mandated STIMS report required by NCGS § 114-65.

e. Statistics and Trends in Drug Chemistry and Toxicology

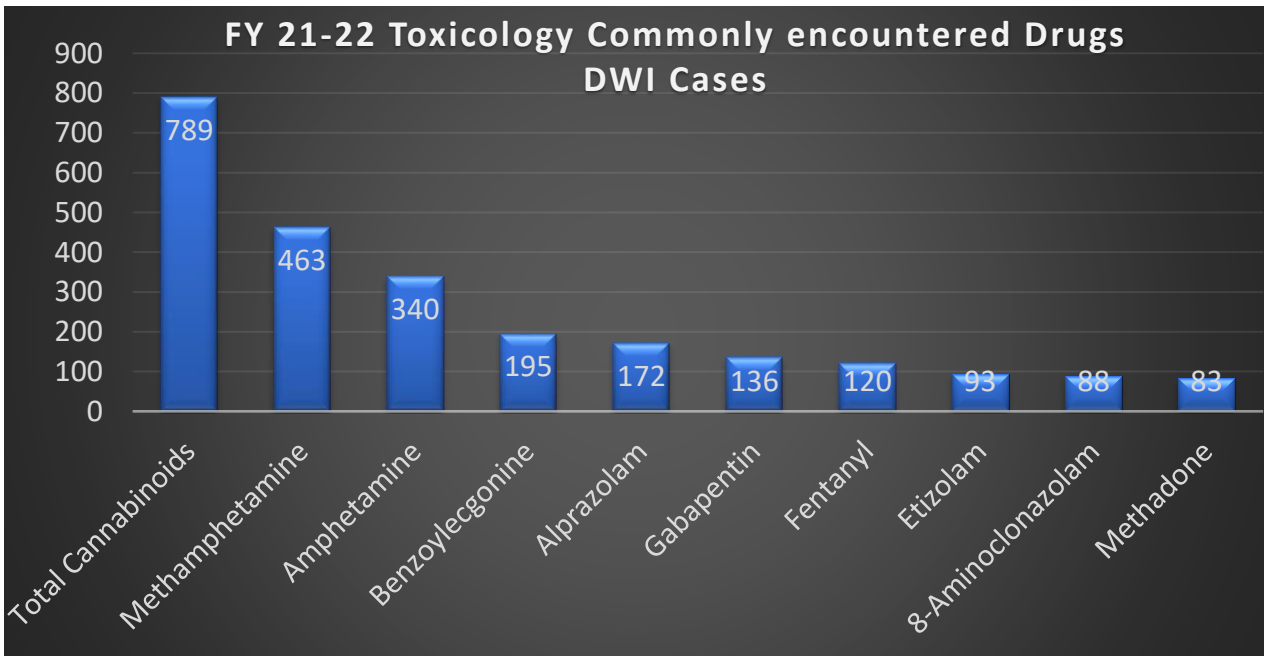
The Crime Laboratory collects various data which are reported to the Federal Government for statistical purposes, trend monitoring, and policy making.

The Drug Chemistry Section continued to see an increase in the complexity of cases submitted. Analysis of these items involves counting and verifying the number of units present, and documenting and analyzing multiple units to meet statutory weight thresholds. Often there is more than one controlled substance present in these samples or varying concentrations of these substances, which requires repeat and or additional analysis and takes longer for scientists to analyze. Additionally, there has been an increase in the number of clandestine pharmaceutical and non-pharmaceutical tablets. A majority of the clandestine opiate/opioid marked pharmaceutical exhibits are found to contain fentanyl. For the FY 2021-2022, methamphetamine was the most reported controlled substance at approximately 41.9% of overall identifications followed by fentanyl (18.9%), cocaine (17.5%), and heroin (9.7%). Identification of fentanyl has steadily increased over the past several reporting cycles; this is the first time fentanyl has risen to the number two position for substances reported. Effective December 1, 2021, several specific compounds as well as general drug class language additions were made to the North Carolina General Statutes. These classes include substituted tryptamines, substituted phenylcyclohexylamines, substituted phenethylamines, and designer benzodiazepines.

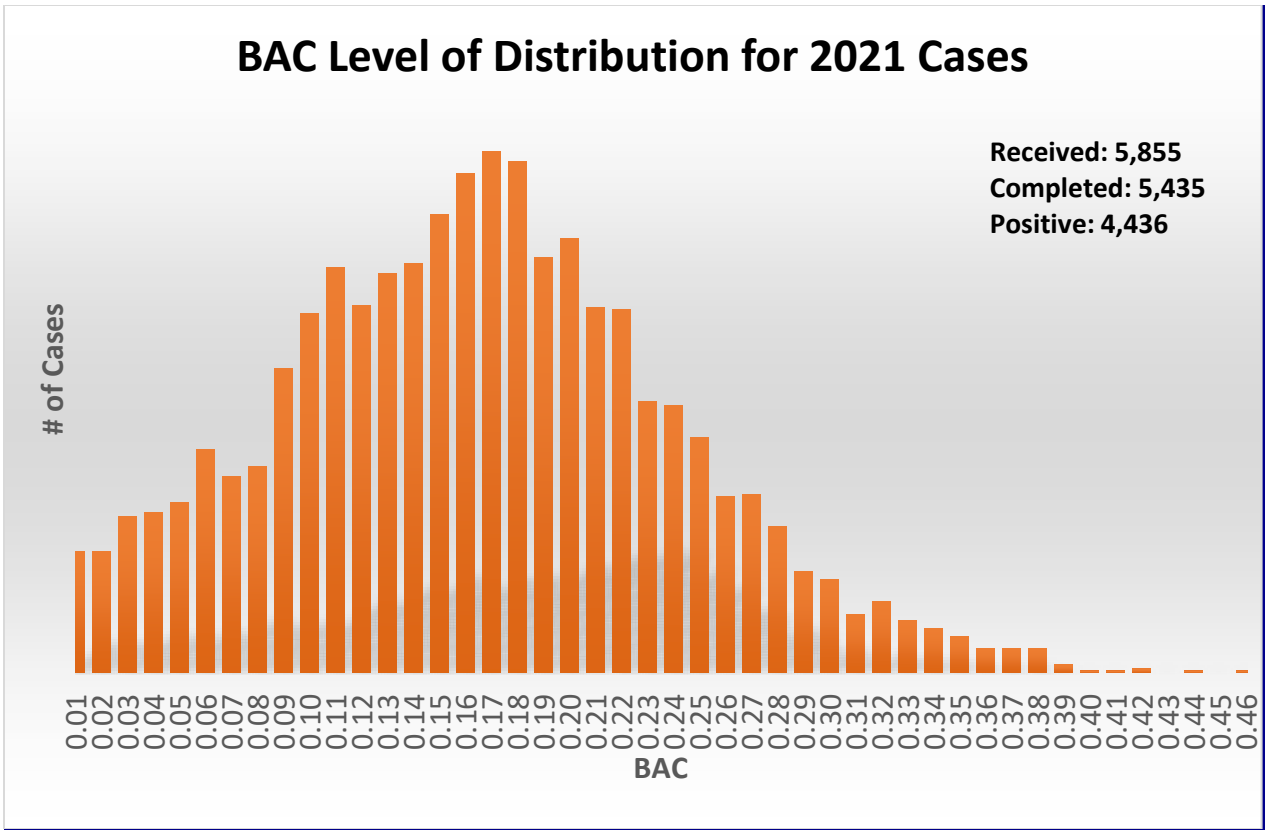




In FY 2021-2022 the Toxicology sections of the SCL tested 2,252 DWI related blood samples for drugs. There was an average of 2.5 different drugs identified in the positive samples. The most prevalent drugs identified were: cannabinoids (THC and metabolites; marijuana) – 49%; benzodiazepines (e.g. - Xanax, Valium, Klonopin, etc.) – 35%; methamphetamine and/or amphetamine – 31%; opioids (e.g. - morphine, oxycodone, fentanyl, etc.) – 24%; and cocaine (and its metabolites) – 18%.



Below is the districbution of Blood Alcohol Concentrations that were analyzed in calendar year 2021. The average BAC in DWI cases is 0.17.



IV. Process Improvements

The SCL continues its concerted effort to identify cases that have been disposed of in court ("stop-work cases") and no longer need forensic analysis. The SCL routinely provides prosecutors with lists of cases that appear to have cleared the court system but for which the Laboratory has not received a disposition notice, requesting confirmation that the case is completed and that no further Laboratory work is required. The NC Conference of District Attorneys has facilitated prosecutorial review of these notices and nearly **all forty-three District Attorneys are participating**. As a result, the SCL is able to focus on the cases where forensic analysis is still needed. Stopping work on 7,022 case records equals a savings of $ 2.5M in unnecessary testing.

The SCL worked with GDAC to enhance the automated process to identify cases that meet statutory requirements for disposal. The automated report has helped eliminate the number of adjudicated DWI blood tubes in Laboratory custody and ease the burden for investigating agencies to refrigerate cases after analysis. The State Crime Laboratory has successfully been able to dispose of 28,051 cases in storage since the automated system was implemented in February 2019 (7,966 this FY 2021-2022). The passage of G.S. 20-139.1(h) has positively impacted the Crime Laboratory's storage capacity by allowing the disposal of the blood tubes in adjudicated cases (which meet statutory requirements).

V. Human Capital

In FY 2021-2022, there were 22 hires, 13 resignations, 5 retirements, and 1 transfer. The SCL had a vacancy rate of **16.8%** at the end of the fiscal year. The process of filling these vacancies and training a new scientist can take from one to two years, depending on the scientific discipline.

The SCL and DOJ continue to work to find ways to attract and retain highly qualified employees. The past two fiscal years have seen improvement in the ability to fill vacancies. However, more can be done to retain scientists, as salary and lack of opportunity for advancement are consistent reasons cited for scientists leaving employment with the SCL. **We are respectfully requesting a recurring salary adjustment fund appropriated to address recruitment and retention needs for the Forensic Scientist series, including salary increases and promotional opportunities.** The chart below depicts the hiring and losses specifically of scientists, for the last five fiscal years:

Fiscal Year	Number of Scientists Hired	Number of Those Scientists Who Have Since Resigned	Discipline Departed From	Human Capital/ Financial Loss	Overall Attrition Rate	Tenure of Scientists who Resigned
FY 17-18	5	3	Toxicology (1); Drug Chemistry (1); DNA Database (1)	$300,000	*	Toxicology (5.2 yr); Drug Chemistry (7 mos); DNA Database (1.5 yrs)
FY 18-19	12	4	Latent (1); Toxicology (1); Trace (1); Firearms (1)	$400,000	*	Latent (2.5 yr); Toxicology (1.5 yrs); Trace (6 mo); Firearms (4 mo)
FY 19-20	14	2	Drug Chemistry (1); Forensic Biology (1)	$200,000	*	Drug Chemistry (1 yr); Forensic Bio (1.5 yr)
FY 20-21	13	2	Forensic Biology (2)	$200,000	*	Forensic Biology (1.5 yr and 1.6 yr)
FY 21-22	16	0	NA	0	*	
Totals	**60**	**11**	**DNA Database (1); Drug Chem (2); Firearms (1); Forensic Biology (3); Latent (1); Toxicology (2); Trace (1)**	**$1,100,000**	**18.30%**	**Avg tenure: 19.3 months**

Over the previous five fiscal years, of the 60 scientists that were hired, 11 of them have since resigned, which is an **18.3% attrition rate***. These scientists had an average tenure of approximately **1.5 years. The $1.1M** of the state's investment had very little return since the **training period is between 1 to 2 years**.

Of importance, each time a scientist resigns, the Laboratory spends approximately $100,000 to train a new employee to fill the vacated position. There is **no return on investment during this period** as the scientist is not permitted to work criminal evidence until completing a rigorous training program**. In FY 2021-2022, the NCSCL trained approximately 30 scientists. This equates to **$3.0M** of salary funds to pay employees who are **not yet contributing to the pending caseload.** This figure does not include the monetary loss of time set aside by other trained scientists to train the new hires. A recurring salary adjustment fund would help retain employees who have historically left for higher paying salaries and will give the Laboratory a larger return on investment.

(Note 1: *Attrition rate does not apply since the resignations occurred in different years than the hire date.)

(Note 2: ** Each scientist must complete modules of training which include written and oral examinations, practical exercises, a competency test(s), and a mock trial before training is considered complete.)

VI. Fiscal Resources[6]

At the beginning of calendar year 2014, the SCL began participating in **Project Foresight** through the West Virginia University College of Business & Economics. The purpose of the collaboration was to begin building a detailed picture of the fiscal resources required to operate a forensic laboratory to include determining the cost of each test.

The FORESIGHT Project Report indicates that the SCL is comparable to other like-size, publicly funded state forensic laboratories servicing like-size state populations. **Ten of the fourteen investigative areas noted were lower in cost per case compared to the FORESIGHT Median cost per case.** Note that one item may be investigated and counted in several investigation areas. The cost includes allocations for capital, wages & salary, benefits, overtime & temporary hires, chemicals, reagents, consumables, gases, travel, quality assurance and accreditation, service of instruments, non-instrument repairs and maintenance, equipment leasing, utilities, telecommunications, overhead, and other expenses.

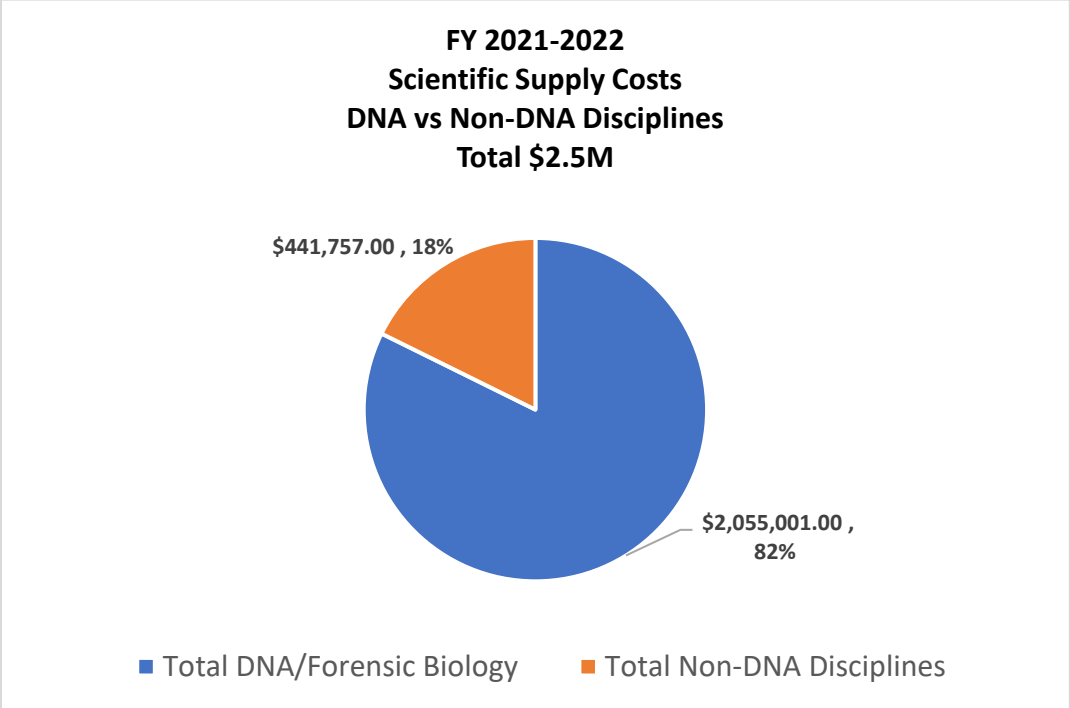
Project FORESIGHT Annual Report, 2020-2021
Cost per Case by Investigative Area

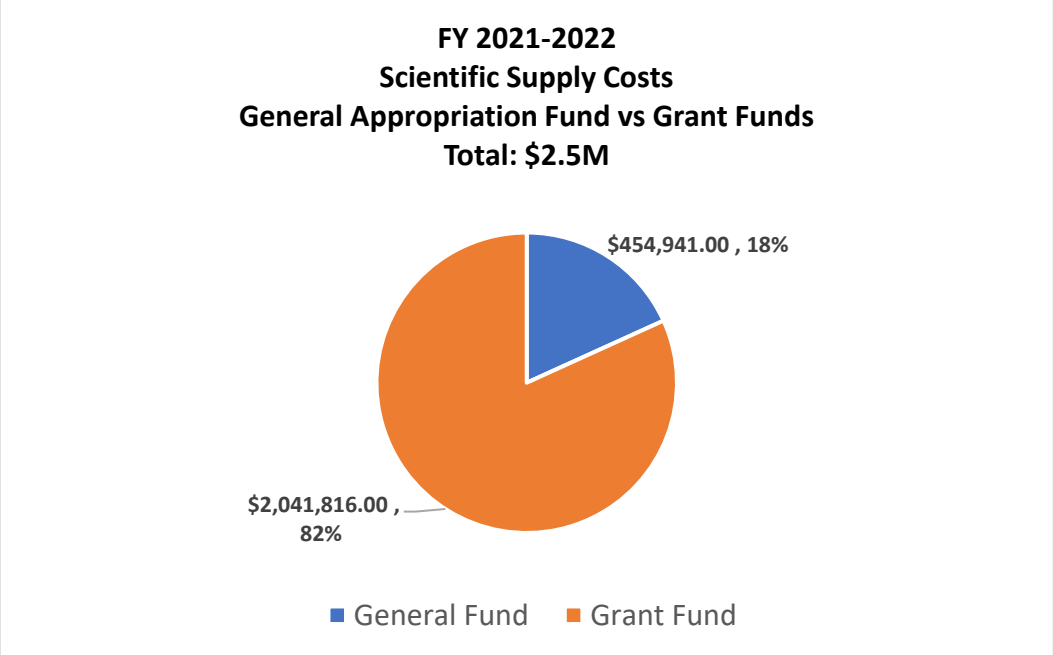
Area of Investigation	*North Carolina*	*25th percentile*	*Median*	*75th percentile*
Digital Evidence (computers, mobile devices, etc.)	$2,915	$1,961	$3,695	$6,836
DNA Casework	$1,026	$1,076	$1,488	$2,349
DNA Database	$153	$46	$78	$147
Drugs - Controlled Substances	$218	$285	$404	$493
Fingerprints	$1,444	$666	$987	$1,397
Fire analysis	$646	$1,372	$2,498	$3,727
Firearms and Ballistics	$2,363	$1,308	$2,272	$3,341
Firearms Database (NIBIN)	$94	$70	$219	$398
Gun Shot Residue (GSR)	$445	$2,214	$3,314	$4,460
Marks and Impressions	$4,144	$5,434	$8,852	$11,640
Serology/Biology	$389	$830	$1,114	$1,995
Toxicology ante mortem Drugs (excluding BAC)	$866	$578	$812	$1,010
Toxicology ante mortem Blood Alcohol	$75	$148	$236	$352
Trace Evidence	$3,690	$3,244	$4,936	$7,301

Below median cost

[6] *S.L. 2013-360 (4) also provides that the Annual Crime Laboratory Report contain "[a]n average estimate of the dollar and time cost to perform each type of procedure and analysis performed by the Laboratory." The Crime Laboratory initiated participation in "Project Foresight," operating out of West Virginia University, which compiles such information for forensic laboratories. The data collection deadline for the Project Foresight Annual Report published the next May is Dec.1. The FY 2020-2021 State Crime Laboratory Annual Report is the fourth year in which a full year of data reflecting a comparative breakdown of analysis costs is being addressed.*

As newly-hired scientists completed their training and began work on active criminal cases and as submissions have increased for the last six years, the SCL's **supply costs have also increased**. During FY 2021-2022, the SCL expended more than $2.5M on scientific supplies of which 82% was DNA-related. Specifically, $2,055,001 was expended on DNA, while $441,757 was expended on non-DNA disciplines. Of that amount, **18% or $454,941 (compared to 25% or $398,968 in FY 2020-2021) was from General Fund Appropriations** and the remaining **82% or $2,041,816 (compared to 75% or $1,203,397 from FY 2020-2021) was from grant funding**.





During FY 2021-2022, the SCL had active funding from various federal grants ranging from approximately $6.4M to $7.5M. Funding was utilized to replace scientific instruments, purchase supplies, perform education and outreach to criminal justice stakeholders on the sexual assault kit initiative, fund personnel to maintain the STIMS and SpecMan systems and to pay for training for SCL staff to meet mandated certification and accreditation requirements**.**

The SCL system has approximately $15M in instrumentation throughout all three labs as reflected below:

Raleigh Lab Instrument Total	**$ 9,246,695.69**
Triad Lab Instrument Total	**$ 2,016,000.00**
Western Lab Instrument Total	**$ 3,583,893.14**

Instrument cost varies within the laboratory system from a $75,000 comparison microscope used in the comparison of Firearms evidence, to a $185,000 Genetic Analyzer used to separate and analyze DNA in homicides and sexual assault analysis in Forensic Biology, to a $355,000 Quadropole Time of Flight Instrument used in DWI analysis in Toxicology. As an example of a current need in Toxicology, the addition of an extraction platform in each of the three Laboratory toxicology locations would drastically increase output of DWI cases with its implementation. Each extraction platform costs roughly $200,000 to procure and install. The current appropriation for the equipment fund is $160,000.

To remain a state-of-the-art forensic laboratory, scientific instrumentation and equipment must be purchased, replaced, and updated based on current industry standards. Realistically, $1M in recurring funding would allow a ten-year replacement schedule and combined with the nearly $4.5M received over the last eight years, the SCL would be very close to industry standards. A special revenue reserve fund would provide contingency funding to offset periodic reductions in crime laboratory court fees authorized pursuant to NCGS 7A-304 (a) (7).

VII. Expansion

The SCL continued to expand its services, replace outdated equipment, and conduct significant analysis to determine the future needs within each of the disciplines. Some examples are noted below.

The National Integrated Ballistic Information Network (NIBIN) is the only national network that allows for the capture and comparison of ballistic evidence to aid in solving and preventing violent crimes involving firearms. The Bureau of Alcohol, Tobacco, Firearms, and Explosives (BATFE) has put a spotlight on the NIBIN program. The BATFE is encouraging smaller agencies across North Carolina to utilize the NIBIN program to aid their investigations. This is driving an increase in NIBIN case submissions to the Firearms Section. The Firearms Section has seen an increase in the number of leads generated, therefore more requests for NIBIN confirmations are being submitted. Since 1994, the NCSCL has generated nearly 7,500 leads for law enforcement, making the NCSCL first in the Carolinas and ninth in the nation for leads; up from 6,000 total leads reported last year.

Mobile device submissions increased again for FY 2021-2022 for the Digital Evidence Section. With the addition of the ability to bypass certain security features of iOS mobile devices and Android devices, the section saw a 61% increase in mobile device submissions from FY 2020-2021. As word has spread through the section's customers, there has also been an uptick in powered-on phone submissions. These phones are prioritized for examination since the ability to recover data may be impacted if the phone loses power. As demand for this service has increased, the Digital Evidence Section has increased its capacity for storing actively working devices.

Submissions have increased in multiple other areas as well. A majority of **Drug and Toxicology submissions** now include complex opioids such as fentanyl and fentanyl-based analogs. These types of drugs require extensive and complicated testing that lengthen turnaround times. Moreover, due to the passage of the **Survivor Act (S.L. 2019-221)** and the push to make better use of the NIBIN program - both **sexual assault kit evidence and firearms evidence** make up the other major categories of submissions that continue to grow. Increased submissions of SAECKs have led to an increase in CODIS hits, which require **CODIS hit confirmations by the Latent Evidence Section**. The **Trace Evidence Section has seen a 166% increase in hair examination requests** since FY 20-21 due to the increase in SAECK testing.

All of the expansions in the submission of multiple types of evidence listed above require retention of highly qualified, highly trained scientists.

VIII. Conclusion

The SCL has worked to continuously improve using Lean Six Sigma efficiency methodology. These improvements include advanced computerized systems, increased robotic instruments, streamlined evidence management processes, strategic redistribution of casework and staff, and improved coordination with the courts and our partners in the criminal justice system. The SCL has reached a point at which continued progress can only be gained with additional resources.

To remain a state-of-the-art forensic laboratory, scientific instrumentation and equipment must be purchased, replaced, and updated based on current industry standards. The SCL has been successful in using grant funds to replace instrumentation over the last several years. Grant funding is not a reliable source for funding and the SCL needs a permanent solution Realistically, **$1M in recurring funding** would allow a ten-year replacement schedule and combined with the nearly $4.5M received over the last eight years, the SCL would be very close to industry standards.

Given this competitive job market, we need the ability to retain scientists and remain competitive in salary offers in order to recruit more scientists. **We are respectfully requesting a recurring salary adjustment fund appropriated to address recruitment and retention needs for the Forensic Scientist series, including salary increases and promotional opportunities.** A recurring salary adjustment fund will allow us to offer more competitive salaries thus filling current vacancies more quickly and facilitating retention of our forensic scientists so that we can meet the state's public safety needs.

The Survivor Act and the increasing demands of the opioid crisis have significantly increased submissions. Retention of trained scientists and an adequate funding resource for scientific instruments, as stated above, are critical to maintaining acceptable turnaround times for forensic analysis.

With continued support, the SCL will continue to provide quality and timely forensic analysis and impartial expert testimony.

Respectfully submitted February 8, 2023.

Vanessa Martinucci

Vanessa Martinucci
Director, North Carolina State Crime Laboratory

Appendix A - Submissions by County

	7/1/2017 to 6/30/2018		7/1/2018 to 6/30/2019		7/1/2019 to 6/30/2020		7/1/2020 to 6/30/2021		7/1/2021 to 6/30/2022	
County	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**
Alamance	318	546	381	582	458	744	572	955	507	719
Alexander	89	142	91	246	101	140	103	195	130	187
Alleghany	29	62	34	70	52	61	38	57	48	70
Anson	56	99	108	222	85	178	107	467	71	254
Ashe	27	35	101	161	117	142	165	187	192	268
Avery	121	144	80	107	83	139	56	85	106	134
Beaufort	383	487	377	472	346	502	309	442	350	470
Bertie	83	105	57	102	39	60	45	74	31	34
Bladen	54	115	203	281	109	158	88	196	45	66
Brunswick	584	788	559	788	727	1014	643	895	861	1215
Buncombe	1358	1990	1553	2125	1460	2407	1377	2325	1477	2408
Burke	466	668	467	677	415	612	548	765	411	533
Cabarrus	718	960	639	816	786	1023	864	1255	838	1270
Caldwell	302	442	390	507	381	526	411	559	485	638
Camden	7	11	5	9	16	32	26	51	33	57
Carteret	426	569	290	433	406	570	309	474	295	472
Caswell	41	64	73	86	99	126	78	106	43	80
Catawba	1041	1600	836	1084	715	941	920	1274	852	1279
Chatham	128	253	205	344	135	189	157	246	155	261
Cherokee	116	144	42	55	140	280	216	345	315	488
Chowan	33	51	38	49	31	46	82	141	48	87
Clay	24	46	25	39	64	139	86	121	89	141
Cleveland	624	806	626	903	564	941	718	1145	634	808
Columbus	109	155	134	214	136	216	241	369	303	508

	7/1/2017 to 6/30/2018		7/1/2018 to 6/30/2019		7/1/2019 to 6/30/2020		7/1/2020 to 6/30/2021		7/1/2021 to 6/30/2022	
County	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**
Craven	384	726	437	748	454	788	821	1273	668	974
Cumberland	431	841	1118	1824	1161	1911	954	1579	998	1651
Currituck	103	127	85	118	80	105	86	134	92	120
Dare	236	329	208	290	212	280	260	388	269	407
Davidson	551	718	610	787	510	661	742	929	630	819
Davie	108	153	121	181	125	171	112	173	94	161
Duplin	394	545	439	615	373	560	314	418	407	580
Durham	1001	3753	1236	2831	709	993	747	1113	757	1034
Edgecombe	280	399	371	559	364	507	379	591	372	545
Forsyth	758	847	752	1243	834	1744	557	1058	516	791
Franklin	352	621	545	784	521	764	399	615	422	622
Gaston	1211	1710	1281	1765	1116	1496	1458	2042	1593	2698
Gates	21	59	4	13	23	33	26	35	15	18
Graham	44	79	42	65	67	102	78	129	98	176
Granville	306	439	240	389	279	710	208	376	252	400
Greene	47	76	45	47	60	124	88	217	45	64
Guilford	1413	2168	1742	2318	2002	2998	1768	2813	1723	2527
Halifax	163	300	212	319	273	439	294	477	287	490
Harnett	261	399	280	488	280	506	428	606	379	627
Haywood	391	619	469	692	528	769	591	937	528	804
Henderson	483	773	608	907	524	770	634	933	781	1111
Hertford	125	169	75	139	78	120	132	383	91	211
Hoke	197	361	258	499	305	736	345	761	336	694
Hyde	15	19	5	9	2	2	5	4	11	18
Iredell	306	632	330	450	397	622	493	750	531	848
Jackson	242	437	327	540	337	554	294	536	298	455
Johnston	805	1068	586	801	710	922	655	959	650	913
Jones	45	52	68	90	85	112	42	57	39	58
Lee	257	394	171	341	230	333	154	226	206	443

County	7/1/2017 to 6/30/2018		7/1/2018 to 6/30/2019		7/1/2019 to 6/30/2020		7/1/2020 to 6/30/2021		7/1/2021 to 6/30/2022	
	Submissions	Items Submitted	Submissions	Items Submitted	Submissions	Items Submitted	Submissions	Items Submitted	Submissions	Items Submitted
Lenoir	393	725	426	640	445	643	363	777	373	681
Lincoln	443	606	541	740	378	530	487	676	505	660
Macon	166	238	202	297	240	315	365	515	258	384
Madison	122	242	140	258	101	155	161	230	121	191
Martin	152	241	110	189	88	123	143	202	307	509
McDowell	201	334	235	357	267	455	250	472	295	460
Mecklenburg	358	515	375	493	416	606	445	674	415	541
Mitchell	29	53	65	103	34	70	81	126	98	138
Montgomery	55	83	79	150	77	133	89	151	89	152
Moore	230	372	293	442	476	619	531	799	594	910
Nash	487	668	512	648	629	808	591	746	578	717
New Hanover	944	1762	1347	2684	1502	3051	1267	2587	933	1887
Northampton	63	178	51	101	61	172	81	200	55	134
Onslow	768	1212	787	1175	926	1556	1060	1632	952	1486
Orange	441	647	417	686	382	581	511	790	367	523
Pamlico	231	290	123	193	130	228	99	192	90	130
Pasquotank	205	292	201	344	239	407	211	332	224	350
Pender	80	124	104	115	181	327	203	356	130	251
Perquimans	34	85	56	95	46	63	66	150	97	145
Person	188	231	203	270	128	220	150	247	184	307
Pitt	1032	1348	250	384	408	591	451	796	473	740
Polk	89	103	122	154	121	175	165	223	193	252
Randolph	846	1258	903	1253	834	1118	901	1257	903	1296
Richmond	352	591	293	456	308	581	293	597	320	631
Robeson	394	967	560	1744	543	1725	446	1420	439	969
Rockingham	295	465	381	560	450	594	438	664	540	747
Rowan	720	1159	661	1071	713	1092	857	1310	573	815
Rutherford	207	276	191	253	319	454	360	492	296	393
Sampson	316	509	438	671	452	729	549	1160	493	801

	7/1/2017 to 6/30/2018		7/1/2018 to 6/30/2019		7/1/2019 to 6/30/2020		7/1/2020 to 6/30/2021		7/1/2021 to 6/30/2022	
County	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**	**Submissions**	**Items Submitted**
Scotland	154	308	169	305	252	523	229	424	195	370
Stanly	362	447	432	592	461	580	574	774	390	538
Stokes	206	269	138	191	169	233	164	227	168	205
Surry	321	411	430	622	508	680	494	679	469	635
Swain	146	209	131	181	119	159	83	123	123	144
Transylvania	120	213	136	258	108	150	121	193	137	208
Tyrrell	51	57	11	11	15	22	33	38	31	49
Union	578	743	662	869	632	843	746	1008	652	844
Vance	310	539	360	596	339	591	358	587	215	461
Wake	560	1316	617	1262	494	1117	392	867	482	669
Warren	75	120	82	111	35	64	49	84	47	74
Washington	23	25	19	37	16	36	99	137	94	110
Watauga	169	234	172	264	174	231	176	219	226	330
Wayne	750	1301	818	1241	864	1323	1060	1929	880	1644
Wilkes	332	472	300	469	278	359	303	365	287	408
Wilson	471	694	693	994	746	1066	760	1203	764	1305
Yadkin	149	209	228	285	189	234	208	319	182	239
Yancey	70	101	89	127	86	129	93	146	107	165
TOTAL	**32755**	**52337**	**35532**	**55165**	**36483**	**57479**	**38779**	**62336**	**37751**	**58304**