Douglas County Sheriff's Office
Forensic Services Division
Omaha, Nebraska

Tracey M. Ray- Crime Laboratory Director

2013 ANNUAL REPORT

HISTORY

The Douglas County Sheriff's Office has always had some form of a crime scene response. In 1982, with a mixture of sworn deputies and civilian personnel the Criminalistics Division was formalized. Personnel responded to crime scenes, collected evidence, and did latent print processing/ comparisons. AFIS wasn't on board until 1995. Services for crime scene work started to increase and services were expanded to outside of Douglas County Sheriff's Office. In 2005, more capabilities were added with IAFIS capability and the addition of trace and controlled substance analyses. The CSI Division under the Criminal Investigation Bureau was rapidly expanding out of its 1,500 square foot space.

The now called Forensic Services Division moved to its current location at 15345 West Maple Road into a renovated wing of the Thomas Fitzgerald Home in April 2011, increasing its space to approximately 10,000 square feet. The Forensic Services Division (FSD) is composed of four major units: Crime Scene Investigation, Latent Prints, Chemistry and Multimedia. The staff currently consists of 14 employees.

FSD is currently preparing for accreditation through the American Society of Crime Laboratory Directors/ Laboratory Accreditation Board (ASCLD/LAB).

The Division plans on growing to be able to offer even more services to the law enforcement community.

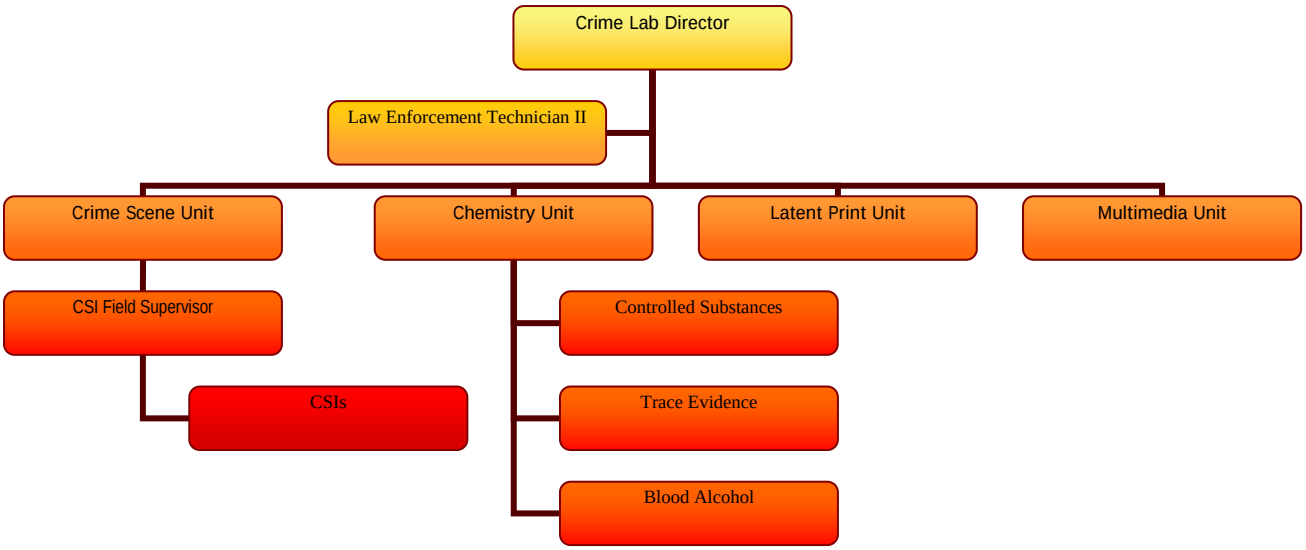
DIVISION MANAGEMENT

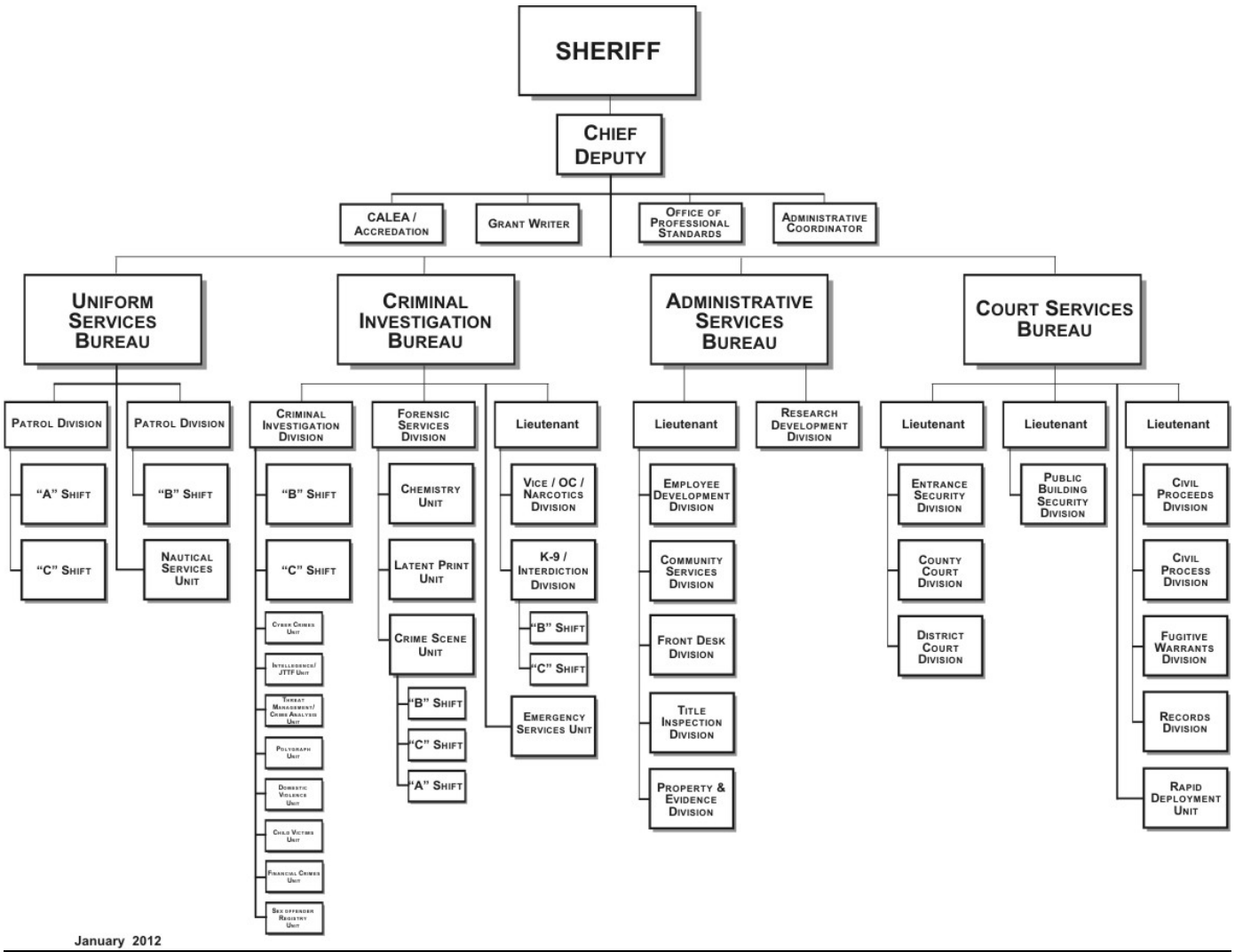
Criminal Investigation Bureau Captain: *Captain Steven Glandt*

Crime Laboratory Director: *Tracey M. Ray*

Crime Scene Unit Field Supervisor: *Robert "Justin" Aumann*

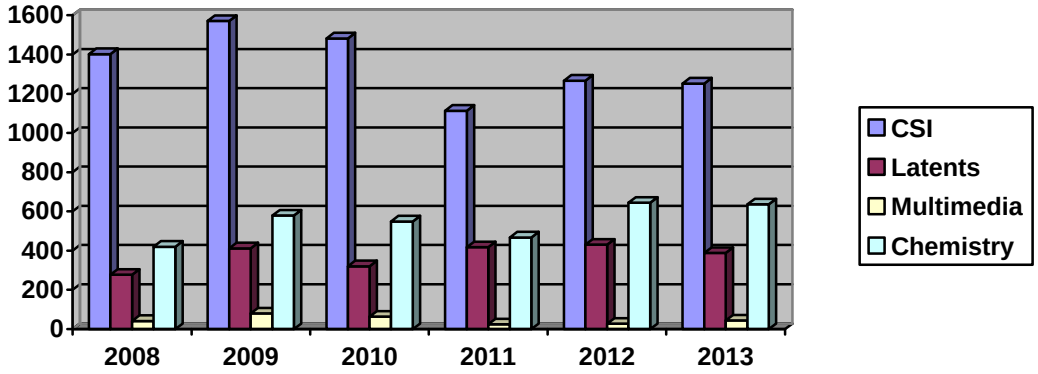
LABORATORY ORGANIZATIONAL CHART



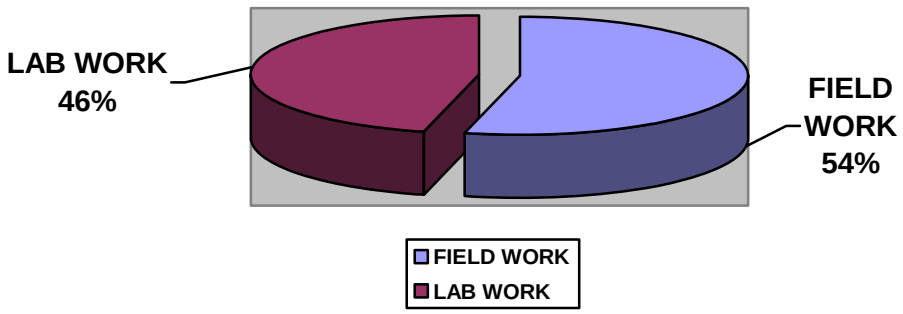


CASE SUBMISSIONS

Unit	2012	2013
Crime Scene Investigations Unit	1267	1252
Latent Print Unit	430	388
Chemistry Unit	644	636
Multimedia Unit	27	13/ 44

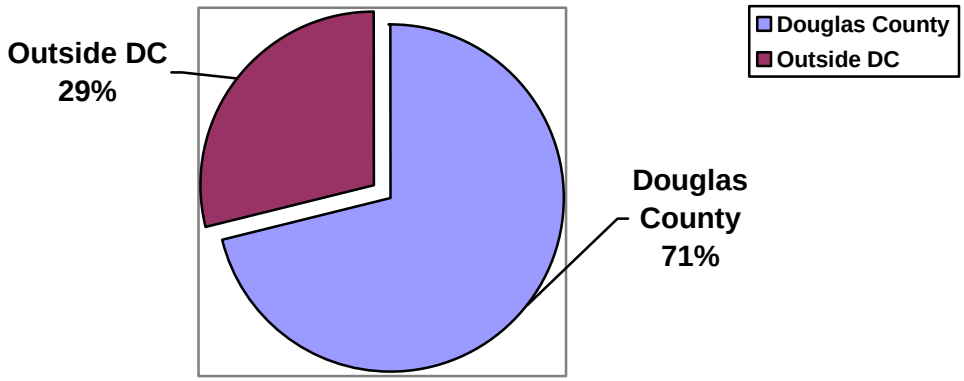


The above chart shows a decline in CSI calls in 2011 and 2012 from previous years 2008- 2010. The CSI Unit changed how statistics were being recorded in 2011 which accounts for the decrease. Note that cases submitted may have multiple items of evidence that need to be examined. This chart only reflects the actual scenes or cases submitted for analysis. Please see the proceeding sections on individual units for more information regarding each unit. The multimedia unit had seen a decline in submissions for video processing (13) so that unit also started to keep track and process all requests for copies of videos increasing their requests to 44.



AGENCIES SERVED

The Division primarily provides scene and laboratory work for Douglas County Sheriff's Office. Douglas County law enforcement agencies and federal agencies may also submit evidence for analysis at no charge for crime scene services. We also do provide services for a fee for agencies outside of Douglas County.



Agencies we have served:

Douglas County Sheriff's Office
Omaha Police Department
Pottawattamie County Sheriff's Office
Sarpy County Attorney's Office
Washington County Attorney's Office
Washington County Sheriff's Office
Blair Police Department
Bellevue Police Department
La Vista Police Department
Papillion Police Department
Fremont Police Department
Sarpy County Sheriff's Office

DEA
Secret Service
FBI
ATF
Ralston Police Department
Valley Police Department
Bennington Police Department
Omaha Police Department
Waterloo Police Department
Metropolitan Community College Police Dept
Saunders County Sheriff's Office

The Forensic Services Division charges a fee for non- Douglas County Agencies. In revenue brought in during 2012 and 2013 was $56,307.50 and $51,135.00 respectively.

EMPLOYEE MEMBERSHIP AND TRAINING

Personnel and management understand the importance of continuing education and active involvement in forensic organizations. The exchange of information and networking that takes places during a training opportunity and by getting involved in various organizations is crucial to the growth and advancement of employee development. Some of the organizations that personnel are members of, hold offices and/or are on committees include:

- International Association of Identification, National and Nebraska Chapter (IAI)
- Midwestern Association of Forensic Scientists (MAFS)
- Southwestern Association of Forensic Scientists (SWAFS)
- American Academy of Forensic Sciences (AAFS)
- Technical Working Group of Fire and Explosives (TWGFEX)
- American Society of Crime Laboratory Directors (ASCLD)
- Association of Forensic Quality Assurance Managers (AFQAM)
- Clandestine Laboratory Investigating Chemists (CLIC)
- American Society of Trace Evidence Examiners (ASTEE)

Some training opportunities that were attended in 2013 include:

- Shooting Incident Reconstruction
- Entomology and Taphonomy
- GCMS Fundamentals
- Bloodstain Pattern Analysis II
- Bloodstain Pattern QA Meeting
- ASCLD/LAB Internal Auditor
- Comprehensive Fire Debris Training
- Latent Prints w/ Chemistry and Light
- 2013 NE IAI conference
- 2013 National IAI conference
- Forensic 3D Laser Scanner
- 2013 AFQAM Conference
- 2013 AAFS Conference
- 2013 ASCLD Conference

SIGNIFICANT ACHIEVEMENT

Two laboratory personnel are Certified ASCLD/LAB assessors and each served on assessment teams within the last 2 years.

The Chemistry Unit has provided significant input on legislative bills.

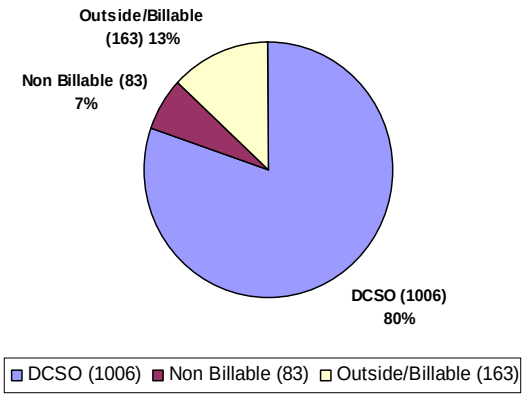
Both latent print examiners are Certified Latent Print Examiners and the CSI Field Supervisor is a Certified Senior Crime Scene Analyst through the International Association of Identification.

CRIME SCENE INVESTIGATION UNIT

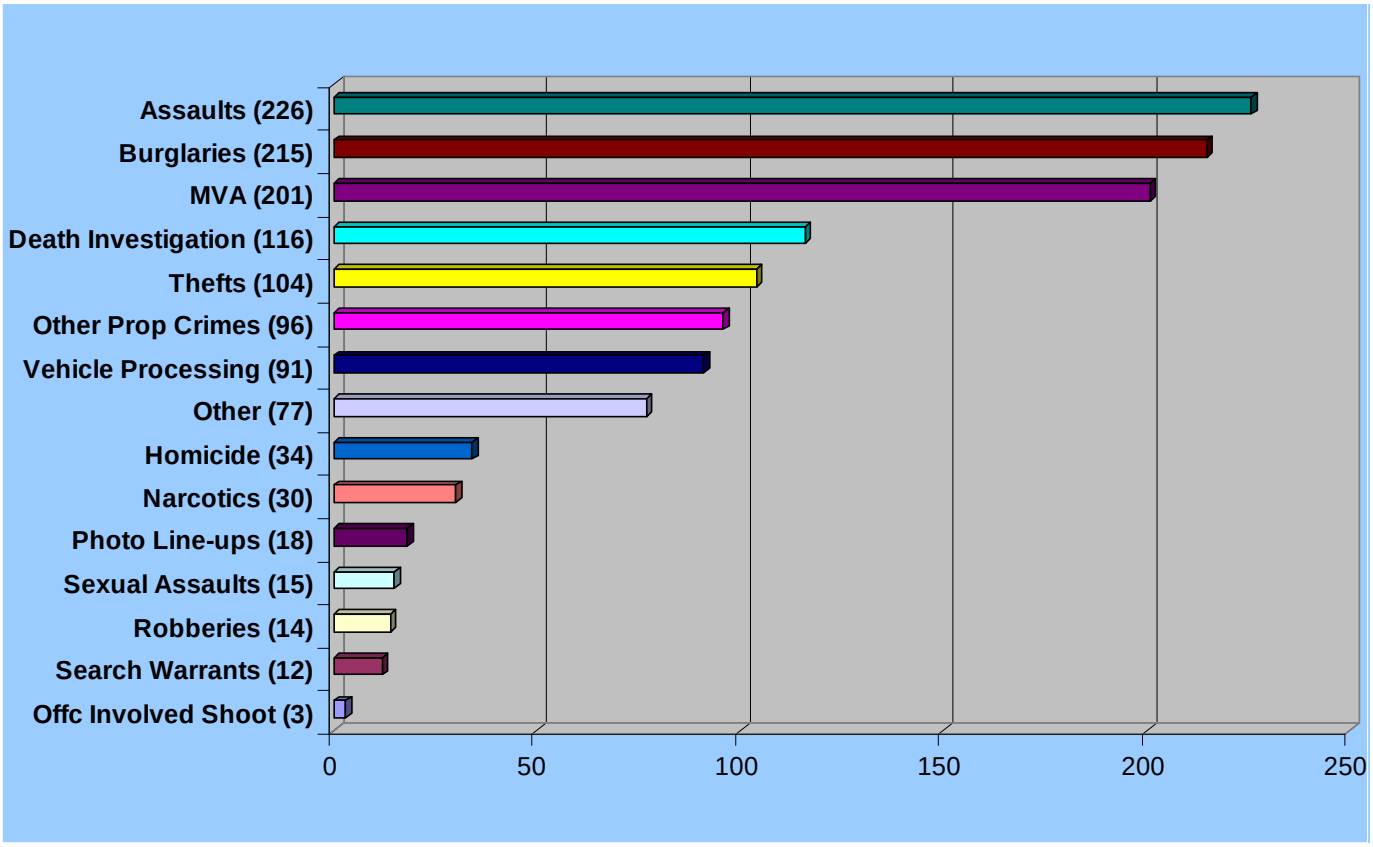
The Forensic Services Division's Crime Scene Unit is composed of a field supervisor, six full-time and two part-time Crime Scene Investigators. This unit provides forensic field services 24 hours a day, 7 days a week to the citizens of Douglas County and the surrounding area.

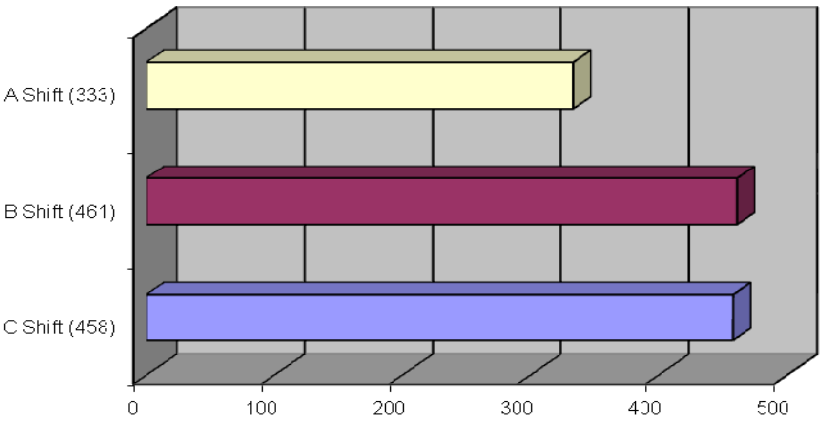
CSIs are trained and equipped to respond to all types of scenes, including but not limited to the following: Homicides, Suicides, Sexual Assaults, Shootings, Robberies, Burglaries, Thefts, and Fire Scenes. Using the most modern equipment and techniques, these highly trained professionals effectively document, identify, collect, and preserve all types of physical evidence. Each scene is processed in a manner in which the integrity of the evidence is maintained for laboratory analysis and/or court use.

The CSI Unit provides service for Douglas County Sheriff's Office and eighteen other law enforcement agencies. In 2013 the CSI Unit responded to 1,252 calls for service. Eighty percent (80%) of the calls were for Douglas County. Thirteen percent (13%) were fee-for-service from outside of Douglas County. The remaining seven percent (7%) were non-billable for outside agencies.



The top three calls for service this year were Assaults (226), Burglaries (215), and MVA (201). The following chart depicts all calls for service in 2013:

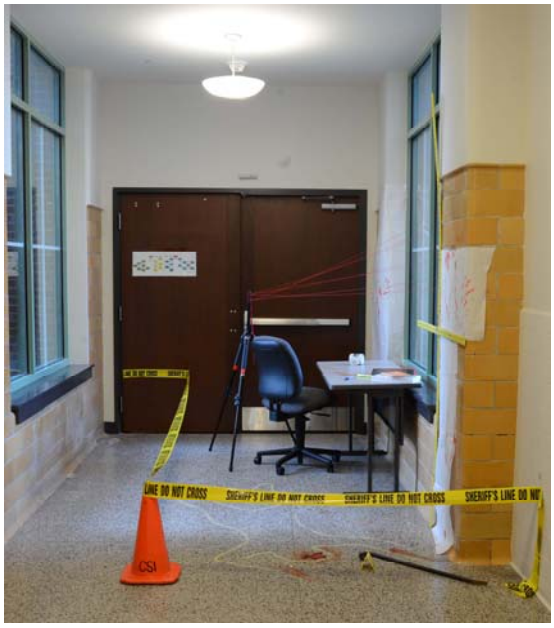




Over the past year, the CSI Unit has added several new members to its team. Each new CSI, although very skilled and educated, went through a rigorous 6 month training program before joining the talented CSI veterans. The skills that the CSI unit has developed provide a unique service to the agencies we serve.

Community Outreach:

In addition to crime scene investigation, the Crime Scene Unit provides training and educational activities for various groups in the community. In 2013, the Crime Scene Unit gave presentations to the following groups:



Glenwood Middle School
Omaha Explorers/Boyscout Day
Cub Scouts Pack 341
Bryan Middle School
Arlington Public School
Sarpy County Summer Camp
Metro Community College
Papillion Junior High School
Bellevue Teen Police Academy
Westside High School

The Crime Scene Unit was also involved in Forensic Science Week at FSD. This week-long event involved presenting a mock crime scene and several exhibits to local attorneys, the media, and the general public. Our goal was to educate these different groups on the CSI services provided at Douglas County and provide an overall understanding of the field of crime scene investigation.

During 2013, the CSI Unit provided two internships to students from Nebraska Wesleyan University and Southeast Community College. These opportunities help future forensic scientists get a real sense of what forensics is about as opposed to what they see on television or read in a book.

Research:

Members of the CSI Unit are constantly striving to improve their knowledge, skills, and abilities in order to provide a better service to the community. Conducting research projects is one avenue in which growth and improvement can be attained. In 2013, Jodi Adams conducted research in order to determine the best locations in which to collect Touch DNA when processing recovered stolen vehicles. Her research was presented at Nebraska Wesleyan University.

Later in the year, Victoria Richards began conducting research on the best methods of recovering latent prints from the exteriors of vehicles that are covered in road salt. In general, this is a difficult surface to develop fingerprints from with currently available techniques. Discovering a successful method would be very practical to the field, especially for Nebraska.

Notable Cases:

Homicide

In the early hours of August 21, 2013, the Crime Scene Unit responded to the intersection of 168th and Fort Street to begin the homicide investigation of a middle-aged, white female who was found on the street with apparent gunshot injuries. Strong winds, a lack of light, and the potential size of the crime scene were some of the challenges faced by CSI. Working as a team with assistance from Road Patrol, CID, and the County Engineers, the scene was properly lit, secured, and processed in an efficient and accurate manner.

The CSI unit also provided assistance with several labor-intensive follow-up calls to this investigation. CSIs assisted with the autopsy of the victim, processed several vehicles, and obtained exemplars from several suspects in the case. The number of photographs taken throughout this investigation gives an idea of the time and energy spent by the CSI Unit: 1, 561 photos.

Homicide (Washington County)

On Monday, December 9, 2013, the CSI Unit was requested to assist with a homicide investigation in a rural area in Washington County. The scene investigation was entirely outdoors and stretched over a two-day period in below-freezing temperatures. The investigation involved the recovery of a homicide victim and associated evidence located on the side of a 30-foot ravine. There was also evidence that was found frozen in a creek at the bottom of the ravine.

The terrain and scene conditions were quite harsh. The ravine was very steep and had thick brush that was full of thorn trees, bearing 2-8 inch spikes. One misplaced foot-step could have resulted in a very painful fall. Due to the steepness and snow cover, ropes had to be used to scale up and down the ravine. This required some strategy and agility when transporting bulky equipment and evidence. The most challenging feat of the scene was extracting evidence encased in several inches of ice. This is not something that is commonly encountered in crime scene investigation and is not an easy task. After a very lengthy and well thought-out procedure, the CSI Unit was able to successfully recover the items from the ice without damaging or destroying them.

This scene was pretty intense and exhausting, but it revealed the strong character and dedication of the CSI Unit. Our efforts were rewarded when we received the thumbs-up and accolades from the very appreciative investigators from Washington County.

Achievements:

During 2013, CSIs had the following individual achievements:

Heather Rohwer and Victoria Richards successfully completed FSD's CSI structured training program

Justin Aumann achieved certification as a Senior Crime Scene Analyst

C.L. Retelsdorf recertified as a Crime Scene Analyst

Shanon Tysor recertified as a Crime Scene Investigator

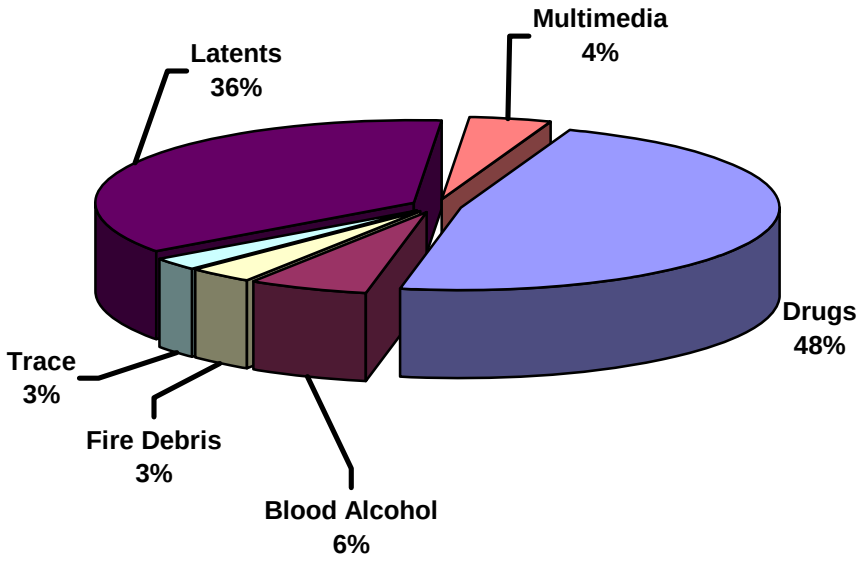
Jodi Adams earned a Master's of Science in Forensic Science degree from Nebraska Wesleyan University

Angie Olson processed the most CSI calls for service during 2013

LABORATORY: Chemistry, Latent Prints, Multimedia

The laboratory part of the Division is comprised of three units; chemistry, latent prints and multimedia. The chemistry unit conducts controlled substance analysis (drugs), blood alcohol content, fire debris analysis and trace evidence.

The graph below shows the percentage breakdown of work performed in the various disciplines. As expected, controlled substances and latent prints have the greatest number of laboratory requests.



CHEMISTRY UNIT

The Chemistry Unit (CU) provides forensic examinations in controlled substances, trace evidence, fire-debris, and blood alcohol. 2013 has proven to be the busiest year yet for the Chemistry Unit (CU) with the total number of requests completed being higher than even what we saw in our previously busiest year, 2010. There are three trained chemists, however due to staffing issues only one of the chemists works in the unit full time.

Happenings

In 2013, personnel in the Chemistry Unit had the opportunity to participate in the first ever National Forensics Week and in addition to getting to show off all of our equipment and showcase our Unit, we were able to provide a couple of well-attended presentations to attendees on current topics in the forensic laboratory world.

Chemistry Unit personnel continue to be a part of educating both the public and legal personnel about the new trends and dangers of Designer Drugs – one CU analyst even had the opportunity to speak about the synthetic cannabinoid issue for about 10 seconds on a national television show!

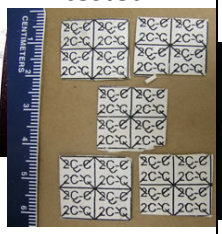
On this same topic, the Chemistry Unit worked closely with the Nebraska Attorney General's Office to draft the technical language for LB19, a bill that updated the synthetic cannabinoid classes and added substituted tryptamines and substituted phenethylamines as new designer drugs. A CU analyst then testified at the request of the judiciary committee to help them understand the complicated nuances of the bill. LB19 was passed in 2013, adding classes to the Nebraska Controlled Substance Act that cover the newest generation of synthetic cannabinoids and additional types of designer drugs that are being seen across the United States. There is still more work to be done in this area, and the Chemistry Unit appreciates the willingness of the Nebraska legislature and Attorney General's Office to work with local chemists to make sure we have the most appropriate and effective laws possible.

Analysts in the Chemistry Unit volunteered their time for additional community and law enforcement education events including the Science Olympiad, Girl Scouts, Boy Scouts, FBI Training, and for the International Association of Arson Investigators as well as numerous other tours and lectures as needed throughout the year.

2013 Trends

The most apparent trend this past year is related to the slight decline in the number of submissions of designer drugs, in particular the synthetic cannabinoids. Within a short time of the legislation passing in early 2013, the lab began to see samples of synthetic cannabinoids that contained a new generation of research chemical that were not covered in the most recent legislation however the total number of cases being submitted has declined. Analysis of these cases is often more complicated and time-consuming than for typical drug cases as new derivatives of these substances must be identified, and often guidance is requested from those involved in prosecuting these cases.

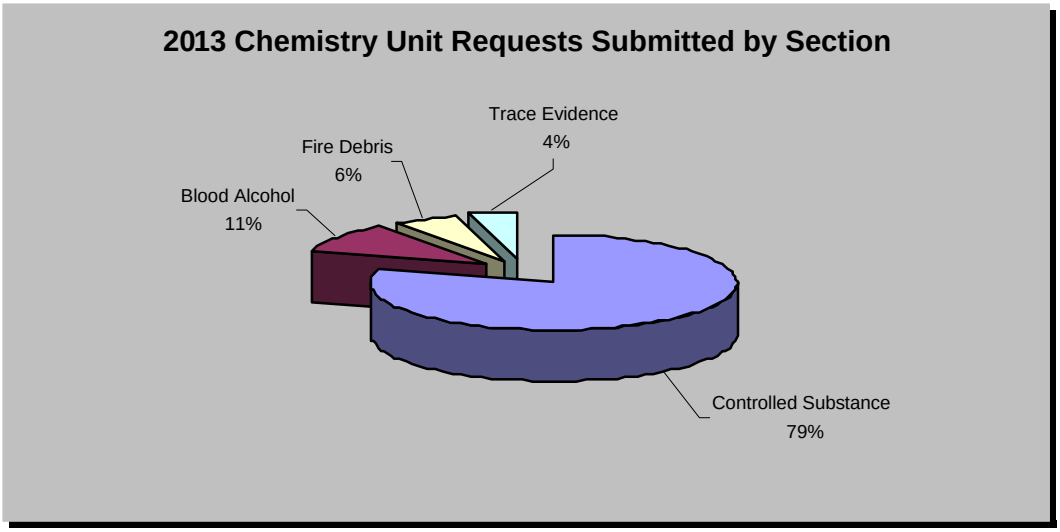
In 2013, the Chemistry Unit **tested and identified 47 samples of designer drugs**; this number includes synthetic cannabinoids, substituted cathinones, substituted phenethylamines, substituted piperazines and substituted tryptamines. This is a decrease from the number of these types of samples being tested in 2012; perhaps an indication that the legislation and education of the public are working at some level.
The following are some of the research chemicals sold as “designer drugs” that were seen in the Chemistry Unit in 2013. Submissions consisted of unknown white powders, unmarked capsules, herbal material and illicit tablets.

Synthetic Cannabinoids 15 samples tested	Substituted Cathinones 24 samples tested	Substituted Tryptamines 3 samples tested	Substituted Piperazines 3 samples tested	Substituted Phenethylamines 2 samples tested
 XLR-11 ADB-PINACA 5F-PB-22 AB-PINACA AKB-48	 4-MEC 3-MEC Methylone Alpha-PVP	 5-MeO-DMT	 BTCP TFMPP	 25-I-NBOMe

Of the chemicals listed above; ADB-PINACA, 5F-PB-22, AB-PINACA, AKB-48 and TFMPP are currently not controlled in Nebraska.

2013 Chemistry Unit Requests

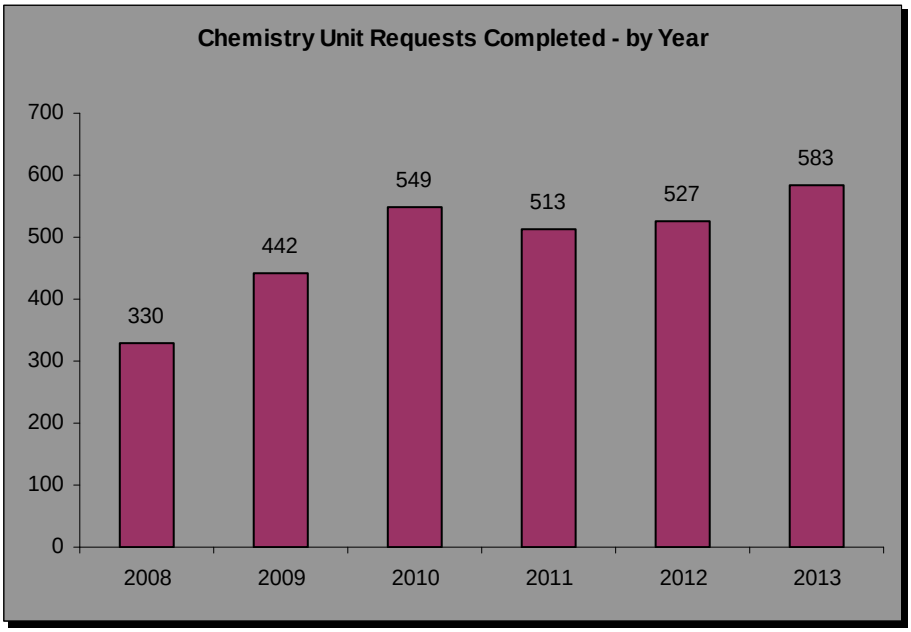
Total Number of Requests Submitted: 641



Controlled Substances----------	506
Blood Alcohol----------	72
Fire Debris----------	35
Trace Evidence----------	28

Total Number of Requests Completed: 599

Average Number of Samples per Case: 3.8

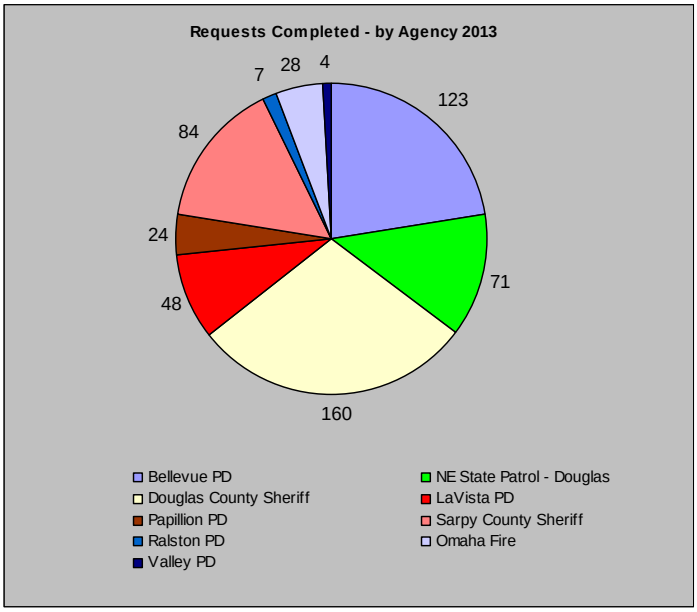


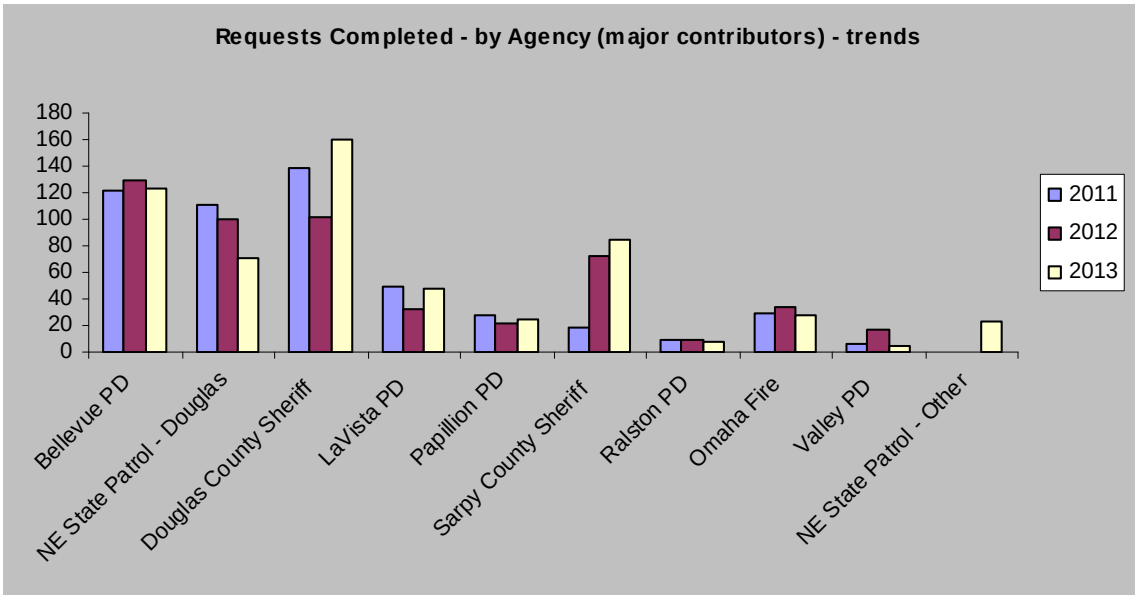
Customer Summary

As part of the FSD, the Chemistry Unit provides services for many law enforcement agencies both within Douglas County and from surrounding areas. In 2013, the Chemistry Unit **provided services for a total of 16 agencies, including its parent agency.**

Following is a complete list of agencies served by the Chemistry Unit in 2013:

Douglas County Sheriff
Bellevue Police
LaVista Police
Nebraska State Patrol - Douglas
Columbus Police
Nebraska State Patrol – Other
Ralston Police
Sarpy County Sheriff
Valley Police
Homeland Security
FBI
Papillion Police
Omaha Police
Omaha Fire Department
Waterloo Police
Nebraska State Fire Marshall



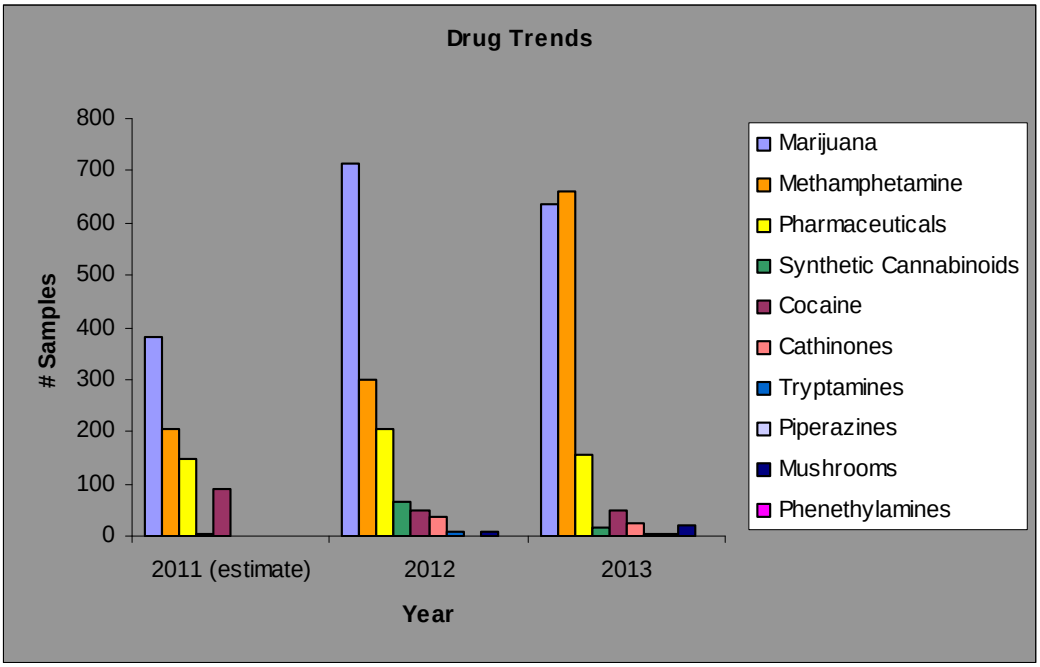


Controlled Substances Section

In 2013, Marijuana and Methamphetamine continued to be the most tested drugs in the Controlled Substances Section. These were followed by Pharmaceuticals, with the other drugs listed at similar numbers to each other. If you combined the synthetic cannabinoids, tryptamines, piperazines and phenethylamines (the designer drugs) the number of those items tested would almost equal that of cocaine items tested. This is still a huge increase in these types of submissions compared to just 2 years ago.

Average Turn-Around Time:
Drugs: 47 days *(30% increase from 2012)*

Number of backlog cases (at end of 2013):
Drugs: 79 cases



Substance	% Increase/Decrease since 2012
Marijuana----------	11% decrease
Methamphetamine----------	120% increase
Pharmaceuticals----------	24% decrease
Synthetic Cannabinoids----------	76% decrease
Cocaine----------	2% increase
Substituted Cathinones----------	36% decrease
Substituted Tryptamines----------	57% decrease
Substituted Piperazines----------	100% increase
Mushrooms----------	185% increase
Substituted Phenethylamines------	100% increase

Blood Alcohol Section

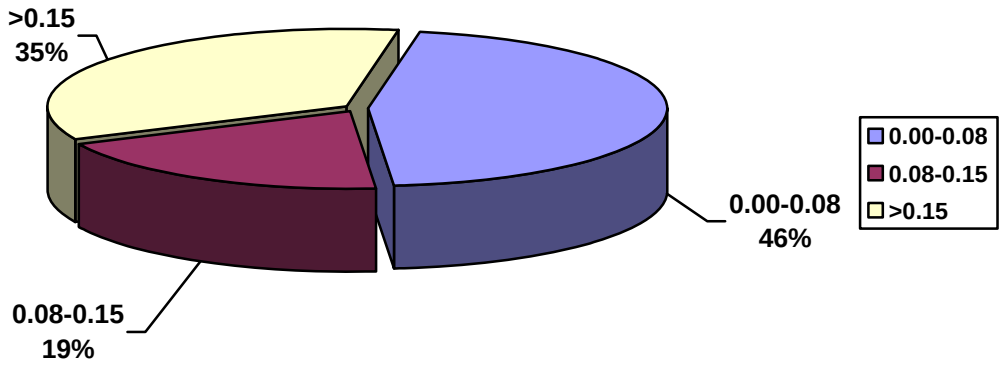
In 2013, the Chemistry Unit was **requested to test 72 cases** to determine the alcohol level in blood samples.

Average Turn-Around Time: 15 days

Reported Blood Alcohol Levels

Of the **72 cases whose results were tracked**, the following information was compiled:

Negative Result----------	23
0.00 – 0.08----------	10
0.09 – 0.15----------	14
0.16 – 0.23----------	22
> 0.24----------	3



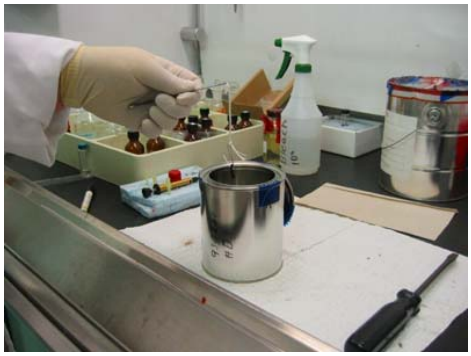
The highest blood alcohol for 2013 was **0.379 grams of ethanol/ 100 milliliters of blood.**

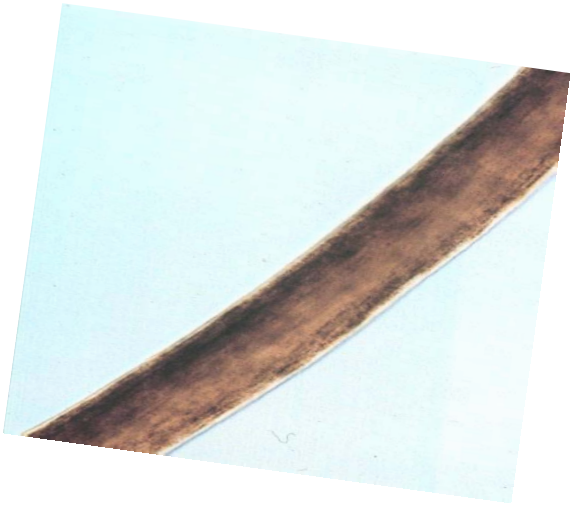
Trace Evidence Section

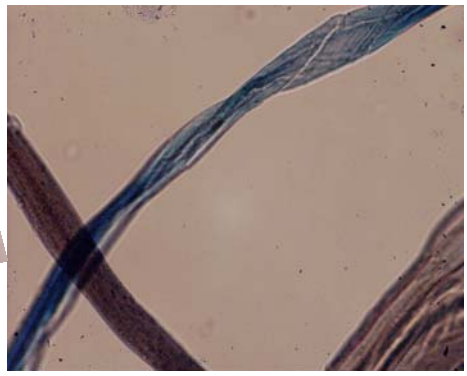
2013 saw a continuation of trace evidence submissions in the form of fire debris, paint, fibers, biological fluid searches, explosives, suspected poisonings and unknown substance identifications. This year, personnel in the trace evidence section completed proficiency tests in unknown substance identification, fire debris analysis, paint analysis, hair examinations, hair screening and fiber examinations.

The Chemistry Unit hopes to hire additional Forensic Chemists in 2014 to allow analysts to spend more time on the large number of trace evidence cases submitted, particularly requests for paint analysis and PDQ unknown paint identification searches.

The trace evidence section is currently evaluating the services that can be offered. Due to staffing and the instrumentation needed for these analyses, some areas of trace evidence may not be offered in the future. Trace evidence examinations can provide substantial investigative leads. We hope rather than limit trace examinations we can grow this area as it would be an added benefit to the law enforcement community of the surrounding areas and Nebraska as a whole.





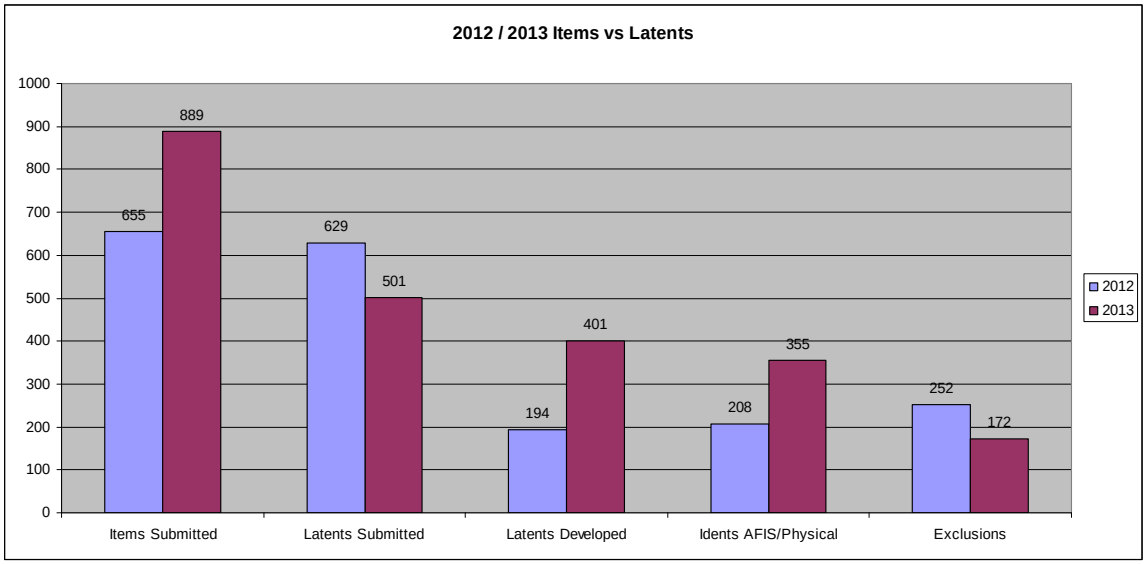


LATENT PRINT UNIT

As another successful year comes to a close, let's take a look at the Latent Print Unit and see how the 2013 calendar year stacked up.

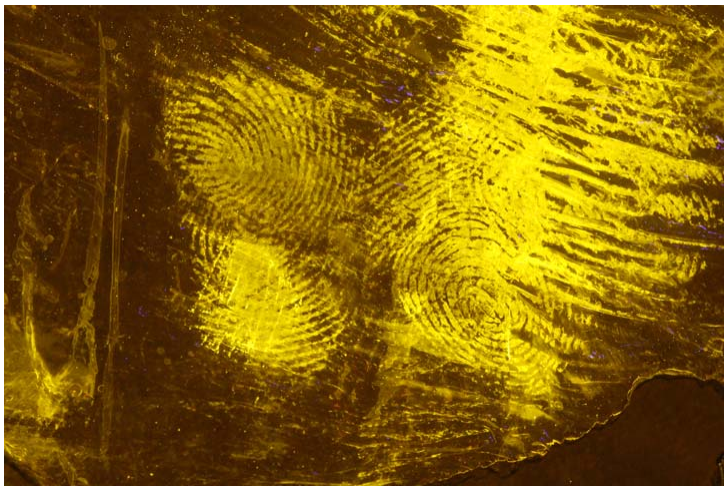
The Latent Print Unit processed 388 forensic cases containing a total of 889 items of evidence. Cases ranged from destructions of property to kidnappings to homicides. Over 900 latent prints were either submitted from crime scenes or developed in the lab by LPU personnel. Of those 902 latent prints, 355 were identified. This is a substantial increase from previous years. Below shows a comparison between 2012 and 2013.

The Latent Print Unit also performed more AFIS work than ever before. They performed over 2500 reverse fingerprint searches and 37 reverse palm searches.



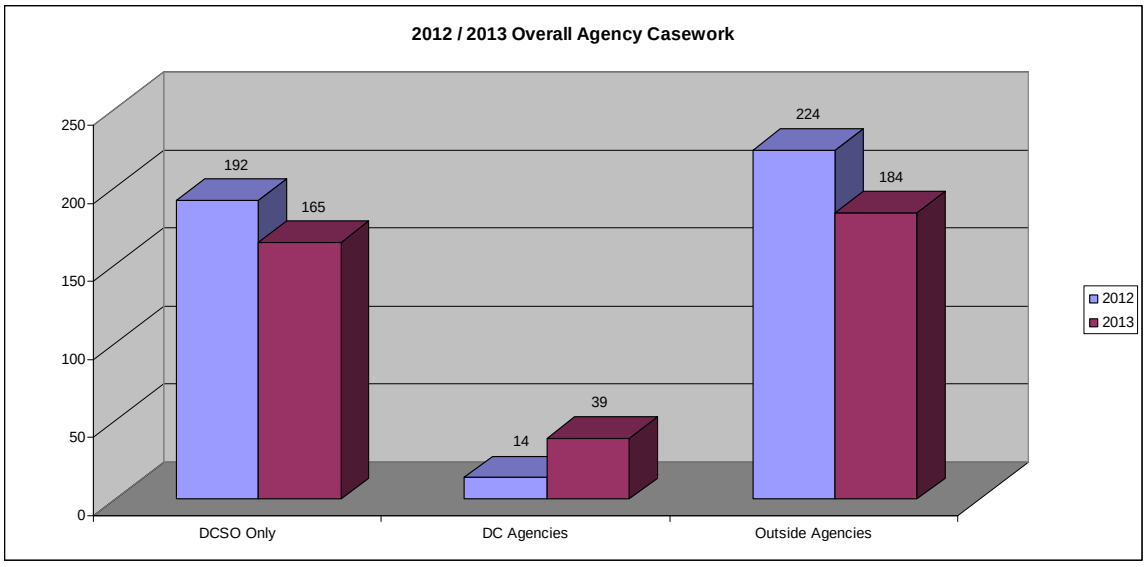
These are searches that take newly submitted 10-prints and compare them with previously retained latent prints. Of these reverse searches, seven resulted in identifications to previously unidentified suspects that had been arrested for

unrelated crimes. The Latent Print Unit also assisted the Nebraska State Patrol by completing over 600 quality control reviews of new ten print submissions. NGI, or Next Generation Identification, was also utilized more than ever by the LPU. A total of 27 searches were performed through NGI, the FBI's newly rolled-out and upgraded IAFIS. In addition to searching a national criminal database, the LPU can now search a national civil database as well. The DCSO LPU was the first ones in the state to get this connectivity, called DLC or direct latent connectivity.



The Latent Print Unit continued to work with federal agencies in 2013, including the United States Secret Service (USSS) and the Drug Enforcement Agency (DEA). The cases submitted were processed in an expedited manner and led to the identification of suspects, some unknown to the specific agency investigation.

The Latent Print Unit saw a slight decrease in casework from outside agencies for latent print work from 2012 to 2013 but a more than double increase from agencies within Douglas County. Outside agencies include law enforcement entities outside of Douglas County. The graph below shows the difference between 2012 and 2013 agency casework.



2013 also saw the continuation and successful completion of proficiency testing for both people in the LPU. It was a big year for certification as well. Josh


International Association for Identification

This Certifies That

Joshua L. Connelly

having complied with and successfully completed all requirements and tests as set forth by the Latent Print Certification Board of the International Association for Identification is hereby declared qualified as a

Certified Latent Print Examiner

as witnessed on December 4th in the year Two Thousand and Thirteen.

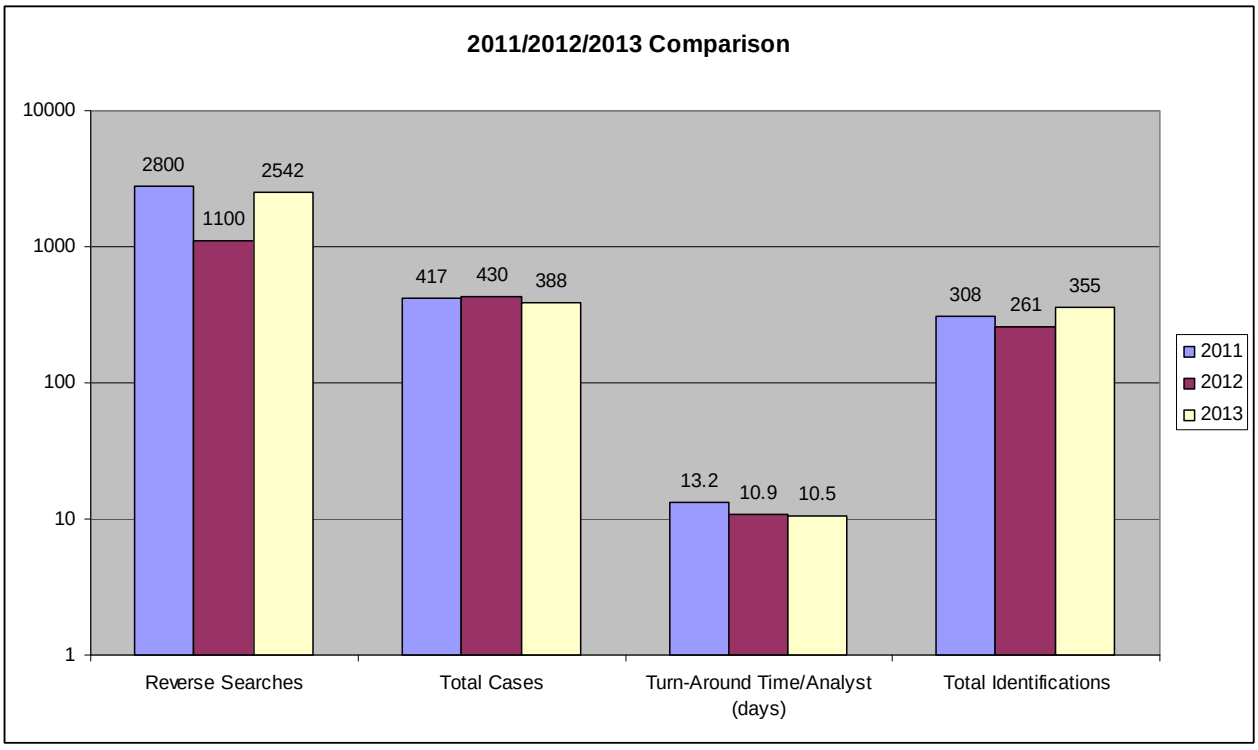
Secretary of the Board

Chair of the Board

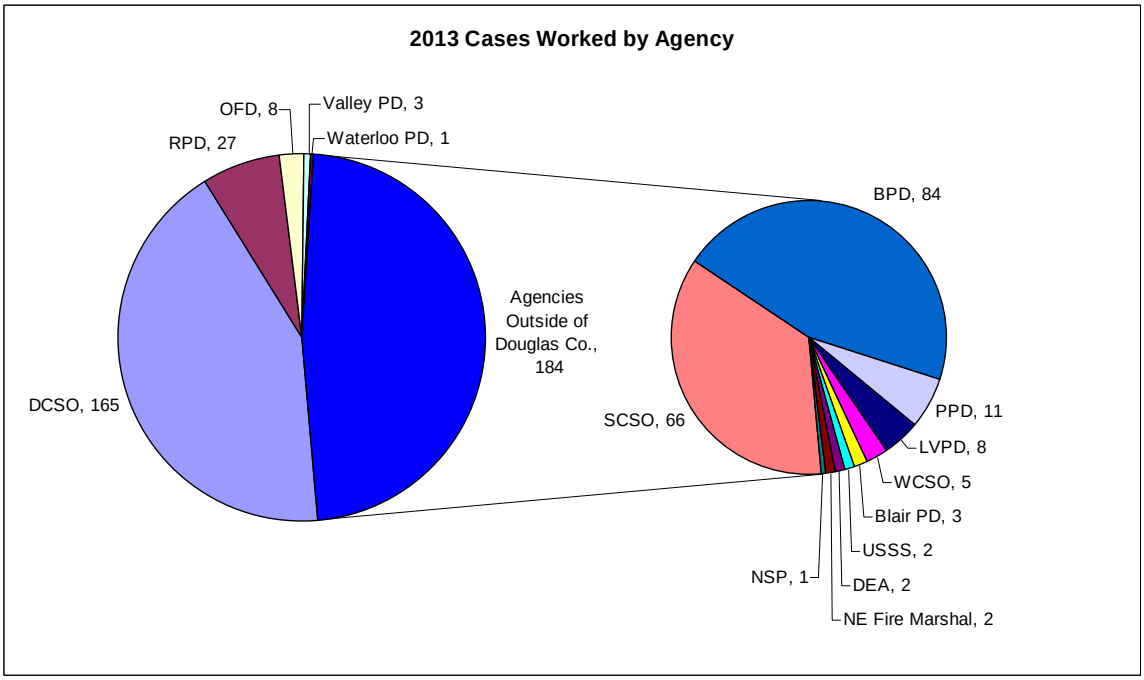
12-111

Connelly earned the title of Certified Latent Print Examiner through the International Association for Identification. This test is comprised of four parts, the first three being a rigorous test of knowledge, aptitude, sufficiency determinations and latent print comparisons. The fourth part includes submission of transcripts of latent print court testimony as well as charted latent print identification enlargements. Josh is the first ever member of the Douglas County Sheriff's Office to hold this certification and is now in an elite group of certified examiners. There are only three practicing certified examiners in the State of Nebraska and under 900 practicing examiners worldwide. Angie Olson completed and successfully passed the first three parts of the certification exam on December 30th, 2013 and as soon as the transcripts and enlargements are submitted and approved, she will be the second examiner in DCSO history to be certified as a latent print examiner.

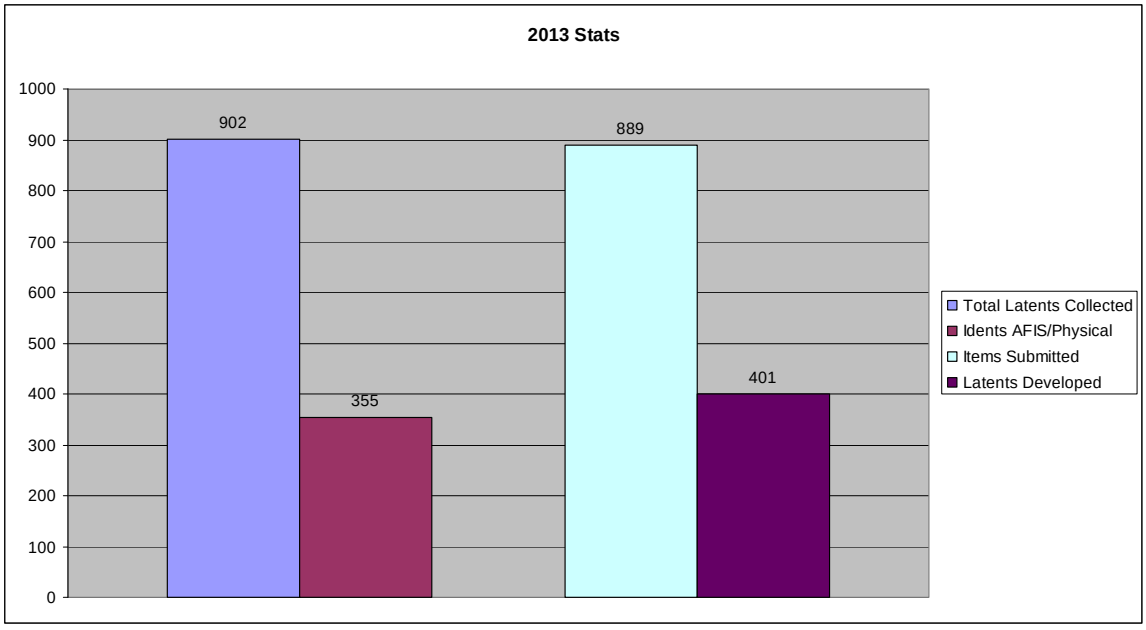
Ms. Olson also participated in the 98th Annual International Association for Identification Conference in Rhode Island, teaching a workshop on friction ridge development on thermal paper. This marks her third such teaching engagement,

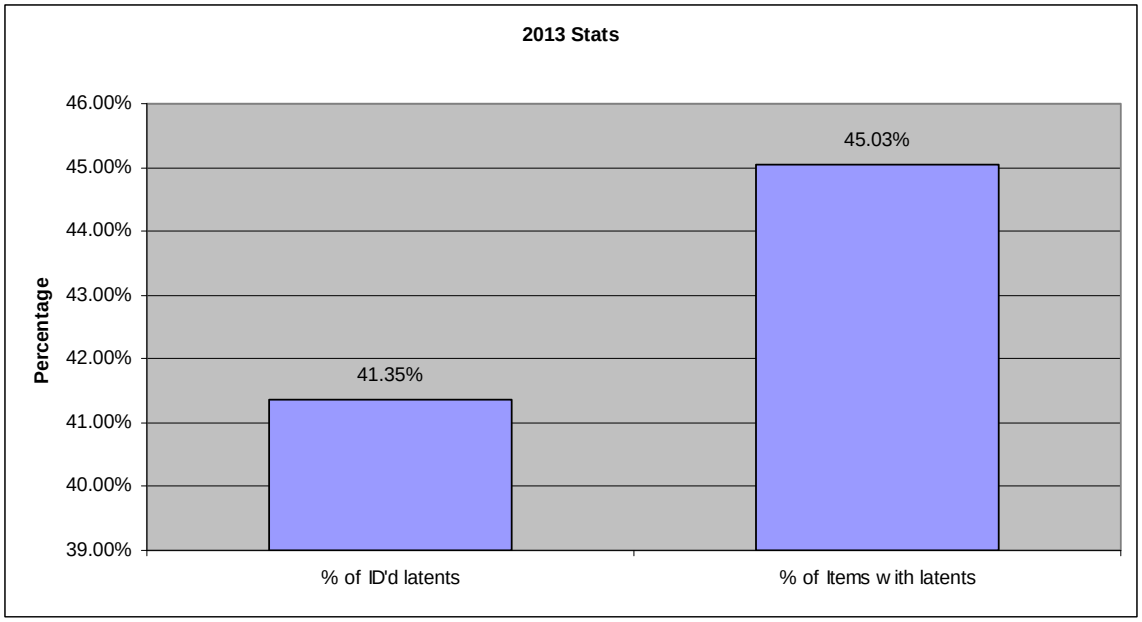


twice at the IAI's annual conference and once at the Texas Division IAI's conference this year.

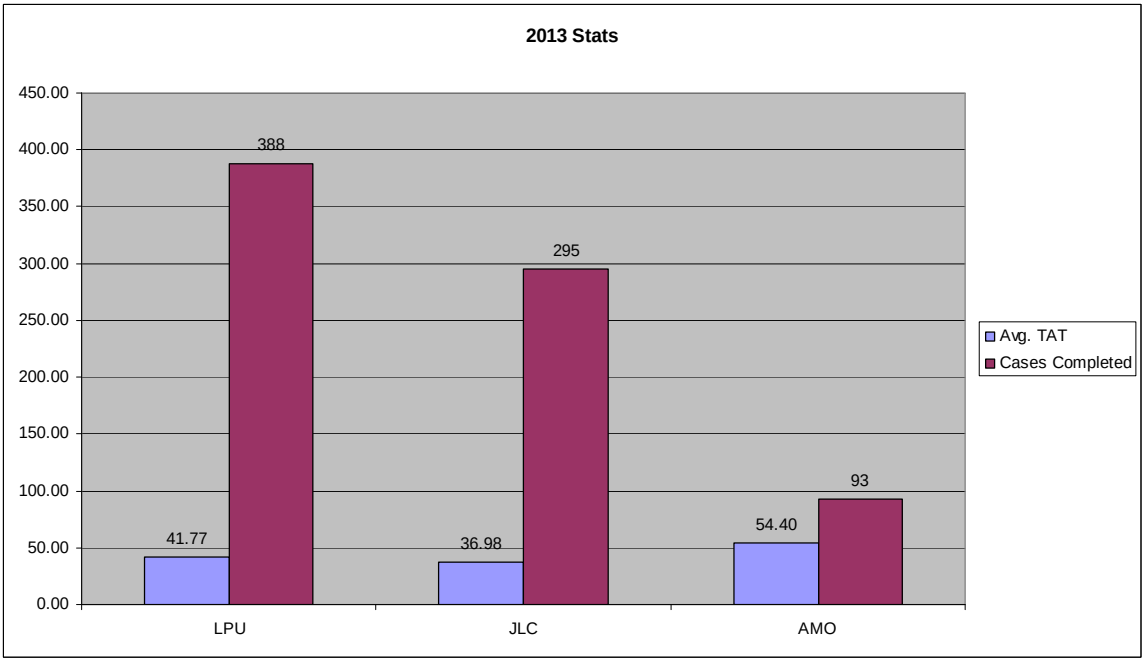


This year, the Latent Print Unit also received a fully-enclosed, ninhydrin development chamber. This chamber will allow for the expedient processing of porous evidentiary items as it is temperature and humidity-controlled by the user. Its use in 2014 will undoubtedly be tremendously beneficial to the LPU and all of the agencies they work with.

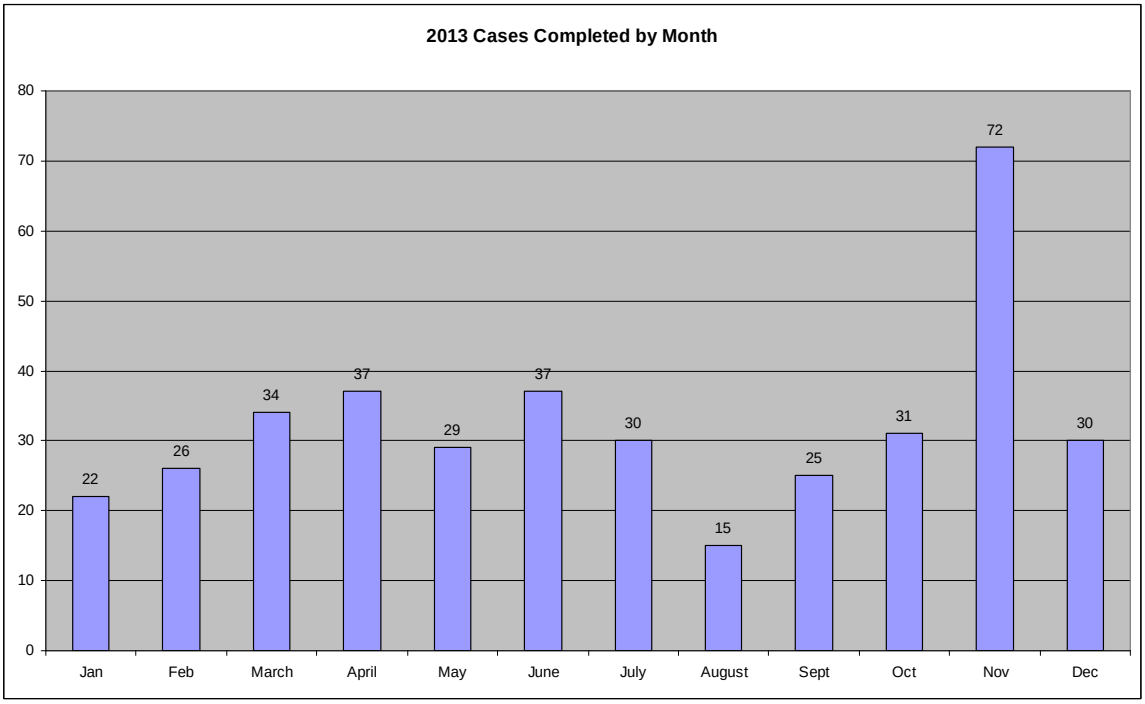




The ability to properly identify latent prints, regardless of who they belong to, is paramount to an investigation. If the only available latent prints are identified to the victim(s), and no other physical evidence remains, the case can be closed due to lack of evidence. If there are outstanding latent prints, meaning they are identifiable but not yet identified, that can assist the investigators in their investigations of the cases. In 2013, 41% of the latents that were recovered were identified, either to victims or suspects. This accounts for all latent prints recovered, not just identifiable latent prints.



November saw a large increase in case completions over the other months of 2013. On average, 32 cases were completed each month by the Latent Print Unit.



MULTIMEDIA UNIT

While the Multimedia Unit's primary responsibility is to process video related to criminal investigations, the unit is also responsible for completing requests for video copies, audio copies, video conversions, digital image enhancements and managing the nearly 60,000 digital images the Crime Scene Unit captures every year while processing scenes. There is currently one analyst assigned to the Multimedia Unit who also processes crime scenes for the Crime Scene Investigation Unit.

The multimedia unit has been in the process of revamping its capabilities and responsibilities to fit the needs of the Forensic Services Division, the Douglas County Sheriff's Office and ultimately the community of Douglas County and the agencies we serve.

INTERN PROGRAM

The Forensic Services Division has a very active internship program. The program is on-going throughout the year and interns are currently accepted on a first come first serve basis. Accepted interns must complete a background investigation and may be assigned into one of the units. Internships are a great opportunity for students looking to get into the field of forensic science. Interns assist in administrative duties, projects in the assigned unit and possibly research.

In 2013, we had interns from the following programs:

Southeast Community College
Nebraska Wesleyan
University of Nebraska- Omaha

COMMUNITY OUTREACH

Requests are received weekly asking for tours, job shadows, or training and educational presentations to various groups in the community. In 2013, we held a variety of events for National Forensic week including tours and/ or presentations for the general public, attorneys, legislatures and our outside agencies.

Some of the groups included:

- Papillion-Lavista High School
- Milliard North High School
- Metro Community College
- Atlantic High School
- Boy Scout Troops
- Cub Scout Troops
- Bellevue University
- Missouri Valley High School
- Mars Magnet School

The members of the Douglas County Sheriff's Department Forensic Services Division are committed to the following principles:

Service
Furnish timely and accurate results with reasonable scientific certainty by providing clear and concise reports and by treating all agencies and their evidence with care, respect, professionalism, and confidentiality.

Quality
Provide the highest quality forensic work to our customers through utilizing only validated procedures that are recognized by the forensic community and by implementing standards in compliance with ISO/IEC 17025:2005 and the ASCLD/LAB accrediting body.

Integrity
Perform forensic analyses within the parameters of observing the utmost ethical awareness and integrity in the pursuit of the unbiased truth.

Accountability
Ensure the reliability of analytical results through investing in competency testing of all personnel in each forensic discipline in which they work, and by requiring proficiency testing on an on-going basis.

Development
To further the development of personnel by providing training opportunities in the latest forensic trends and encouraging membership and active participation in appropriate and reputable forensic science organizations.