I. Problem Statement

Overview

Forensic Technical Support in Law Enforcement

Within the law enforcement community a pivotal and vital task in the effective discovery, documentation, and judicial prosecution of criminal offenders rests largely upon the specific skills and capabilities of the forensic crime scene investigator. The successful investigation and prosecution of crimes require, in most cases, the collection, preservation, and forensic analysis of crime scene evidence. Forensic analysis of evidence is often crucial to making an arrest, arresting the right person and determining guilt or innocence. The proper collection, preservation, and forensic analysis of evidence are tremendous tools that must be fully exploited.

Forensic technicians recognize the importance of evidence including but not limited to fingerprints, shell casings, bullet holes, or murder weapons. They are trained in the interpretation of blood spatter and understand how to determine the direction from which it came. In addition they must are skilled at accurately measuring and recording the length and width of blood drops as well as the dimensions of the crime scene, with pertinent inclusions of relative physical locations of objects within the crime scene.

Simply documenting and recording most evidence requires little training. Officers and technicians do not have to learn the trigonometric formulas and calculations involved in interpretation, even for such categories as blood spatter analysis. Measurement training does not require weeks of classroom lectures and months of on-the-job experience. Instead, law enforcement personnel can learn the measurement and photography procedures in as little as 2 days at police academy classes, college criminal justice courses, or in-service seminars. Other skills can generally be acquired and developed in one – two week training sessions.

A basic understanding of crime scene analysis allows the first responding officer, crime scene technician, or detective to assist in correctly collecting and preserving the evidence at the scene. The principles and procedures are not complicated. The interpretation of the crime scene and the evidence obtained there from may support or contradict statements given by witnesses. The forensic tech and/or crime scene analyst may use blood spatter interpretation and other types of evidence to determine what events occurred, when and in what sequence they occurred, who was or was not present and what did *not* occur.

Well-trained and experienced officers can often tell the direction of travel (visible with the naked eye) of bullets or a spot of blood. They often know how to find the distance from a blood drop to the point from which the blood came (also visible with the naked eye) and how to record those measurements. Accurate measurements and the photographs are often all that an expert requires to analyze the evidence at a later time.

Forensic technicians have an immense understanding of forensic science[1] and they serve to support and enhance a more thorough and effective investigation. In the forensic portion of an investigation, officers or crime scene technicians often record some evidence for later interpretation by experts in seemingly unrelated fields.

In addition to use in solving crimes at the local level, Forensics is also an essential tool in combating terrorism in that it provides evidence that establishes links and associations that can withstand judicial scrutiny in the United States and abroad. Moreover, comprehensive crime scene searches and the subsequent forensic analysis of evidence is sometimes the only solid intelligence that exists or the only mechanism to corroborate other intelligence reporting. FBI forensic analysis was essential in piecing together the evidence to identify those responsible for, as well as the supporters of, every terrorist attack against the United States, including the mid-air bombing of Pan Am Flight #103, the bombing of the World Trade Center in 1993, the bombing of the Oklahoma City Federal Building in 1995, the bombing of the two United States Embassies in East Africa, the attack against the U.S.S. Cole, and the 9/11 attacks on the World Trade Center and the Pentagon.

Recent publications indicate that after several years of decline, violent crime rates are once again increasing significantly in the United States. Forensic resources are increasingly being called upon to support high profile criminal investigations. The evolving threat environment requires the rapid deployment of forensic examiners to virtually every violent crime scene in order to collect and preserve evidence that could otherwise be lost forever. In order to meet the growing demands and in order to provide the optimum level of forensic services to their respective communities at the local level, local forensic experts need to assist in the development of the forensic capabilities of neighboring jurisdictions while at the same time leveraging the existing capabilities within their own jurisdiction and surrounding areas. This can be accomplished through partnerships with other forensic laboratories and nearby scientists or labs and scientists at the state and federal level. It is imperative that constant improvements in forensic analysis be sought through a robust research and development program and that these improvements be quickly deployed to support the entire forensic community, *starting at the local level*.

The proper collection, preservation, and forensic analysis of evidence from the scene of a major crime is critically important. There is only one opportunity to do it correctly otherwise, critical links and evidence may be lost forever. The constant threat of violent crime requires a timely forensic response. The need for these services will increase over the next few years, and law enforcement agencies must be able to meet this demand. Without a doubt, as criminals become smarter, the expertise of forensic analysts will be called upon to address major crimes in all areas of the United States. This will naturally include the initial processing of crime scenes as well as expert examination of evidence.

Local law enforcement agencies within the United States will be able to accomplish their mission and support their priorities through the collection and examination of evidence as well as through continual state-of-the-art forensic science research and by training counterparts throughout the professional community.

[1] For the purposes of this paper, the terms “Forensics” and “Forensic Science” will be used interchangeably.

Forensics[2]

Forensic science (often shortened to forensics) is the application of a broad spectrum of sciences to answer questions of interest to the legal system. This may be in relation to a crime or to a civil action. The use of the term "forensics" in place of "forensic science" could be considered incorrect; the term "forensic" is effectively a synonym for "legal" or "related to courts" (from Latin, it means "before the forum"). However, it is now so closely associated with the scientific field that many dictionaries include the meaning given here. In this paper, the terms *Forensic Science* and *Forensics* are used synonymously.

Forensic analysis is important in the investigation of violent crimes because violent crime scenes often contain a wide variety of biological evidence, most of which can be subjected to DNA testing. Although not always visible to the naked eye, such evidence often is key to solving a crime, obtaining a conviction, or exonerating the falsely accused. For example, during a sexual assault, the perpetrator may leave blood, hair, saliva, semen, and skin cells on the victim's body, clothing, or carpeting or elsewhere at the scene. Scientists compare the collected biological samples against the DNA of the victim, the suspect, and any other potential suspects who may have had access to the scene. If no suspect exists, a DNA profile from the crime scene can be entered into the Combined DNA Index System (CODIS) to identify a suspect or to link serial crimes. (See "CODIS.")

Forensic technicians should carry out their work at the crime scene as if it were the only opportunity to preserve and recover physical clues. Keeping DNA evidence untainted until it has been collected and recorded is the most important aspect of managing the evidence. Proper collection is essential for successful DNA testing. Because prosecution of a case can hinge on the state of the evidence as it was collected, Police investigators should take precautions, such as wearing disposable gloves and avoiding touching any other objects while handling such evidence, to avoid contamination.

History of Forensics[3]

The "Eureka" legend of Archimedes (287-212 BC) can be considered an early account of the use of forensic science. In this case, by examining the principles of water displacement, Archimedes was able to prove that a crown was not made of gold (as it was fraudulently claimed) by its density and buoyancy.

The earliest account of fingerprint use to establish identity was during the 7th century when a debtor's fingerprints were affixed to a bill, which would then be given to the lender. This bill was legally recognized as proof of the validity of the debt.

The first written account of using medicine and entomology to solve (separate) criminal cases is attributed to the book Xi Yuan Ji Lu (translated as "Collected Cases of Injustice Rectified"), written in 1248 China by Song Ci (1186-1249). In one of the accounts, the

[2] Wikipedia
[3] Wikipedia

case of a person murdered with a sickle was solved by a death investigator who instructed everyone to bring their sickles to one location. Flies, attracted by the smell of blood, eventually gathered on a single sickle. In light of this, the murderer confessed. The book also offered advice on how to distinguish between a drowning (water in the lungs) and strangulation (broken neck cartilage).

In sixteenth century Europe, medical practitioners in army and university settings began to gather information on cause and manner of death. Ambroise Paré, a French army surgeon, systematically studied the effects of violent death on internal organs. Two Italian surgeons, Fortunato Fidelis and Paolo Zacchia, laid the foundation of modern pathology by studying changes which occurred in the structure of the body as the result of disease. In the late 1700s, writings on these topics began to appear. These included: "A Treatise on Forensic Medicine and Public Health" by the French physician Fodéré, and "The Complete System of Police Medicine" by the German medical expert Johann Peter Franck.

In 1775, Swedish chemist Carl Wilhelm Scheele devised a way of detecting arsenous oxide, simple arsenic, in corpses, although only in large quantities. This investigation was expanded, in 1806, by German chemist Valentin Ross, who learned to detect the poison in the walls of a victim's stomach, and by English chemist James Marsh, who used chemical processes to confirm arsenic as the cause of death in an 1836 murder trial.

Two early examples of English forensic science in individual legal proceedings demonstrate the increasing use of logic and procedure in criminal investigations. In 1784, in Lancaster, England, John Toms was tried and convicted for murdering Edward Culshaw with a pistol. When the dead body of Culshaw was examined, a pistol wad (crushed paper used to secure powder and balls in the muzzle) found in his head wound matched perfectly with a torn newspaper found in Toms' pocket. In Warwick, England, in 1816, a farm laborer was tried and convicted of the murder of a young maidservant. She had been drowned in a shallow pool and bore the marks of violent assault. The police found footprints and an impression from corduroy cloth with a sewn patch in the damp earth near the pool. There were also scattered grains of wheat and chaff. The breeches of a farm laborer who had been threshing wheat nearby were examined and corresponded exactly to the impression in the earth near the pool.

In the United States, crime laboratories have been organized by agencies that foresaw their potential application to criminal investigation. Since the 1960's the number of crime labs in the United States has increased due to the courts demanding secure scientifically evaluated evidence. Many local crime laboratories have been created solely for the purpose of processing evidence. Currently most of their energy and funds are used to analyze drugs and DNA. The oldest American forensics laboratory was created in 1923 by August Volmer. It is in Los Angeles, California.[4]

[4] Saperstein, Richard, "Criminalistics: An Introduction to Forensic Science," pp. 1-22. Prentice Hall, Inc.

Applications and subdivisions[5]

Criminalistics is the application of various sciences to answer questions relating to examination and comparison of biological evidence, trace evidence, impression evidence (such as fingerprints, footwear impressions, and tire tracks), controlled substances, firearms, and other evidence in criminal investigations. Typically, evidence is processed in a crime lab. This is the division of forensic science most often reported in the media and depicted in popular fiction.

Forensics as an Academic Discipline[6]

In contemporary society, Forensics is the application of science to those criminal and civil laws that are enforced by police agencies in the criminal justice system. The focus of Forensic Science is the Crime Lab using the principles and techniques of Biology, Chemistry, Physics, Geology, Anthropology and other sciences in order to place physical evidence into a professional discipline.

Although there are universities that offer forensic science as an undergraduate major it is usually unnecessary to have a degree in forensic science to be a forensic technician at the local level. However, some forensic technician positions in large metropolitan areas do require a 2-year or 4-year degree. Never-the-less, a 4-year degree in a science major is almost always unnecessary at the local level. Furthermore, when a degree is required by an agency, as a general rule, a major in chemistry, biology, physics, microbiology, genetics, or medical technology will work equally well.

Forensic Services Provided to the Criminal Justice Community

The basic services that are provided to the criminal justice system by a full-service Forensics Department operating within a law enforcement agency are (1) The application of the principles of Physical Science to the crime scene, (2) Biological Comparison and Identification, (3) Firearms Analysis, (4) Document Analysis and (5) Photography.

1. By understanding physical science, the unit applies the principles and techniques of chemistry, physics and geology to the identification and comparison of crime-scene evidence.

2. By understanding and utilizing the principles of biology the unit assists in the identification of dried bloodstains and body fluids, compares hairs and fibers, identifies and compares botanical materials such as wood and plants, and performs DNA analysis.

3. In the analysis of firearms and ammunition the unit examines firearms, discharged bullets, cartridge cases, shotgun shells, and ammunition of all types.

[5] Wikipedia
[6] Saperstein, Richard, "Criminalistics: An Introduction to Forensic Science," pp. 1-22. Prentice Hall, Inc.

4. The unit examines document(s) and analyzes handwriting, paper and the printers of documents in an effort to determine the ultimate source of suspect correspondence.

5. The photography activity allows for the examination and visual recording of physical evidence at the crime scene and at suspects' locations.

Optional services that may be provided by a full-service forensics team could include (1) Toxicology examination, (2) the processing of Latent Fingerprints, (3) Polygraph Examination, (4) Voiceprint Analysis and (5) Evidence Collection.

1. A toxicology examination of body fluids and organs will assist in the detection and identification of drugs and poisons.

2. Latent fingerprint processing will search for, locate and lift fingerprint evidence that is found on surfaces.

3. A polygraph examiner uses lie detectors to detect deception, an essential tool of the crime investigator rather than the forensic tech.

4. Voiceprint analysis can be provided to investigators in cases of telephone threats or tape-recorded messages. Investigators may be able to connect a voice to a particular suspect.

5. The proper collection and documentation of evidence assists the overall investigation by incorporating evidence collection into a total forensic science service.

Functions of the Forensic Technician

The Functions of The Forensic Technician are (1) the Analysis of Physical Evidence, (2) Lifting, Processing and Identifying Latent Fingerprints, (3) Expert Witness Testimony, (4) Evidence Collection, (5) Training in Proper Recognition, Collection, and Preservation of Evidence (6) Forensic Analysis and (7) Assisting in the Classification and/or Cause of Death.

1. Forensic personnel must be skilled in the analysis of physical evidence in order to apply the principles and techniques of the physical and natural sciences to identify the many types of evidence that may be recovered during crime scene investigations. The "Frye versus U.S." court case established that a scientific technique must be "generally accepted" by the scientific community.

2. Forensic technicians must be well-versed in the fingerprinting processes and be able to "lift" and examine the fingerprints that are collected as evidence from a crime scene. Latent fingerprints are those found on surfaces.

3. Expert witness are those people who possesses a particular skill or has knowledge in a trade or profession that will aid the court in determining the truth. Expert witness testimony is almost always required of forensic techs during their career.

4. Evidence collection must be conducted by specially trained evidence collection technicians in order to get the right evidence necessary for the identification and effective prosecution of suspects. The people who perform this function specialize in evidence collection.

5. Forensic techs must be skilled in the proper recognition, collection, and preservation of evidence so that the forensic pathologist, as the medical examiner or coroner, can determine the cause of death via an autopsy.

6. Forensic analysis may include organic and inorganic analytical techniques. Organic analysis of unknown substances includes analytical techniques such as Chromatography, UV-visible and infrared Spectrophotometry and Mass Spectrometry. Chromatography is a means of separating and identifying organic components and is especially useful in mixture separation (i.e. many illicit drugs contain different materials which dilute the drug). Gas Chromatography separates molecules using a high temperature system to vaporize all the components which are subsequently separated on a column. Combining gas chromatography with mass spectrometry is currently one of the most accurate methods used to identify an unknown substance.

7. Forensic techs assist medical examiners in classifying death into a basic category. By the use of Forensics an investigator can often determine by what means the deceased met his demise. Death can be classified into five different categories: natural death, homicide, suicide, accident or undetermined manner of death.

Definitions[7]

Within the forensic business are terms that are specific to the understanding of the procedures and process. The following is a shortened list of terms and references that one may hear or read about in a *general overview* of Forensic Science.

Algor mortis	The process in which the body temperature continually cools after death until it reaches room temperature, enabling the medical examiner to establish the general time of death.
Forensic Anthropology	Primarily involves the identification and examination of skeletal remains in order to determine if the remains are human or another type of animal. If human, ethnicity, sex, approximate age, and manner of death can often be determined by an anthropologist.
Forensic Engineering	Analyzing construction accidents, and the causes and origins of fires or explosions.

[7] Saperstein, Richard, "Criminalistics: An Introduction to Forensic Science," pp. 1-22. Prentice Hall, Inc.

Forensic Entomology	The study of insects and their developmental stages, which can help to determine the time of death by knowing when those stages normally appear in the insect's life cycle.
Forensic Odontology	Matching bite marks to a suspect's teeth, or matching a victim to his dental x-rays, resulting in an identification of an unknown individual.
Forensic Pathology	The cause of death can often be determined by performing an autopsy.
Forensic Psychiatry	The study of human behavior and legal proceedings in both civil and criminal cases. In civil and criminal cases, competency often needs to be determined. In criminal trials, the evaluation of behavior disorders is often required in order to establish the psychological profile of a suspect.
Livor mortis	When the human heart stops pumping, the blood begins to settle in the parts of the body closest to the ground due to gravity. The skin will appear dark blue or purple in these lower areas close to the ground.
Rigor mortis	Immediately following death, the muscles relax and then become rigid. (Shortening of the muscles.)

II. Existing Efforts & Current Resources

Forensics in the City of Anderson, South Carolina

The City of Anderson Police Department's *Evidence Custodians* are the primary response resource for crime scene evidence processing within the 15 square miles of the city. The current crime scene unit consists of one full time officer and a second officer who functions as a "helper". When multiple cases erupt, the limited Crime Scene staff is quickly exhausted; therefore, basic crime scene investigative functions must be shared by road officers, investigators, and other personnel who may be on duty at the time of the crime. The City of Anderson Police Department has no forensic capability. There is no crime scene laboratory at the City of Anderson Police Department. All of the evidence this is collected from a crime scene must be sent to SLED for processing.

According to departmental records, the City of Anderson reported 6,988 crimes that could have benefited from forensic analysis during the three year period ending June 30, 2006. These are violent crimes or crimes that could potentially be related to violent crimes. For instance, in suicides, an analysis of the available evidence must take place by experienced forensic technicians in order to accurately determine if a person has killed himself or if foul play may have occurred. Therefore suicide, while not a prosecutable crime in and of itself, is related to violent crime because a forensic examination of the crime scene is necessary before a suicide can accurately be categorized as such.

The following table depicts the number of major crimes that occurred in Anderson City during that last three fiscal years.[8] In the pages that follow, the crimes listed in the below table will be referred to as "target crimes" because they are the crimes that a Crime Scene Unit will address.

Offense Type	2004	2005	2006	Grand Total
Aggravated Assault	369	326	361	1056
Arson	8	20	14	42
Break-In / Burglary	363	375	598	1336
Break-in / Device	8	5	35	48
Break-In / Vehicle	344	302	340	986
Grand Larceny	12			12
Homicide	6	6	3	15
Kidnapping	7	25	42	74
Motor Vehicle Theft	105	167	312	584
Rape	47	58	83	188
Robbery	77	90	110	277
Safe Cracking	2			2
Suicide	10	2	6	18
Theft from Vehicle	31			31
Vandalism	659	704	956	2319
Grand Total	2048	2080	2860	6988

As previously stated, the City of Anderson Police Department's Evidence Department currently has one officer performing in the capacity of *evidence custodian* and one additional person acting as a helper. This number of personnel forces this unit to only have one technician on call during the evening and night shift hours. Oftentimes they do not have any on call. When multiple incidents take place within the same time frame, the subsequent calls are held until the evidence custodian completes the first scene and can then travel to the next crime scene. This situation occurs more often during the evening and night hours. Court appearances, annual leave, overtime "flex out" days, and training often reduce the evidence custodian work force to nil. This often lasts as long as several days, causing unfamiliar detectives to have to cover the already-nonexistent CSI responsibility.

From August 25, 1997 through the end of calendar year 2006, the department's evidence custodians collected or received evidence from 5,072 different criminal events. During that same period the evidence custodian took into possession 15,715 pieces of evidence. The following table lists the number of pieces of evidence collected by the evidence custodians for the years listed. The data is listed by calendar year and fiscal year.

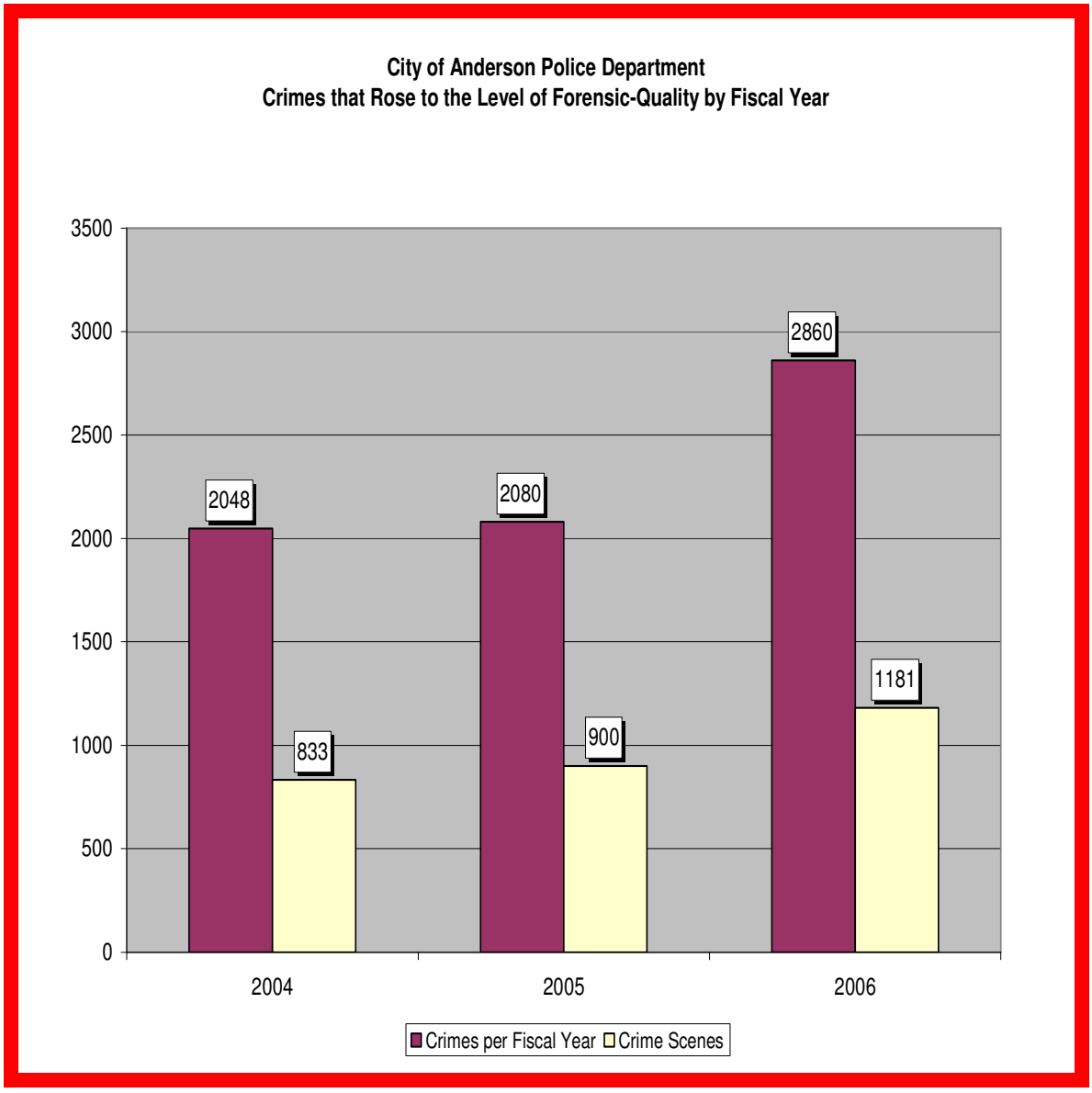
CY 1997*	CY 1998	CY 1999	CY 2000	CY 2001	CY 2002	CY 2003	CY 2004	CY 2005	CY 2006	-	Total
235	1,790	2,047	2,138	1,421	1,150	1,404	2,017	1,747	1,766		15,715
-	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007*	Total
	979	2,088	2,043	1,879	1,229	1,436	1,401	1,923	1,931	806	15,715

*Records begin 8/25/97 **FY 2007 through 12/31/06

[8] Uniform Crime Reports from Police Central Database.

The City of Anderson Police Department had 2,914 crime scenes for the three fiscal years ending FY06 (July 1, 2004 – June 30, 2006). A total of 6,988 target crimes were available to work at those scenes. An average of 2.4 crimes occurred per crime scene for the three-year period. Note the following:

- There were 833 crime scenes consisting of 2,048 target crimes in FY04 that required forensic collection and analysis of evidence.
- There were 900 crime scenes consisting of 2,080 target crimes in FY05 that required forensic collection and analysis of evidence.
- There were 1,181 crime scenes consisting of 2,860 target crimes in FY06 that required forensic collection and analysis of evidence.



For each of the 365 calendar days in 2006 there were an average of 7.8 target crimes per day.[9] According to a work study review that was obtained from a department in South Carolina that currently has a CSI Unit, it takes Crime Scene Investigators an average/minimum of 12 hours to process the scene of a burglary, property crime, or robbery. Homicide cases take an average of 3 ten hour days per each of 3 officers, for a total of 90 man hours per homicide. Additionally, work study analysis of CSI units indicate that trained, dedicated CSI units average two - six scenes per day effectively, depending upon their schedule and the types of crime scene investigated.

Of the 2860 target crimes that occurred in the city of Anderson during 2006, 3 were homicides and 6 were death investigations that were later determined to be suicides. In addition to those crimes, 2,851 were other crimes. The total man hours required to process the 2,851 "other" cases, using the average of 12 hours per case, would have been 34,212 or the equivalent of 16.44 forensic technicians. These figures do not include the 9 death cases which would have required an additional 810 total man hours bringing the overall total need to 35,022 man hours or the equivalent of 16.8 forensic technicians that would have been required to work all crime scenes in Anderson City on FY06.[10]

This current man power and level of expertise of the department's evidence custodians drastically limits the positive results gleaned from evidence collected from crime scenes in Anderson City. The follow-up relating to the crime scenes which they respond to and process is limited. The current full-time unit averaged 3.27 crimes per work day in calendar year 2006. That was well below the actual demand of 14.8. Obviously, with the time it takes to properly process and investigate a crime scene, valuable evidence is being overlooked. With the advancements in both fingerprint and DNA technologies, our agency fears that we are losing valuable pieces of evidence which we might otherwise be able to locate, identify, collect, and process. Manpower limitations at this point force our agency to send uniformed patrol officers to process approximately 75% of all reported burglaries within City of Anderson. The addition of two trained forensic technicians within this unit would enable us to utilize CSI expertise in order to process more of these scenes thereby increasing the chances of recovering usable evidence. This would also enable uniformed officers to clear these calls in a timely manner, so that they may resume their respective patrol functions. This increase in manpower would also greatly increase the efforts focused on follow-up examinations and testing. This would enable our agency to substantially increase our arrest rates based on the recovery of forensic evidence, which we feel we may be missing at the current time, based on our limited man power and expertise level.

The following table depicts the number of crime scenes that were either uninvestigated or under-investigated during calendar year 2006 and the manpower figures used for the calculations.

[9] 2,860/365 = 7.835

[10] Manpower figures based upon 52 weeks per year @ 40 hours per week or 2,080 hours.

Calendar Year 2006	Full time personnel	Helper (1/2 Time)	Total
Crime Scenes	420	210	630
Total Hours (52 Weeks x 40)	2,080	1040	3120
Vacation Hours	168	84	252
Holiday Hours	80	40	120
Sick Hours (approximate)	32	16	48
Court Hours (approximate)	80	40	120
SLED Trips (12 trips x 8 Hrs)	96	48	144
Comp Time (estimated)	80	40	120
Hours Worked	1,544	772	2316
Hours per Workday	8	4	12
Actual Days Worked	193	193	386
Actual # Scenes Inv per day	2.18	1.09	3.27
Actual # Target Crimes in '06	1907	953	2860
Demand for Crime Scenes	9.9	4.9	14.8
Un or Under-inv. Scenes	7.7	3.8	11.5

The occurrence of major crimes causes an additional amount of grief. An example of this problem can be described through some of the many requests for homicide crime scene investigations is as follows:

In December 2006 virtually every available investigator in the entire ISD was activated to follow up on a homicide at a local apartment complex. Initially, there were no leads in the case. Approximately two days later another homicide victim was found on the opposite side of town and the circumstances seemed to lead the investigators to conclude that the perpetrator in each case may be the same person. Several investigators worked around the clock for approximately eight days to identify a suspect and bring formal charges.

The City of Anderson Police Department's current level of manpower, training and equipment dictates that our minimum standards for expected efforts on crime scenes and lab analysis are far below the standards that we would envision implementing. An important factor influencing the ultimate legal significance of scientific evidence is that investigators follow an objective, thorough, and thoughtful approach. By adding additional manpower, resources, equipment, and training, more crimes of all types will receive the professional and standardized attention of trained specialists in the collection and processing of evidence which will result in the apprehension and successful conviction of offenders in the City of Anderson and surrounding areas. **The addition of manpower and technologically current equipment combined with the inclusion of the CSI unit within the overall countywide forensics program would enable us to properly focus on the processing of crime scenes, collect more valuable evidence, bring more perpetrators to justice and clear more cases.**

III. Conclusion

Actions taken at the outset of an investigation play a pivotal role in the resolution of any criminal case. Advancing technologies in forensic science, specifically crime scene investigation, and in aspects of equipment and training, have far surpassed the City of Anderson Police Department's capabilities due to agency budget constraints. Evidence cannot be processed in a timely manner The establishment of a CSI Unit equipped with modern equipment would allow the existing criminal investigators to make more and stronger cases because the CSI Unit will be able to arm the Investigators in the Investigative Services Division with analyzed evidence.

Vast differences between the nine law enforcement agencies in Anderson County regarding their capabilities and approach to crime scene investigations call for innovative approaches to attack an ever surmounting demand for crime scene investigative services. The establishment of a local CSI Unit in Anderson City would also reduce the already overworked and over burdened State Law Enforcement Division Forensic Unit located at SLED headquarters. By working within an overall countywide unit, the proposed CSI Unit (forensic techs) will help solve felonies countywide and decrease the violent crime rate throughout the entire county of Anderson.

In the City of Anderson, between fiscal years 2004 and 2006 (July 1, 2004 – June 30, 2006), the City of Anderson Police Department had 2,914 different crime scenes consisting of 6,988 target crimes. This is enough work to keep two forensic techs covered up with crime scenes, full time. However, if the City of Anderson Police Department acquires two personnel for this function and subsequently partners with Anderson County, as is planned, CSI services could be provided 24/7 to all the other jurisdictions in Anderson County in addition to the City of Anderson.

In order to effectively process a crime scene, the integrity of evidence gathered and examined by a crime scene investigator must be handled in a systematic and methodical manner. Our current standards for expected efforts on crime scenes and lab analysis are far below an acceptable level. The evidence custodians who presently perform this function are inadequate. Almost nothing is done right. Measurements and sketches are being done manually, which greatly increases human error. The acquisition of forensic technicians and technologically current equipment would enable us to greatly improve on the quality and performance of the tasks involved in crime scene processing and the examination of evidence.

Anderson, South Carolina has a higher per capita rate of violent crime than the average for the United States and the state of South Carolina. Exasperating this finding is the fact that investigators within the City of Anderson Police Department do not have the forensic training or time to adequately investigate crime scenes due to the fact of an excessive workload of violent & property crime. Unfortunately, according to well-documented research into crime and criminal psychology, the types of people who seem to commit many violent crimes are generally involved in other crimes as well, including drug trafficking, thefts, house breakings and white-collar criminal activity.

Based upon our tally of crime scenes, which demonstrates a significant amount of un-investigated or under-investigated scenes, we estimate that a substantial increase in prosecutions of violent offenders could be realized if the City of Anderson Police Department were to have

on-staff, full-time, full-service forensic technicians who are dedicated solely to investigating crime scenes related to violent crime. Work-study analysis of the City of Anderson Police Department Investigative Services Division indicates that when functioning at or near 100% efficiency, individual criminal investigators can build and prosecute 63 - 96 cases per year against *individual* perpetrators.[11] This has been accomplished in the past without the assistance of a forensics unit. If we were to have a forensics unit available to assist in the development of intelligent leads which would result in the identification and arrest of more suspects, we believe that the amount of cases that could be cleared would significantly increase.

In summary, crime scenes are not typically processed, per se, in Anderson City. The City of Anderson Police Department currently can only afford to assign crime scenes to the *evidence custodian* who is normally dispersed to collect and keep the evidence for court. This personnel performs other relevant activities such as courier service: delivering evidence to the SLED lab in Columbia, picking it up following the SLED lab review and delivering it back to Anderson Police Department for safe keeping until trial.

Occasionally the officer who serves as a helper will collect some evidence from a crime scene. Unfortunately, the two officers who currently serve as our evidence custodians – individually and combined - have only a minuscule amount of law enforcement training over and above the minimum requirements necessary to maintain certification as a police officer in South Carolina. These relatively dim personnel only collect the items that they perceive with their naked eyes to be of evidentiary value and do not examine crime scenes with any tools in order to look for the presence of microscopic or invisible evidence. The *evidence custodians* at the City of Anderson Police Department lack the overall ability, skills, training and understanding of law enforcement which are necessary to conduct a forensic examination of a crime scene, help to develop a suspect and aid in the arrest and prosecution of the perpetrator.

With only one full time and one part time investigator to handle the crime scene investigation process in the city of Anderson, and with no special training in this area, the performance of the unit is low when compared to the potential. In other words, there are a great number of cases that could potentially be cleared but the lack of trained personnel who are assigned full time to these types of crime scenes renders the crimes uninvestigated, unsolved and un-prosecuted. The perpetrators are free to continue victimizing innocent people.

To follow up on and investigate *all* violent or potentially violent crime scenes would require several forensic technicians. However, the addition of two personnel to serve in this capacity within a countywide CSI Unit would provide the necessary service that the department would need for the present as well as the near future. Police Department funding through the general revenue is projected to stay at its current level for at least several more years thus precluding the department from adding additional personnel without outside funding. **Funding for a two-person Crime Scene Investigative Unit would result in a higher clearance rate and increased number of prosecutions for violent crime cases** starting in fiscal year 2008 **and would reduce future occurrences of violent criminal activity in Anderson City and the surrounding area**, as the investigators will be helping to remove bad role-models from society, taking murderers, rapists, burglars and robbers off the streets.

[11] Analysis bases upon FY 2000 and FY 2001. Actual number within range depends upon type of crime and whether or not the crime is tried in City Court or General Sessions Court.