New Standard '4' Body Armor

n St. Louis, body armor saves the life of a police officer when shots are fired during a bank holdup. In Atlanta, an officer wearing a bullet-resistant vest is shot twice in the chest by two teenagers driving a suspected stolen car. He survives. In New York City, an undercover detective wearing body armor, shot three times during a drug bust in the chest and stomach at point-blank range, lives to tell about it.

Since 1973, there has been no question that body armor is saving the lives of law enforcement personnel. According to statistics compiled by the International Association of Chiefs of Police (IACP)/ DuPont Kevlar Survivors Club®, soft body armor is credited with saving the lives of more than 2,500 law enforcement officers nationally during the past 27 years.

It is therefore imperative that this history of success continue.

A major factor in the success of ballistic-resistant armor has been the development and evolution of a ballistic-resistant body armor performance standard, first issued by the National Institute of Justice (NIJ) in March 1972 based on research conducted by the Office of Law Enforcement Standards (OLES). This initial standard (0101.00) laid the groundwork for the establishment of a voluntary compliance testing program that to date has resulted in the testing of more than 2,600 different models of armor and the issuing of four revisions to the original standard, the most recent released this fall.

"Since 1987, when the last body armor standard [0101.03] was adopted, there have been many changes in the design, manufacturing, and use of body armor," says Lance Miller, testing manager for NIJ's National Law Enforcement and Corrections Technology Center (NLECTC), which runs the compliance testing program. "The ammunition and weapons threats that police officers face in the year 2000 are different. Plus, most officers today use autoloading pistols as their duty weapon instead of revolvers."

In addition, Miller says that the design technology used in making the vests has changed significantly, and many new ballistic-resistant materials have been introduced. The revised *NIJ Standard-0101.04* reflects the state of the art in threat and design and incorporates and streamlines the administrative changes. Testing under the new ".04" standard began this fall.

According to Miller, the previous standard identified six armor types that are classified by the specific bullets and impact velocities that they will withstand. For example, a Type II armor protects against higher velocity .357 Magnum jacketed soft-point bullets, with nominal masses of 10.2g, at a velocity of 1,400 feet/second, and against 9mm full metal jacketed bullets, with nominal velocities of 1,175 feet/second. A Type III armor protects against a high-powered

(See Body Armor, page 2)

Photo by Bob Daemmrich/Stock Boston/PictureQuest.

Biometrics in Corrections

Simply put, biometric identification is based on the statistical measurement of physiological characteristics. In this sense, biometrics is the science of using a particular biological aspect of the human body to recognize a person for security, attendance, or any other purposes for which proof of identity is required.

A buzzword right now, biometric identification actually has been around for a while. The most widely used biometric is fingerprints. But technological developments over the last decade have added DNA matching; iris and retinal scans; voice, handwriting, or facial recognition; and hand and facial geometry to the list of biometric identifiers.

"Biometrics is about access control," says Jim Wayman, director of the U.S. Department of Defense's (DoD's) National Biometric Test Center in San Jose. "Police can use it to control and track access to evidence lockers. Prisons are using it for access control of their own employees. At a prison in Glasgow [Scotland], the warden uses biometrics for officer control. Any prison officer coming to work for the first time that day has to go through a biometric screening gate and has to go out that gate at night when he leaves."

A survey of correctional facilities funded by the National Institute of Justice (NIJ) found few jails and prisons using biometric

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(Body Armor . . . cont. from page 1)

rifle firing 7.62mm full metal jacketed bullets, with nominal masses of 9.6g, at a velocity of 2,750 feet/second. In each case, the armor also will protect against lower threat levels.

"The 0101.04 revision better reflects the actual threat to law enforcement officers from ammunition and weapons on the street today," says Steve Lightsey, a consultant to OLES who was involved in the formulation of the standard's latest revision. This threat comes in two forms. The first is obvious: bullet penetration. The second is termed blunt trauma injury. Unlike a penetrating wound, in which the skin is broken and the bullet tears through the body, the deformation of armor from a bullet impact results in blunt trauma. This type of nonpenetrating injury can cause severe contusions (bruises) or internal damage and can even result in death.

In formulating the 0101.04 standard, rounds were selected based on a combination of factors that include the type of firearm carried by law enforcement personnel, the type of firearm and ammunition carried by criminals, the type of firearm and ammunition used when an officer is killed, and the capability of various types of ammunition to either penetrate a vest or to cause blunt trauma.

"For example, in the revised standard," Lightsey says, "the .38 Special was replaced by the .380 ACP for Type I, the .40 S&W replaces the .375 Magnum for Type IIA, and a new .44 Magnum bullet replaced another .44 Magnum bullet that is no longer manufactured for Type IIIA.

"The new 0101.04 standard also continues to ensure consistent, well-documented testing of body armor under NIJ's program. The main intent of the revision was to incorporate as many of the lessons learned from the long period of 0101.03 testing experience as possible, particularly in regard to clarification and definition of many of the methods and equipment used to test body armor for compliance."

In addition to the new threat rounds for testing, Lightsey says other changes reflected in the revision include the "pat down," or smoothing of the armor panel between shots, and an increase from one to two measurements for the "backface signature." Lightsey explains that when a ballistic vest is tested, it is attached to clay backing material using elastic straps. Laboratory test technicians shoot the vest in a six-shot sequence that forms a rough triangle and includes a direct impact shot in the center of that triangle. The technicians measure the deformation of the clay backing material from the impact of the first shot at shot locations 2 or 3, called the "backface signature," to determine the risk of blunt trauma injury.

Lightsey adds that the techniques and equipment for wet conditioning of the test armor, for construction of the backing material fixture, and for firing the test threat ammunition also have been updated and revised. He points out that some ballistic fabrics lose ballistic-resistant efficiency when they are wet.

"It's not only rain that causes this loss of protection," he says. "Heavy perspiration could also affect performance." Laboratory tests conducted by the U.S. Army Soldier Systems Center in Natick, Massachusetts, verified that vests will absorb perspiration in amounts comparable to a vest that has been allowed to drain following immersion in water. Consequently, all versions of the NIJ body armor standard, including this latest one, require that a vest provide the same level of protection when wet as it does when dry.

Also, as part of the standard's revision, OLES has developed a performance assurance program to determine the ongoing performance of body armor currently in service or of a new production unit of a previously tested and approved model. Called the Baseline Ballistic Limit Test, this procedure will establish a benchmark of penetration performance. According to Lightsey, it is a more reliable and consistent way to retest NIJ-compliant armor.

"It is essential to understand that the ballistic limit test does not have a pass or fail performance requirement," he says. "The Baseline Ballistic Limit Test exists only to provide additional information about the ballistic performance of a given armor model. This ballistic limit testing is done after the armor model has successfully passed the traditional penetration and backface signature testing. The performance assurance program is based on a modified form of ballistic limit testing commonly known as V_{50}."

Traditional V_{50}, or ballistic limit testing, is a statistical test developed by the U.S. Department of Defense and often used as a design tool by manufacturers as they develop and assess new body armor designs. V_{50} testing identifies the theoretical velocity at which a specific projectile has a 50-percent chance of either penetrating or being stopped by the armor. To compute that velocity, testers shoot enough bullets at various velocities to obtain equal groups of nonpenetrating and penetrating impacts within a velocity range of no more than 150 feet/second. The V_{50} ballistic limit is calculated as the average velocity of the 10 bullets. "All ballistic-resistant materials can ultimately be overmatched," says Lightsey, "whether by bigger or faster bullets or simply by firing the same bullet fast enough to eventually overcome the ability of the given material to stop it."

The V_{50} ballistic limit, within statistical reason, identifies the velocity at which the armor material stops the bullet at least half the time. "Knowing that the ballistic limit of a particular body armor model is well in excess of the NIJ reference velocity—at which no penetration is expected or allowed for in compliance testing—provides additional assurance of the overall ballistic performance of the armor," says Lightsey, "even in instances where the encountered threat may be beyond the expected norm."

Also stemming from the .04 revision will be a single computer-based reporting format and comprehensive database archival system that will standardize reports, thus making testing data more manageable and accessible to users.

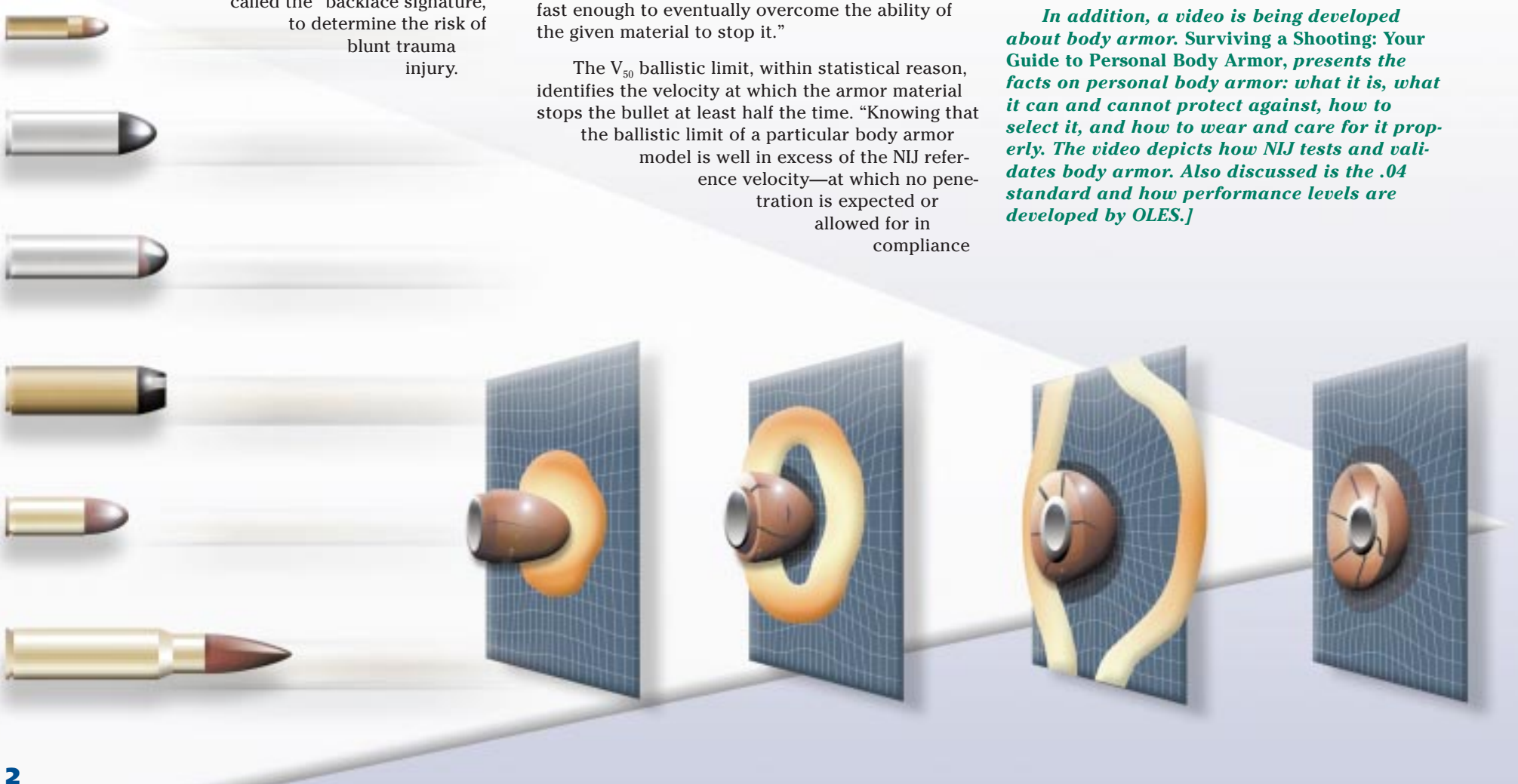
Initial efforts to update the 0101.03 standard began at OLES in 1996 and were continued in 1997, when NLECTC–Rocky Mountain began preliminary testing to determine whether the standard was still valid, given the existence of different present-day threats posed by newer combinations of weapons and ammunition. As part of that analysis, NLECTC–Rocky Mountain assessed existing threat rounds and potential replacement ammunition by performing comparison tests on body armor to confirm its recommendations for changes to the threat rounds.

The revisions were developed with the active participation of the body armor industry, which includes fiber producers, weavers, and manufacturers; the law enforcement community; and NIJ, NLECTC, and OLES. The final draft of *NIJ Standard-0101.04* was circulated for review among the membership of the Law Enforcement and Corrections Technology Advisory Council and the National Armor Advisory Board (NAAB). NAAB is composed of law enforcement officers and body armor industry representatives, including fiber and fabric manufacturers, weavers, and armor manufacturers.

For a copy of* NIJ Standard-0101.04, Ballistic Resistance of Personal Body Armor, *contact the National Law Enforcement and Corrections Technology Center, 800–248–2742, or access the NLECTC system's World Wide Web site, JUSTNET, at www.nlectc.org.

[Editor's Note: Also available through JUSTNET is the* Body Armor Testing Program Database, *an up-to-date, searchable database of body armor models that have been found to comply with the standard. In addition, departments looking to purchase or replace body armor should obtain a copy of the* Selection and Application Guide to Police Body Armor. *This publication, which also can be downloaded from JUSTNET, not only details body armor selection, training, and maintenance and care, it also gives indepth background on the history of body armor, the NIJ standards and testing program, and body armor construction.

In addition, a video is being developed about body armor.* Surviving a Shooting: Your Guide to Personal Body Armor, *presents the facts on personal body armor: what it is, what it can and cannot protect against, how to select it, and how to wear and care for it properly. The video depicts how NIJ tests and validates body armor. Also discussed is the .04 standard and how performance levels are developed by OLES.]



(Biometrics . . . cont. from page 1)

identification systems. Those that were, used systems based on iris scans, hand geometry, and fingerprints. According to Dr. Al Turner, NIJ visiting scientist, the use of biometrics in corrections varies greatly, partly because it involves such new technologies and few correctional administrators are aware of what they are or how they can be utilized.

"One reason these systems are scarce [in correctional facilities] is that they are still new, relatively unknown, and untried," Turner says. "If you start relying on technology to identify some one in corrections, rather than person-to-person contact, you have to be sure the technology works. Corrections has demanding requirements, and the accu racy and reliability of biometrics tech nologies will have to mature before they will be implemented on a larger scale."

One NIJ project hopes to push bio metrics in that direction. NIJ is working with the DoD Counterdrug Technology Development Program on Facial Recognition 2000, a project that will assess various facial recognition tech nologies. Those technologies that appear feasible will be tested in a correc tional facility to identify staff members. If a system proves successful, it will be used to monitor visitors.

A second project, still in the plan ning stage, will test biometrics as a way to monitor inmate movement. One possi bility, Turner says, is to combine a bio metric "key"—probably a fingerprint—and a smart card. "If you put a biometric key on a smart card, you then know that the inmate has the right card and isn't trying to use one that belongs to some one else."

A biometric identification system now in place can be found at the Sarasota County Detention Center in Florida, where iris scans are used to pre vent former prisoners from visiting for mer inmate pals. In place less than 2 years, the system has more than 40,000 iris scans in its database and has logged 8 hits on former inmates trying to enter the prison under false identities.

In another correctional facility, hand geometry helps prevent escape attempts. The system scans visitors' hands as they enter and again as they leave to be sure prisoners are not posing as visitors or staff. The Federal Bureau of Prisons tested another system that uses hand geometry. Not only does it verify the identity of visitors, it helps officials track staff to avoid mistakenly identifying them as inmates and to posi tively identify them in a disturbance. Inmates use it for access to the cafeteria, recreation lounge, and hospital.

Regardless of the setting or situa tion, to be effective a system based on biometrics has to have certain charac teristics:

- User friendly.
- Acceptable to the community.
- Affordable (in initial installation costs and in long-term operational and maintenance costs).
- Accurate.

A principal concern of utilizing a biometrics system in a correctional facil ity is the ability of that system to seam lessly integrate into the information and tracking systems already in place. The ability of the biometrics system to con-nect with databases at other agencies or organizations, known as interoperability, may also be an issue. In addition, bio metric systems can create unforeseen problems. In one correctional facility, a system that used hand geometry to moni tor visitors simply took too long.

"They already had this whole sys tem in place to prevent escapes at visit ing time," Wayman says. "They didn't release the visitors until all the prison ers were accounted for. They put waist straps and shoulder bands on the inmates that could only be removed by the guards. In the visiting room, they didn't let the prisoners change clothes or move from their assigned seats. So adding biometrics as an afterthought just didn't make sense. There was no added value. It was just one more hoop the prison officials had to jump through. The system was subsequently abandoned."

Although their use is somewhat limited and some systems are not yet foolproof, biometric identification tech nologies hold substantial promise for corrections and law enforcement. "I think the corrections field is at the lower end of the learning curve right now," Turner says. "But the more we can make people aware and educate them about biometrics, then the more likely that bio metrics is going to become a useful tool."

For more information about bio metrics development and testing and evaluation projects for law enforce ment and corrections, contact the National Law Enforcement and Corrections Technology Center at 800–248–2742 or visit its World Wide Web site, JUSTNET, at www.nlectc.org.

Biometrics Basics

Fingerprints are the most widely used bio-metric tool, but other methods of identification through biometrics are coming into general use, such as voice prints and iris scans. In addition, a number of other techniques—some quite unusual and a bit obscure—are still in the early development stage. For example, a company in the United Kingdom now holds the patent on a technology that will identify indi-viduals based on blood vessel patterns in the back of the hand. Also in development are sys-tems that analyze sweat pores on a fingertip, use infrared cameras to find "heat spots" creat-ed by veins and arteries in the face (known as "vascular tattoos"), or identify an individual based on his or her unique body odor.

The range of biometrics is as diverse and imaginative as the potential number of the body's scannable parts. The following tech-niques are the more common biometrics in use today.

Eye Scans. Eye scans can be catego-rized into two types: iris and retinal. Iris scans digitally process, record, and compare the light and dark patterns in the iris' flecks and rings, something akin to a human bar code. Some claim this technique is more accurate than a fingerprint and can be employed at such a distance that the person being scanned is unaware. Others say these systems can easily be fooled. Researchers testing one system dis-covered that university students who wore patterned "designer" contacts were wrongly rejected because the contacts were in a differ-ent position every time the students' eyes were scanned. Retinal scans, on the other hand, are more intrusive, requiring close-up infrared scanning through the pupil.

Facial Recognition. This biometrics technology is already in use at some border crossings. The term covers several different techniques, including video or photo imaging; thermography, which reads the heat pattern around the eyes and cheeks; and the ability to scan the dimensions of an individual's head. This type of biometric is not nearly so accurate as a fingerprint. A similar face or a change in lighting or appearance can confuse the system. The Defense Advanced Research Projects Agency, the central research and development organization for the U.S. Department of Defense, has created a program called Image Understanding for Force Protection (IUFP). This project grew out of the 1996 terrorist bombing of U.S. military barracks in Saudi Arabia, which killed 19 people. Its goal is to create new tech-nologies to identify humans at a distance. One proposed system is modeled after a British sys-tem, which uses more than 200 cameras to keep an eye on foot traffic in the East London borough of Newham, "recognizes" known crimi-nals, and alerts authorities.

Hand Geometry. This type of scan reads the outline or the shape of a shadow, not the handprint. It can be used for all types of access, but is not prized for its accuracy. Although it is a quick and sturdy method of verifying identity, too many people have similar hand shapes and sizes for such a system to be dependable in situations that need to be highly secure.

Voice Recognition. This technique has been used at border crossings. Voice, or speaker, recognition employs positive identifi-cation that, in this instance, verifies that the person crossing the border is the person already enrolled in the database. Some voice and speaker recognition techniques are highly susceptible to background noise and may not provide accurate verification if the speaker has a cold.

Handwriting and Signature Identification. In the area of identification by a person's handwriting, the U.S. Secret Service's Forensic Science Division has developed the Forensic Information System for Handwriting (FISH) based on work carried out by German law enforcement in the 1980s. FISH takes a block of text and then plots the handwriting as arithmetic and geometric values. Signature recognition programs, however, read signatures written on an electronic pad by measuring the speed, pressure, and direction of the strokes.

DNA Matching. DNA matching has become one of the most touted means of bio-metric identification during the last several years. In 1998, the FBI's Laboratory Division established CODIS (Combined DNA Index System), an electronic database of DNA pro-files that can identify suspects, similar to the AFIS (Automated Fingerprint Identification System) database. Every State is in the process of implementing a DNA index of indi-viduals convicted of certain crimes, such as rape, murder, and child abuse. Upon convic-tion and sample analysis, perpetrators' DNA profiles are entered into the DNA database. Just as fingerprints found at a crime scene can be run through AFIS in search of a sus-pect or link to another crime scene, DNA pro-files from a crime scene can be entered into CODIS. Therefore, law enforcement officers have the ability to identify possible suspects when no prior suspect existed.

All About TechBeat

TechBeat is the award-winning flagship publication of the National Law Enforcement and Corrections Technology Center (NLECTC) system. Our goal is to keep you up to date on tech nologies currently being developed by the NLECTC system, as well as other research and development efforts within the Federal Government and private industry. *TechBeat* is published four times a year. Managing Editor, Rick Neimiller; Contributing Editor/Writer, Lois Pilant; Editor, Michele Coppola; Contributing Writer, Jackie Siegel; Graphic Designers, Denise Collins and Tina Kramer.

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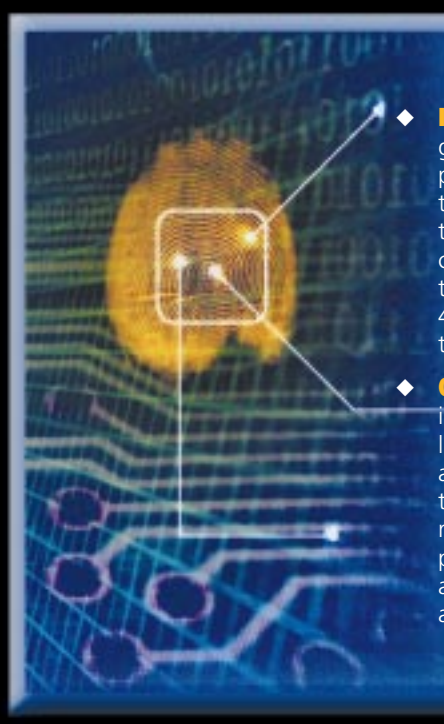

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From the Director, Office of Science and Technology

Law enforcement, courts, and corrections officials and officers working in the field know how crucial technology is to their day-to-day operations. In some circumstances, having the right tool can even mean the difference between life and death.

The technological revolution that has swept society as a whole in recent years has also affect ed the criminal justice system. Some technologies that not long ago seemed advanced—vests that can stop bullets and electronic monitoring of pro bationers—today seem commonplace. But the revolution continues apace, with ever more spectacular advances now being made, or in the testing stages, or on the drawing board.

As the research arm of the U.S. Department of Justice, the National Institute of Justice (NIJ) has, since its founding 30 years ago, been in the forefront in sponsoring the development, testing, and demonstration of technology to improve the justice system. The development of DNA testing standards, soft body armor, and improved finger print evidence collection are some of the many areas in which NIJ has played a leading role.

More recently, with strong support from the Administration and the Congress, NIJ has accelerated the pace of its efforts. Less-than-lethal technologies to minimize the use of force, computerized mapping to pinpoint and analyze crime patterns, concealed weapons detection to prevent violence, methods of stop ping fleeing vehicles to apprehend suspects, and improvements in DNA laboratories to aid in evidence testing—all these capabilities, and others, are now being explored by NIJ. Their application can mean even greater transforma tions in law enforcement operations.

TechBeat *plays an important role as an essential link communicating the latest informa tion about these developing technologies from the National Law Enforcement and Corrections Technology Center. By keeping law enforcement, courts, and corrections personnel current about the tools they can use, the newsletter makes a dif ference in controlling crime and ensuring justice.*

David G. Boyd, Ph.D.
Director
Office of Science and Technology
National Institute of Justice

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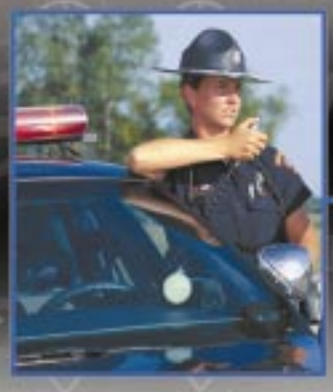
PATCHING YOUR WAY TO A FIX



Interoperability. The word is defined as the ability for law enforcement and other public safety agencies to communicate among themselves.

Unfortunately, over the past several decades this word would have been better cast as "noninteroperability". . . the inability of law enforcement and public safety agencies to communicate with each other.

Incompatible radio systems, differing radio frequencies, and jurisdictional concerns about privacy of information—all aggravated by a very limited number of available radio frequencies—have turned interoperability into one of public safety's biggest headaches. It is more than obvious that something is wrong when the only way for police officers from neighboring departments to communicate with each other is to pull their cruisers side by side and roll down their windows.

In initial attempts to resolve the interoperability issue, police and other agencies purchased additional radios or radio systems that could handle the frequency used by other jurisdictions in their area. But this "fix" usually involved a significant outlay of money and training. In other instances, a dispatcher in one jurisdiction would relay information to another jurisdiction's dispatcher via telephone. But this fix was slow and allowed room for error or misinterpretation. When it came to task force operations or emergencies, some departments had their officers carry more than one radio. Some also tried using a common radio frequency or buying a sophisticated master controller to supervise all of the participating radio systems. But these fixes, too, could be expensive and had the additional disadvantage that departments no longer had complete control of their radio systems.

Over the past several years, however, there has been a change in thinking about the interoperability problem. Recognizing that the "ideal" solution may be several years away, some agencies have begun working with one another to use existing technology to "patch" radio systems together until that ideal solution is available. These agencies recognized that, while interim in nature, this approach would improve their interoperability situation and would provide them with an opportunity to work together now and to develop new procedures that would be valuable whenever the ideal answer arrived.

In 1996, the U.S. Attorney for the Southern District of California asked the U.S. Navy Public Safety Center in San Diego and the National Institute of Justice (NIJ) through its Border Research and Technology Center (BRTC) to find a cost-effective solution to the interoperability problem. The result was BORTAC, the Border Tactical Communications System, a collaborative effort with the Counterdrug Technology Assessment Center (CTAC) of the Office of National Drug Control Policy. BRTC provided concept identification and assisted with project management; CTAC funded hardware and dedicated phone circuits; the Navy provided technical management and a facility to be the central connect point for the circuits. Together they created the modern equivalent of a telephone switchboard, the kind that was once used to connect callers before the development of automated circuit switching.

Resembling a hub and its spokes, the system is activated when one agency requests a patch to another agency. The dispatcher at the system's central location, or hub, simply uses a mouse to connect the icons representing the agencies on a computer screen. The voice transmissions come into the hub and then are transmitted through the spokes, or phone circuits, to the appropriate agency, which remodulates the voice in a format compatible to its radio system. All the officers hear at the other end is the voice from the other agency. Low band, VHF, UHF conventional, trunked, and 800 MHz systems can all communicate directly with one another, without the delay or the potential for error that can occur when humans must act as the relay for messages. According to one officer, "[It]. . . sounded like officers from other agencies were in the backseats of our vehicles."

BORTAC now connects 16 Federal, State, and local public safety agencies in California's San Diego County. Its success prompted the formation of RIO-Com, which connects 11 agencies, including city, county, and State police, along with the FBI, Immigration and Naturalization Service, Drug Enforcement Agency, and U.S. Customs Service, in the Rio Grande Valley of South Texas. The RIO-Com system patches through the Brownsville, Texas, Police Department headquarters.

Though BORTAC's designers anticipated the system would support emergency operations, such as pursuits involving multiple jurisdictions, it has also been used to facilitate planned multiagency operations. Since the system became operational in 1996, BORTAC has been utilized repeatedly by law enforcement in the San Diego area for an array of activities, including regional auto-theft task force operations, truancy sweeps, counterdrug sweeps, police pursuits, special cross-border events, and gang suppression. RIO-Com gets the same kind of workout. Since its recent inception, this system has enabled officers to work cooperatively on multiagency drug raids, surveillance operations, pursuits, and traffic stops. BORTAC was the result of a proactive movement on the part of Federal and State officials. Similarly, RIO-Com grew out of a need for agencies in Texas' Rio Grande Valley to communicate during multiagency operations.

According to Charles Hoskins, emergency communications manager for the Brownsville Police Department, there is no limit to the number of agencies you can have on a patch. "You can have all the agencies on a single patch, or a number of smaller patches working at the same time," he says. "That's the advantage." Additionally, agencies do not need new radios and they can retain control of their systems. "The disadvantage," he says, "is that we had to abandon 10-codes because every agency's was different. The officers have to speak in plain language. We also cannot do encryption, although I think that as technology progresses we'll be able to add that." Also, a patch system does not add towers or repeater locations, nor does it extend an agency's coverage. Officers must stay within the existing coverage of their radio system. Unfortunately, dead spots will still be dead spots.

When agencies have completed their operations, they just notify the central dispatcher, who disconnects the participants. To preserve autonomy, no agency is ever added to a patch unless the agency agrees. To facilitate privacy, Hoskins says, dispatchers at the Brownsville Police Department are prohibited from listening to a patch that does not involve a police officer from that department.

"Building your own BORTAC or RIO-Com is really not that difficult," says Robert Waldron, project manager at NLECTC–West. "The technology is relatively simple and available. The major hurdles that agencies have to overcome are not technology related but rather are issues related to operations. The first thing is that law enforcement needs to sit down and begin cooperating among themselves."

Along with interagency cooperation, other recommendations include:

- Some overlap in radio coverage between jurisdictions.
- Someone assigned to collect information about the participating agencies' radio systems so the right equipment can be purchased.
- An agency that agrees to be responsible for local organization of the system.
- An agency that agrees to act as the "hub" and that can provide round-the-clock staffing. A 911 Public Safety Answering Point (PSAP) is an excellent candidate since it manages emergency calls around the clock.

As for the price of a patch system, Waldron says two types of costs enter in. The first are the one-time installation and equipment costs. "Spoke" agencies

(See Patching Your Way, page 7)

Photo top left courtesy National Institute of Standards and Technology. Women officer (state trooper) by Bill Fritsch, Artville. Additional photos by Corbis Images.

TECH SHORTS

Technology News Summary

TechShorts presents a sampling of article abstracts published weekly as part of the National Law Enforcement and Corrections Technology Center's (NLECTC's) online information service: the *Law Enforcement and Corrections Technology News Summary.*

Offered through JUSTNET, the World Wide Web site of NLECTC, this weekly news summary provides synopses of recent articles relating to technology developments and initiatives in law enforcement, corrections, and the forensic sciences that have appeared in newspapers, news magazines, and trade and professional journals. The summaries also are available through an electronic e-mail list, *JUSTNETNews.* Each week, subscribers to *JUSTNETNews* receive the summary directly via e-mail.

To subscribe to the *JUSTNETNews/Law Enforcement and Corrections Technology News Summary,* e-mail your request to asknlectc@nlectc.org or call 800–248–2742.

Battle Plan for Correction; Warden Combines Enforcement, Education

Indianapolis Star

John VanNatta, superintendent at the new Miami Correctional Facility in northern Indiana, praises the technology the $107.2 million prison features. Microwave beams detect any motion between fences in the prison yard, and the outer fence sounds an alarm when it senses 15 pounds or more pressing against it. Soon, employees will punch in with electronic ID cards and a palm print reader that prohibits fudging on time cards. VanNatta also notes that a computer laboratory is being set up to train inmates for future jobs.

Chemicals in Fingerprints Could Help Solve Crimes

Science News

Research by chemist Michelle V. Buchanan and her fellow scientists at the Oak Ridge National Laboratory in Tennessee may one day allow people in law enforcement to identify suspects from the oils in their fingerprints. Buchanan is currently conducting a study that analyzes the substances in the fingerprints of 300 volunteers. The chemist began studying fingerprints after she assisted a detective in investigating a Knoxville case in which a child's fingerprints had disappeared from a car that she allegedly rode in before her murder. In a study of 50 volunteers, which included 25 children ages 4 to 12 and 25 adults ages 17 to 46, Buchanan found that children's fingerprints disappeared much more quickly than adults because they contain substances that easily evaporate, such as cholesterol and free fatty acids. Adult fingerprints, on the other hand, contain long-lasting compounds and even sex hormones and nicotine. Another study soon to be conducted by Buchanan's workplace will collect samples in a research project similar to one conducted by the Agricultural Research Service and analyze fingerprints that are left on glass beads. The Oak Ridge scientist believes that fingerprints may be used in the future to effectively test for medical problems and drug use. Also, she thinks that police officers and forensic experts will be able to use the data that they obtain on suspects' prints to build profiles. Buchanan's findings may lead scientists to develop better substances to rely on when testing for fingerprints.

Labeling Automobile Parts To Combat Theft

FBI Law Enforcement Bulletin

Car theft has been steadily increasing since the 1970s with the advent of "chop shops" that sell stolen parts and the emergence of new techniques, such as buying a salvaged car for its title and vehicle identification number (VIN) and placing the VIN onto a stolen car. Congress passed legislation called the Motor Vehicle Theft Law Enforcement Act of 1984, which sought to deal with these types of crimes. The bill required the U.S. Department of Transportation (DOT) to create a vehicle theft prevention standard requiring automobile makers to inscribe or affix an identifying number or symbol onto certain parts of passenger cars that it assessed as having a high risk of theft. The 1992 Federal Anti-Car Theft Act now requires all cars to be marked regardless of the vehicle's theft rate. Using data from the FBI's National Crime Information Center and DOT's insurer database, the National Institute of Justice funded a study to evaluate the success of the antitheft measures. Seventy-five percent of automobile theft investigators in 47 jurisdictions nationwide found that antitheft labels were helpful in arresting individuals who steal or sell stolen parts of vehicles. Although law enforcement investigators disagree about whether the labeling aids in deterring theft, they believe that chop-shop operators will not buy parts with missing labels or without proper paperwork. While removal of the labels still remains a constant obstacle, most manufacturers use adhesive labels that leave a trace detectable by a verifier. Unfortunately, many departments do not have access to verifiers or do not employ patrol officers who are knowledgeable about locating the labels or identifying which cars should have labels. Investigators state that the system would be more effective if manufacturers were to stamp VINs on the component parts; if departments were to provide more systematic and frequent training about the labels; and if States were to enact legislation that makes tampering with or removing labels an offense.

Orange County Deputies To Use Video During Family Disturbance Calls

Los Angeles Times

The Orange County Sheriff's Department in California is giving deputies digital video cameras to film family disturbance calls. The 20 cameras cost $20,000 and will help provide evidence for domestic violence cases. Officials hope the cameras will provide strong evidence of the toll of violence in the home. Law enforcement agencies are enacting tough approaches to domestic violence, resulting in a 431-percent increase in arrests in the county from 1988 to 1998. Orange County Superior Court Judge Pamela Iles asked Sheriff Mike Carona to conduct research using the video cameras to capture disturbance scenes that would later be employed in court. The digital cameras hold 30 seconds of footage and have clearer pictures than instant cameras. Los Angeles County sheriff's deputies were among the first to use handheld cameras at crime scenes.

Nice N Easy Swipes Underage Liability

Fairchild's Executive Technology

Convenience stores are heavily dependent on tobacco sales, so verifying the age of customers is a serious concern for store owners. In New York State, the Nice N Easy Grocery Shoppes chain has installed new age-verifying scanning technology in all of its stores to ensure that tobacco products and liquor stay out of the hands of minors. Because the scanner reads the magnetic strip on the back of driver's licenses, the machine will not be fooled, even if the customer has visually altered the front of the license. Furthermore, because the machine, and not the clerk, has the final say on whether a sale is approved, clerks will be able to avoid many of the arguments that result when a sale is refused.

High-Tech Gear Will Fight Gangs, Graffiti

San Diego Union-Tribune

The San Diego Police Department has been awarded a Federal grant of $194,027 from the California Office of Criminal Justice Planning, California Law Enforcement Technology Equipment Program to assist in combating gang activities and graffiti in the city. The grant will go toward the purchase of high-tech gear such as a global positioning system, wiretap devices, and video and audio equipment, which will be used to help police collect evidence and identify graffiti taggers.

Rural Law Enforcement Center To Be Built in Hazard, Kentucky

Associated Press

A partnership between Eastern Kentucky University's College of Justice and Safety; the Hazard, Kentucky, Police Department; and U.S. Representative Hal Rogers (R-KY) has led to plans to build a 36,000-square-foot law enforcement center in Hazard that will assist rural police and sheriffs throughout the country. The Rural Law Enforcement Training and Technology Center will cost $4.3 million and open in 2001. Rogers said that the center will greatly help rural areas, which are increasingly affected by crime. The Hazard facility will have technology, testing, and training services like the ones found in urban areas of the United States.

Ballistics Experts Taking Lead in Many Investigations

Philadelphia Inquirer

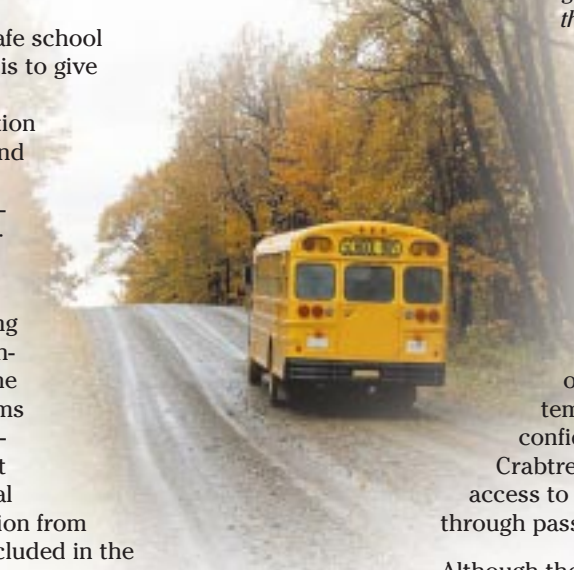
Thanks to new computer technology that can digitally store unique markings appearing on used bullets and shells, police firearms experts can make quick, accurate comparisons and link several slayings to a single perpetrator. Using the Integrated Ballistics Identification System (IBIS) to determine the markings on the ballistic evidence, shells found at a crime scene in the 500 block of Philadelphia's Allegheny Avenue, along with traditional police work, led the 25th Police District to the capture and imprisonment of a city drug dealer responsible for four murders, as well as 13 other individuals who have since been convicted of murder and related offenses. The $240,000 IBIS unit given to the district uses a mathematical formula to digitally decipher the markings, building an inventory of images that has already led to 90 matches in this district alone that would have gone unsuspected if not for the system. At the moment, 86 IBIS units have been given to police agencies throughout the United States by the U.S. Bureau of Alcohol, Tobacco and Firearms. These units will all be linked in a network to a national database in the near future.

Keeping It a 'Normal' School Day

Recent violent acts committed by both elementary and high school students against classmates, faculty, and staff have put school safety at the top of almost every school administrator's agenda and have become a major concern to local law enforcement.

In response, the International Association of Chiefs of Police and the National Institute of Justice's (NIJ's) National Law Enforcement and Corrections Technology Center (NLECTC)–Southeast hosted a forum earlier this year for more than 50 law enforcement officials, school police, counselors, administrators, and teachers. Their task was to identify what they saw as the most effective technology solution to address school safety. The overwhelming majority said the ability to share information is most important.

As a result, NLECTC–Southeast along with its Regional Advisory Council and the South Carolina Research Authority, initiated a pilot information-sharing project to evaluate how effective this type of technology would be in helping school administrators track at-risk teens.



The idea behind this "safe school shared information system" is to give officials a single formalized process for sharing information to determine if there is a trend of unsafe or criminal behavior, says Mindy Frazier, information services manager for the town of Normal, Illinois. For example, if a police officer responds to a fight among teens over the weekend, principals would be alerted to the possibility of related problems come Monday morning. Conversely, when schools report alleged or suspected criminal behavior to police, information from those incidents would be included in the network as well. Although some of this type of sharing occurs now, it is only on a limited basis, Frazier says. She adds, however, there are very specific guidelines about the information that can be shared. Private student records cannot be shared without a court order, for example.

The pilot system links authorized users from the Bloomington and Normal police departments, the McLean County State's Attorney's Office, the juvenile division of the Illinois Department of County Court Services, the local office of the Illinois Department of Children and Family Services, and schools from two districts in the Bloomington–Normal, Illinois, area. The Normal Police Department is the lead local agency and houses the network.

What is being created and evaluated is a "virtual private network" that uses encryption and other security mechanisms to ensure that only authorized users access the network, and that the data cannot be intercepted. Members of the network will receive software that allows them to hook into the network's World Wide Web server and communicate through a privacy-protected e-mail system. Installation is currently underway, with full operation anticipated late this year. "With this program, we hope to share information and give schools a heads up to young people who might be predisposed to violence," says Gary Speers, assistant chief for the Normal Police Department.

"Once potential problems are identified, school officials plan to intervene before problems manifest themselves on school grounds. Students who have been in trouble outside of school will be called into direct conferences with administrators to talk about problems, or they will be asked to participate in parent-teacher meetings, counseling, or peer intervention."

McLean County State's Attorney Charles Reynard says he is "thrilled" to have the system available. In addition to sharing and receiving information via the network, Reynard says his office will provide legal research to ensure that any information added to the network does not break confidentiality or privacy laws. *[The Federal Family Education Rights and Privacy Act (FERPA) governs the disclosure of information for educational records and is designed to protect the rights of students and parents. However, the law also makes provisions for access to pertinent information by law enforcement and the juvenile justice system, to the extent allowed by individual State statutes.]*

Each member of the network will designate one or two individuals to regularly check for youngsters who have committed an act of violence and alert other members. At the Normal Community West High School, the two educational deans will be the only employees with access to the system. "The one feature I really like is the confidentiality aspect," says Principal Jerry Crabtree. "Only one or two people will have access to the software—and it's all protected through passwords."

Although there has been a slight decrease in teen violence over the past year, school officials have been busier than ever dealing with an increase in threats of violence, Speers says. Crabtree adds, "We're trying to head off potential problems. The concept just makes sense. This way, we can be proactive rather than reactive."

Funding for this pilot project was obtained through NIJ and NLECTC–Southeast.

For more information about the safe school information sharing project, contact Bill Nettles at the National Law Enforcement and Corrections Technology Center–Southeast, 800–292–4385.

[Editor's Note: Part of the text for this article was excerpted with permission from "Best Practices–Internet: Principals, police use internet to track troubled teens," published in the February 2000 edition of* eSchool News. *For more information about* eSchool News, *call 800–394–0115 or log on to www.eschoolnews.com.]

Security Technologies in U.S. Schools

Because of recent school violence episodes, communities around the country have put pressure on school districts to incorporate more extensive security measures into their safety programs.

The Appropriate and Effective Use of Security Technologies in U.S. Schools is a guide to help school administrators and their colleagues in law enforcement analyze a school's vulnerability to violence, theft, and vandalism and to research possible technologies to effectively address these problems. This National Institute of Justice Research Report is based on a 7-year study of more than 100 schools and offers practical guidance on several aspects of security, including security concepts and operational issues, video surveillance, weapons detection devices, entry controls, and duress alarms.

To receive a copy of *The Appropriate and Effective Use of Security Technologies in U.S. Schools,* contact the National Criminal Justice Reference Service at 800–851–3420. You can also view and download this publication through the World Wide Web site of the National Institute of Justice at www.ojp.usdoj.gov/nij/pubs-sum/178265.htm.

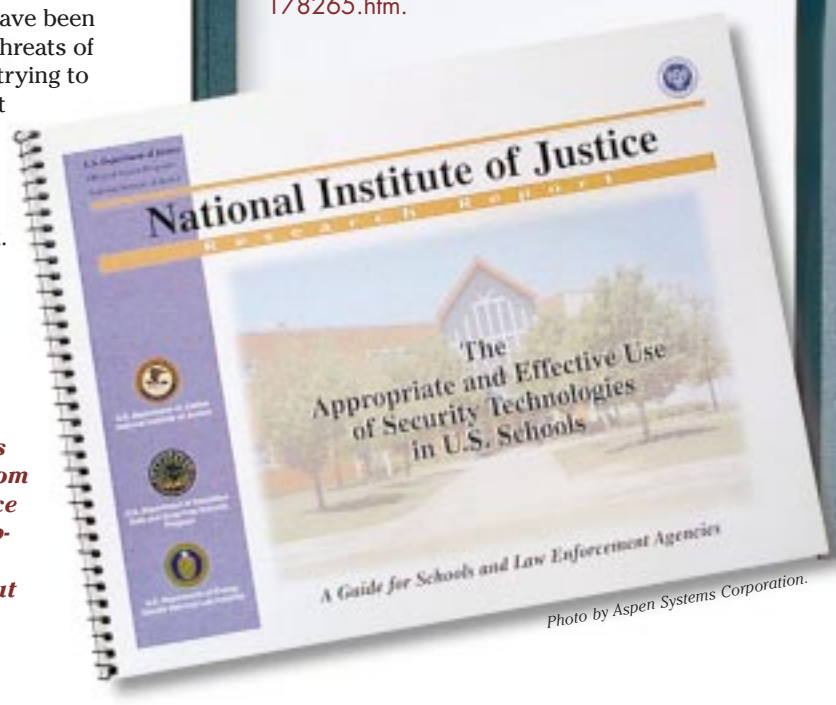


Photo by Aspen Systems Corporation.

(Patching Your Way . . . cont. from page 5)

need a base interface module (BIM) card, which will need a base interface module (BIM) card, which will connect to the phone system. This is a relatively simple device that costs from $1,000 to $1,200. The hub agency needs a fairly current radio system that can accept phone lines from the spoke agencies. This generally entails "slots" in the electronics banks, which hold circuit boards that have phone connections on them. The number of these slots in more current radio systems can be increased, but it may cost thousands of dollars. Phone lines must be able to carry voice signals and the inaudible signaling tones that accompany the voice. They cannot have a dial tone. If a group of agencies has a hub system that does not need to expand, cost per agency could run from $3,000 to $4,000 to install the appropriate phone line and buy a base interface module. The second type of cost is the recurring or "monthly" service charge, such as the fee for the telephone line.

Funding for both BORTAC and RIO-Com came from CTAC. Funding from this agency required a counterdrug mission be a part of the project. For example, BORTAC and RIO-Com are important tools in keeping drugs from crossing the U.S. Mexico border. Waldron says, however, that it is conceivable that a group of agencies can connect to one another without outside funding.

For more information about BORTAC or RIO-Com, contact Chris Aldridge at the Border Research and Technology Center, 888–656–2782, or Robert Waldron at the National Law Enforcement and Corrections Technology Center–West, 888–548–1618. Lt. Charles Hoskins of the Brownsville, Texas, Police Department can be contacted at 956–548–7119. In addition, BORTAC was the genesis for several interoperability-related projects sponsored by the National Institute of Justice, culminating in the Advanced Generation of Interoperability for Law Enforcement (AGILE) Program. For more information about the AGILE Program, log on to www.nlectc.org/agile.

The 'Center System'

Created in 1994 as a component of the National Institute of Justice's (NIJ's) Office of Science and Technology, the National Law Enforcement and Corrections Technology Center (NLECTC) system's goal, like that of NIJ, is to offer support, research findings, and technological expertise to help State and local law enforcement and corrections personnel do their jobs more safely and efficiently.

NIJ's NLECTC system consists of facilities across the country that are colocated with an organization or agency that specializes in one or more specific areas of research and development. Although each NLECTC facility has a different technology focus, they work together to form a seamless web of support, providing technology assistance, support, and information.

NLECTC–National

2277 Research Boulevard • Rockville, MD 20850
Phone: 800–248–2742 • Fax: 301–519–5149 • E-mail: asknlectc@nlectc.org

The National Center, located just 30 minutes north of Washington, D.C., is the hub of the NLECTC system. It provides information and referral services to anyone with a question about law enforcement and corrections equipment or technology. Its staff manage the voluntary equipment standards and testing program that tests and verifies the performance of body armor, metallic handcuffs, shotguns, and police vehicles and tires. This office produces consumer product lists of equipment that meets a specific set of performance standards and also operates JUSTNET (Justice Technology Information Network), an Internet World Wide Web site that provides links to the entire NLECTC system and other appropriate sites, as well as assistance to those seeking information about equipment, technology, or research findings.

NLECTC–Northeast

26 Electronic Parkway • Rome, NY 13441
Phone: 888–338–0584 • Fax: 315–330–4315 • E-mail: nlectc_ne@rl.af.mil

NLECTC–Northeast is located at the Air Force Research Laboratory, Rome Research Site (formerly Rome Laboratory), on the grounds of the Griffiss Business and Technology Park. The center sponsors research and development efforts into technologies that address command, control, communications, computers, and intelligence. This center draws on the expertise of Air Force scientists and engineers in its development of technologies that can be used to detect weapons concealed on individuals, an effort that is expected to yield stationary equipment for use in buildings and handheld devices for field and patrol officers. Other areas of research and development include through-the-wall sensors, audio processing, image processing, timeline analysis, computer forensics, secure communications, and command/control.

NLECTC–Southeast

5300 International Boulevard • North Charleston, SC 29418
Phone: 800–292–4385 • Fax: 843–760–4611 • E-mail: nlectc-se@nlectc-se.org

Two of the focus areas of NLECTC–Southeast are corrections technologies and surplus property acquisition and distribution for law enforcement and corrections. The center facilitates the acquisition and redistribution of Federal surplus/excess property to State and local law enforcement and corrections agencies. The equipment must be used for law enforcement purposes only. Utilizing the JUSTNET Web site, the center educates law enforcement and corrections professionals about Federal surplus and purchasing programs. The efforts of NLECTC–Southeast have resulted in agencies receiving equipment they would not ordinarily have access to or might not have been able to afford due to budgetary constraints. This facility also studies the needs of corrections agencies. It is guided in this mission by a committee of criminal justice, law enforcement, and corrections practitioners that identifies requirements and sets priorities for research and development. NLECTC–Southeast is allied with the South Carolina Research Authority (SCRA) and the Space and Naval Warfare Systems Center (SPAWAR). NLECTC–Southeast's other areas of focus include information management and technologies, simulation training, and designated special projects.

NLECTC–Rocky Mountain

2050 East Iliff Avenue • Denver, CO 80208
Phone: 800–416–8086 or 303–871–2522 in the Denver area • Fax: 303–871–2500 • E-mail: nlectc@du.edu

Located at the University of Denver, NLECTC–Rocky Mountain focuses on communications interoperability and the difficulties that often occur when different agencies and jurisdictions try to communicate with one another. This facility works with law enforcement agencies, private industry, and national organizations to implement projects that will identify and field test new technologies to help solve the problem of interoperability. NLECTC–Rocky Mountain also houses the Crime Mapping and Analysis Program, which provides technical assistance and training to local and State agencies in the areas of crime and intelligence analysis and geographic information systems (GIS). The Rocky Mountain facility also conducts research into ballistics and weapons technology, as well as information systems. Sandia National Laboratories has been designated as a satellite of NLECTC–Rocky Mountain. The laboratory works in partnership with NLECTC–Rocky Mountain and focuses on technology for detecting and neutralizing explosive devices.

NLECTC–West

c/o The Aerospace Corporation • 2350 East El Segundo Boulevard • El Segundo, CA 90245–4691
Phone: 888–548–1618 • Fax: 310–336–2227 • E-mail: nlectc@law-west.org

NLECTC–West is housed on the grounds of The Aerospace Corporation, a nonprofit corporation that provides technical oversight and engineering expertise to the Air Force and the U.S. Government on space technology and space security systems. NLECTC–West draws on The Aerospace Corporation's depth of knowledge and scientific expertise to offer law enforcement and corrections the ability to analyze and enhance audio, video, and photographic evidence. In cooperation with The Aerospace Corporation, this NLECTC facility also has available an extensive array of analytic instrumentation to aid in criminal investigations, such as a scanning electron microscope, an x-ray microscope, and a mass spectrometer, all of which are used to process trace evidence. Its other areas of expertise include computer architecture, data processing, communications systems, and identifying technologies to stop fleeing vehicles.

Border Research and Technology Center (BRTC)

225 Broadway, Suite 740 • San Diego, CA 92101
Phone: 888–656–BRTC (2782) • Fax: 888–660–BRTC (2782) • E-mail: brtcchrisa@aol.com

The Border Research and Technology Center works with the Immigration and Naturalization Service, the U.S. Border Patrol, the U.S. Customs Service, the Office of National Drug Control Policy, and the U.S. Attorney for the Southern District of California to develop strategies and technologies that will facilitate control of the Southwest border. One of its most recognized accomplishments has been the implementation of SENTRI (Secured Electronic Network for Travelers' Rapid Inspection). BRTC also works on joint ventures to identify technologies that will stop fleeing vehicles and is currently participating in a project to detect the heartbeats of people concealed in vehicles or other containers.

Office of Law Enforcement Standards (OLES)

100 Bureau Drive, Stop 8102 • Gaithersburg, MD 20899–8102
Phone: 301–975–2757 • Fax: 301–948–0978 • E-mail: oles@nist.gov

Supported by NIJ, the Office of Law Enforcement Standards applies science and technology to the needs of the criminal justice community. While its major objective is to develop minimum performance standards for equipment and technology, which NIJ promulgates as voluntary national standards, OLES also undertakes studies leading to the publication of technical reports and user guides. Its areas of research include clothing, communications systems, emergency equipment, investigative aids, protective equipment, security systems, vehicles, and weapons. It also develops measurement methods for analytical techniques and standard reference materials for forensic scientists and crime labs. Since the program began in 1971, OLES has coordinated the development of nearly 200 standards, user guides, and advisory reports. Housed at the National Institute of Standards and Technology, OLES works closely with NLECTC–National to conduct tests and to guarantee the performance and quality of equipment used by police and corrections.

Office of Law Enforcement Technology Commercialization (OLETC)

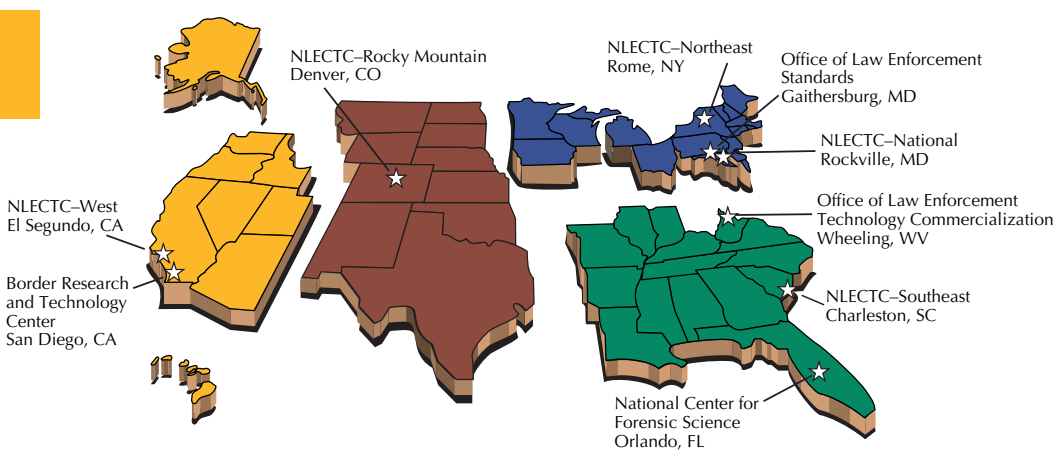
Wheeling Jesuit University • 316 Washington Avenue • Wheeling, WV 26003
Phone: 888–306–5382 • Fax: 304–243–2131 • E-mail: oletc@nttc.edu

The Office of Law Enforcement Technology Commercialization, a program of NIJ, is located at Wheeling Jesuit University. OLETC's mission is to work with industry, manufacturers, and laboratories to facilitate the commercialization of technologies for the law enforcement and corrections marketplace. OLETC provides special services and assistance to innovators, entrepreneurs, universities, Federal and other laboratories, and U.S. manufacturers nationwide in commercializing technologies that will enhance the effectiveness of law enforcement and corrections practitioners. A national partnership is being developed to provide a continual pipeline of innovative products, concepts, and value-added services that will expedite the commercialization of new products and services needed for State and local law enforcement and corrections communities. OLETC has directly assisted in commercializing several innovative products, including the RoadSpike™, a novel vehicle-stopping device; Tiger Vision®, a special low-cost, handheld night vision device; an Explosive Ordnance Disposal Technician Training Kit; and the Counterpoint Stab and Slash Protective Vest. OLETC has identified more than 70 additional emerging technologies and concepts that are currently being evaluated for possible commercialization.

National Center for Forensic Science

University of Central Florida • P.O. Box 162367 • Orlando, FL 32816–2367
Phone: 407–823–6469 • Fax: 407–823–3162 • E-mail: natlctr@mail.ucf.edu

The newest addition to the NLECTC system, this facility is housed in the University of Central Florida and initially will focus on arson and explosives research. Its mission is to conduct fundamental research into the basic nature of fire and explosion reactions, provide the support to develop standard protocols for analyzing arson and explosion debris, promote the use of electronic media to access and exchange information about the forensic sciences, and provide educational opportunities to practicing professionals and full-time students. This new facility will draw on the experience and expertise of the university, which houses a forensic science program with an active research program, as well as the Institute of Simulation and Training, which is currently exploring ways to simulate explosive reactions to study various chemical processes.



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Free Reports

From the

National Criminal Justice Reference Service

In addition to funding the National Law Enforcement and Corrections Technology Center, NIJ supports the National Criminal Justice Reference Service (NCJRS), an international clearinghouse on crime and justice information. NCJRS staff respond to reference questions, provide referrals to other resources, distribute NIJ and other Office of Justice Programs (OJP) documents, and maintain a mailing list of more than 45,000 registered users. In addition, NCJRS sponsors a calendar of events at http://www.eventcalendar.ncjrs.org, which lists conferences and meetings of interest to the criminal justice community. If you are interested in signing up for the NCJRS mailing list, you may request a registration form using any of the following methods:

Fax-on-Demand

Dial 800–851–3420,
select option 1, then option 1 again.
The registration form is #1
on the document index.
The form will be faxed to you immediately.

Fax

Fax your request for a
registration form to 410–792–4358.
You will receive a form
promptly in the mail.

Online

Go to http://www.ncjrs.org/puborder
and request a registration form, BC640.
It will be sent to you in the mail.
Or, actually register online at
http://www.ncjrs.org/register.

Write

Send a written request to
NCJRS, P.O. Box 6000,
Rockville, MD 20849–6000.

Call

Call an NCJRS
information specialist and
request a registration form.
The number is 800–851–3420.

As a registered user, you will receive the bimonthly *NCJRS Catalog,* the *NCJRS Users Guide,* and news and announcements of new publications and resources based on your criminal justice interests. For more information about NIJ and NCJRS, visit their Web sites:

http://www.ojp.usdoj.gov/nij
http://www.ncjrs.org.

NEW Publications

The following publications/videos are available from the National Law Enforcement and Corrections Technology Center–National:

TechBeat, Summer 2000. Articles discuss the New York Electronic Crimes Task Force, a state-of-the-art correctional facility in Kentucky's horse farm country, and through-the-wall surveillance technology.

Michigan State Police Tests 2001 Police Vehicles. This bulletin summarizes test results from the Michigan State Police's annual evaluation of "police package" and "special service" patrol vehicles.

Equipment Performance Report: A Study of the Effectiveness of Tire Deflation Devices When Utilized Against Self-Sealing and Run-Flat Tires. This report details the results of an evaluation of tire deflation devices, which were tested using several brands of self-sealing and run-flat tires. The devices are for use by law enforcement during pursuits. (Note: This report is available only to law enforcement agencies and must be requested via a written request on department letterhead to NLECTC, P.O. Box 1160, Rockville, MD 20849–1160.)

The following publications/videos will be available soon:

A Guide to Law Enforcement, Corrections, and Forensic Technology Resources Within the Office of Justice Programs. This first-of-its-kind resource guide delivers valuable information on law enforcement and corrections technology programs and activities of the U.S. Department of Justice's Office of Justice Programs, including available technologies; funding sources and demonstration programs; equipment standards, testing, and evaluation; current research and development initiatives; and training.

Selection and Application Guide to Police Body Armor (Revised). This guide, an update of the October 1998 publication, responds to questions about the selection and use of body armor for law enforcement. It responds to commonly expressed concerns and provides information to help determine the level of protection required by officers. This guide provides information on the newly released 0101.04 ballistic-resistant standard and the new stab-resistant standard *(NIJ Standard-0115.00).*

Surviving a Shooting: Your Guide to Personal Body Armor. This video presents the facts on personal body armor: what it is, what it can and cannot protect against, how to select it, and how to wear and care for it properly. The video depicts how the National Institute of Justice tests and validates body armor. Also discussed is how performance levels are developed by the National Institute of Standards and Technology's Office of Law Enforcement Standards, as well as the newly released 0101.04 ballistic-resistant standard.

2000 Mock Prison Riot Video. This videotape features technologies used to quell a mock prison riot staged by the National Institute of Justice's Office of Law Enforcement Technology Commercialization. Emerging technologies were incorporated into training scenarios to demonstrate the latest crimefighting strategies.

Michigan State Police 2001 Patrol Vehicle Testing. This report provides a complete listing of the data, including summary charts, resulting from the Michigan State Police's 2001 patrol vehicle testing.

To obtain any of the above publications or videotapes or to receive additional copies of the* TechBeat *newsletter, write NLECTC, P.O. Box 1160, Rockville, MD 20849–1160; telephone 800–248–2742. Publications can also be downloaded from JUSTNET at www.nlectc.org.

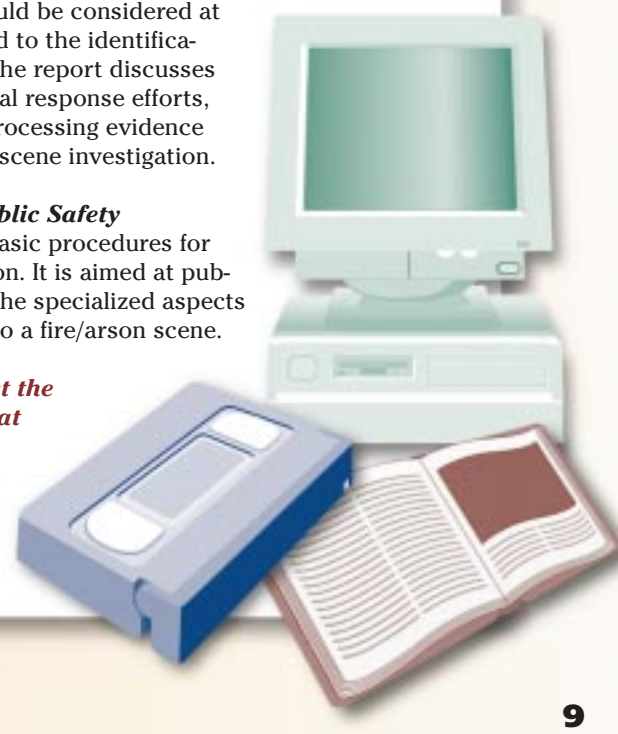
The following publications are available from the National Institute of Justice:

A Guide for Explosion and Bombing Scene Investigation. This NIJ Research Report outlines the tasks that should be considered at every explosion scene, focusing on those related to the identification, collection, and preservation of evidence. The report discusses procuring equipment and tools, prioritizing initial response efforts, evaluating the scene, documenting the scene, processing evidence at the scene, and completing and recording the scene investigation.

Fire and Arson Investigation: A Guide for Public Safety Personnel. This NIJ Research Report outlines basic procedures for fire scene documentation and evidence collection. It is aimed at public safety personnel who may not be trained in the specialized aspects of fire scene investigation but have to respond to a fire/arson scene.

To obtain the above NIJ publications, contact the National Criminal Justice Reference Service at 800–851–3420 or visit the NIJ Web site at www.ojp.usdoj.gov/nij.

= Online *= Printed* *= Video*



Helping To Pay for Body Armor

Law enforcement agencies can buy body armor for half the price by taking advantage of the U.S. Department of Justice's Bulletproof Vest Partnership (BVP) Grant Act of 1998, administered by the Bureau of Justice Assistance (BJA).

Law Enforcement Eligibility

According to the Act, the term "Law Enforcement Officer" means any officer, agent, or employee of a State, unit of local government, or Indian tribe authorized by law or by a government agency to engage in or super vise the prevention, detection, or investigation of any violation of criminal law, or authorized by law to super vise sentenced criminal offenders. This includes full-time, part-time, and auxiliary personnel, whether paid or volunteer. States, units of local government, or recog nized tribal governments with officers that meet this definition are eligible to participate.

Application Authority

In order to participate, law enforcement personnel and agencies cannot apply on their own; they must work through their respective "jurisdiction." Jurisdictions are considered the most basic level of government recog nized by the U.S. Census Bureau. This includes towns, cities, villages, boroughs, parishes, counties, or States. Applications must be submitted by, or on behalf of, the jurisdiction's chief executive. The chief executive is the highest ranking executive officer (e.g., mayor, city man ager, county executive, governor). The chief executive/designee is responsible for certifying the accuracy of the application, requesting payments, disbursing funds, and ensuring compliance with applicable program standards and requirements. Federal payments are sent electroni cally to the jurisdiction's bank account, as identified during the registration process.

Funding Limitations

The program is designed to pay up to 50 percent of the cost of NIJ-approved vests contained in a juris diction's application. Given the projected number of eligible jurisdictions and the limited funds available, the BVP may not have sufficient funds to provide 50 percent for all applications. It is strongly recom mended that jurisdictions and law enforcement agencies not order vests contained in their application until it is approved by BJA, unless they have sufficient resources to cover initial costs and any potential shortfall that may result if less than 50 percent is provided.

For more information, access www.vests.ojp.gov on the World Wide Web or contact the U.S. Depart ment of Justice Response Center at 800–421–6770. The Response Center also has information available on State programs and nonprofit organizations that have grant or other funding programs available. This information can be located through the above Web site under the "Program Resources" page.

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