

TECHbeat

Dedicated to Reporting Developments in Technology for Law Enforcement, Corrections and Forensic Sciences

The Results Are In: Automatic License Plate Reader Technology Leads to Success

A suspect wanted for murder in Arizona flees toward Los Angeles. An Arizona police department contacts the Los Angeles County Sheriff's Department (LASD) and asks that deputies stay on the lookout for the suspect's vehicle. LASD does more than keep a lookout: detectives review information from the county's Automatic License Plate Reader (ALPR) database and find that car parked at a local motel. Suspect arrested, case closed.

That's just one of many recent success stories from around the country in which ALPR technology has played a part. A new report published by the International Association of Chiefs of Police (IACP), *License Plate Reader Systems: Policy and Operational Guidance for Law Enforcement*, summarizes the results of a recent IACP study that shows just how successful agencies across the United States have been

in implementing ALPR technology, documents some of the technology's pros and cons and offers details on lessons learned.

IACP Project Manager Meghann Tracy explains that the study had two components: a survey of 500 agencies to gauge the level of implementation of ALPR technology, and site visits to 10 agencies that had used ALPR for at least 12 months. Agencies selected to participate

in the survey represented a mix of agency types and sizes, and the survey had a main goal of finding out why agencies became interested in implementing the technology, how they use ALPR and the values they have realized from using it.

"A lot of them go in with the idea that ALPR is great for finding stolen vehicles, but they often learn it has many other uses as well," Tracy says. "It's extremely helpful as an investigative tool. For instance, a police department received a call about a robbery, and officers driving a vehicle equipped with ALPR passed the suspect vehicle on the way to the call without knowing they had done so since, at that time, officers had not yet interviewed witnesses. The witnesses were subsequently able to describe the car and provide a partial plate number for the vehicle.

(See Automatic License Plate Reader, page 2)



Blended Learning Mixes Methods

Like the self-directed online approach to training because of the freedom it offers, but miss the opportunity to interact with other students and instructors? Like the give-and-take of a classroom, but lack the time to take a week away from work? Then maybe it's time to try blended learning.

In several of its National Institute of Justice (NIJ)-funded training programs, the National Forensic Science Technology Center (NFSTC) uses the blended learning approach, offering participants the opportunity to apply, do prerequisite work, access supplemental material and complete assessments online, followed by a shorter period of classroom instruction. Blended learning also may incorporate, at various

(See Blended Learning Mixes Methods, page 3)

"The agency reviewed the LPR system, which captures and retains images of vehicles and their license plates and the time, date and location they were observed, and using a wild card search, identified a vehicle that matched the description provided by the witnesses. As a result, police were able to determine the license plate number and the registered owner of the vehicle, which gave them something concrete on which to base their investigation," she says.

Tracy says that many agencies have also found ALPR to be helpful at checkpoints and they report more successful traffic stops. "They're really getting the people they're looking for."

"Previously, an officer driving down the street had to be alert for specific makes and models of vehicles, and then call for a check on a license plate if something looked suspicious," says Dave Roberts, IACP Technology Center senior program manager. "ALPR frees them to be alert in other ways while it automatically captures all the license plates and checks them against lists of stolen vehicles, unpaid parking tickets, expired registration or Amber Alerts."

Of the 500 agencies that received the survey, 261 responded that they did not use the technology, while 80 responded positively. Of those that use ALPR, 40 completed the entire survey and the rest indicated either that they had just started using the technology or they could not complete the survey due to confidentiality issues. Participating agencies included municipal police departments, sheriff's departments and state police agencies. Tracy says the IACP looked for common traits among participants to try to determine whether certain types of the technology work better for certain types of agencies or in specific geographic areas, and includes the results of that analysis in the report.

"One of the biggest lessons learned is that agencies need to bring IT in at the beginning of the implementation process. ALPR definitely is not 'plug and play,'" Tracy says. "There is a lot to be considered when working with this technology. There are storage concerns, there is data transfer, there are just a lot of things that IT needs to be in on from the beginning. If a police department doesn't have its own IT department, but rather draws from a pool for the entire municipality, it might be a good idea to ask to have a person assigned to the project who can become familiar with the technology."

Tracy says that many respondents also cited the need for more training as another important lesson learned. Several responses suggested that agencies should plan to "establish power users," that is, officers who thoroughly understand and regularly use ALPR and can answer questions for officers who are just learning to use the technology. If several of these resource officers are available, answering questions won't become overwhelming for any one of them. Also, if one officer retires or transfers, other experts remain available.

Tracy says numerous agencies named conducting research during the planning process as the third "big one" when it came to lessons learned.

"Talk to other agencies in your area. Go visit them. Go ride along with them. Check a vendor's references, but also talk to agencies other than the ones a vendor gives as references," she says. She adds that if agencies learn about the technical challenges that other municipalities have faced, it may help them sell the idea to their community that the cheapest technology may not necessarily be the best.

"If you can provide your city with an explanation of why a more expensive system is a better option for you, it may cost less in the long run because you won't be spending additional money to fix problems," Tracy says. "For example, some agencies did not purchase enough data storage in the beginning, and had to pay for it later."

To download a copy of License Plate Reader Systems: Policy and Operational Guidance for Law Enforcement, go to <http://www.iacp.org/>.

Los Angeles County Deputies Take to LICENSE PLATE TECHNOLOGY

The Los Angeles County Sheriff's Department (LASD), one of 10 sites visited during the International Association of Chiefs of Police (IACP) survey, started using Automatic License Plate Reader (ALPR) technology in 2007 more or less as an experiment — one that has proven very successful, according to Lt. Chris Cahhal of the agency's Law Enforcement Information Sharing Program.

Cahhal says LASD originally installed the technology in less than a dozen cars, because although it appeared to be a good way to locate stolen vehicles, the agency wasn't sure of its full value. ALPR quickly gained acceptance and approval in the field, and today, the sheriff's department uses ALPR in 57 cars (out of 2,500) scattered throughout the county as well as at four fixed sites. Cahhal says the technology has been accepted so well the county could easily double or triple the size of its installation, it's just a matter of obtaining funding.

"I get calls from station captains all the time wanting to know how to get more ALPR units assigned."

Funds for the upgrades and the additional units have come from a variety of different sources, such as narcotics forfeitures and grants, in addition to the department's budget. Also, Cahhal says, there are 40 contract cities in Los Angeles County, and some funding has come from those municipalities as word about ALPR's ease-of-use and accurate alerts spread.

"It was very user-friendly right from the beginning. It didn't require a lot of training and that's usually key in anything," Cahhal says.

"The big fear was that the deputies would find the systems difficult to use and only a small percentage of deputies would embrace the technology. Acceptance, though, has been high and we don't have to send them to extensive classes to train them."

"Our biggest 'Ah-ha!' in the whole thing was the need to give the individual stations a lot of leeway on how to use it," he says. "We have 23 stations, each with its own unique workload and unique set of enforcement priorities. An alert associated with a misdemeanor traffic warrant might be welcomed on a slow night at one station and considered an annoyance at another station on a busy night. We give the deputy the option on which hotlist they want to be alerted on. They can be alerted on everything or just those vehicles that are stolen or associated with a felony. We try to make it as easy for the deputies in the field as possible."

LASD's original system required deputies to download their scans onto a thumb drive and bring them into the station to upload at the end of a shift; the county has since moved on to using wireless "hot spots" in the parking lot where they can download the most current lists before a shift starts and upload new scans to the database when the shift ends. Soon, LASD will switch to another system where updates and downloads occur automatically in real time.

Implementing this new technology and these subsequent upgrades has not only made it easier for deputies in the field to patrol, it also resulted in some quick successes.

"Seasoned deputies who pride themselves on catching car thieves were surprised at some of the cars and drivers that generated stolen vehicle alerts," Cahhal says.

While those alerts generate results in the field, LASD also downloads all of the system's scans into a central database that can be searched and analyzed by detectives. Information generated through this type of research has resulted in a number of arrests for major crimes such as rape and murder, he says. Another 22 local police departments in the county also use ALPR and share data with LASD, expanding the detectives' resources for research.

"A typical research-related success involved a security guard's being shot at a local bar," Cahhal says. "Witnesses got the license number and deputies ran it. A detective checked to see if it had been scanned before, and although it was registered in another county, it had been scanned 19 times at a local residence. The deputies went there and arrested the suspect and found the gun. Everybody says this would have been difficult to solve if not for ALPR."

For more information on the Los Angeles Sheriff's Department use of ALPR technology, contact Lt. Chris Cahhal at CSCahhal@lasd.org. For information on the National Institute of Justice's programs related to license plate recognition technology, contact William Ford at william.ford@usdoj.gov.





BLENDING CLASSROOM +

ONLINE

(Blended Learning Mixes Methods . . . cont. from page 1)

times, self-paced paper-based training, the opportunity to view videos of previous classroom instruction and portable CD-ROM instruction that does not require an Internet connection. Basically, blended learning applies an integrated instructional approach to training that features multiple methods of delivering instruction.

“Blended learning follows a nontraditional format instead of the “stand up and deliver” approach,” says Eileen Fynan, NFSTC training operations manager. “By blending various methods, you have greater potential for outreach and can reach a larger audience at a lower cost. Through delivery of self-paced components within a learning management system (LMS), individuals benefit from a flexible and convenient learning environment but still have the opportunity to interact with other learners. Our model has been to provide a theoretical knowledge base before participants come together, which enables the classroom portion to be more practical and hands on.”

NFSTC is in the process of developing a new blended learning curriculum on medicolegal death investigations, and recently implemented a successful course on the essentials of crime scene investigation. The center has been evolving and refining the process for several years, starting with the development of an intensive and extensive DNA curriculum that used focus groups, review panels and technical writing support to help devise the curriculum, which is currently available on NIJ’s DNA.gov site. Fynan explains that NIJ was extremely pleased with the final product, but suggested a shift to smaller, modular trainings that could be developed more quickly than the two years it took to create the DNA training.

Prior to the classroom instruction portion of a blended learning training at NFSTC, students complete all online activities and demonstrate mastery of the subject matter at 80 percent or greater. This ensures that each student comes into the classroom with the same baseline knowledge, according to Lori Sullivan, NFSTC instructional design coordinator. This avoids having participants whose levels of

experience and knowledge vary so greatly that the instructor has to adjust the training on the fly, and activities generally run more smoothly, she says. NIJ and NFSTC have offered a variety of blended learning courses on various topics, such as DNA analysis, digital evidence and firearms examination. Although enrollment in the hands-on portion of these trainings is limited by funding, the Web-based portions remain online, available to a broader audience that can take this portion of the training at their leisure.

“More and more, NIJ and the Bureau of Justice Assistance are looking to leverage existing materials and create blended learning programs through a minimum of new curriculum development,” says Fynan. “After the funding for a particular project ends, the online portions remain sustainable and available. Sometimes these components can also be repurposed into other training events.”

Blended learning courses created and developed by NFSTC are listed below:

- **Principles of Forensic DNA for Officers of the Court.** Offered via CD-ROM through the National Criminal Justice Reference Service (NCJRS) at <http://www.ncjrs.gov/App/Topics/SearchResults.aspx?TopicName=DNA&topicID=118&txtKeywordSearch=principles> and via the Internet at <http://www.dna.gov/training/otc/>. Originally presented to judges, prosecutors and defense attorneys via Web-based delivery and workshops.
- **Using and Presenting Digital Evidence in the Courtroom.** Available through NCJRS at <http://www.ncjrs.gov/App/shoppingcart/ShopCart.aspx?item=NCJ%20215093>. Delivered as a companion piece to a video-recorded mock digital evidence trial.
- **DNA Analyst Training Program.** Available at <http://www.dna.gov/training/dna-analyst-program/>. Delivered as theoretical Web-based forensic DNA training to 809 practitioners in 43 geographically diverse states. Training formats included instructor-led lectures and workshops as well as comprehensive theoretical- and practical-based training for 40 entry-level DNA analysts from four different public agencies.
- **Firearm Examiner Training.** Available at <http://www.ojp.usdoj.gov/nij/training/firearms-training/>. Used by various agencies in conjunction with mentor-based agency training.
- **Pattern Evidence Trainings.** Delivered via the password-protected NFSTC online learning system (NOLS), supplemented by onsite instruction. NOLS serves as a virtual community base for students throughout each program and provides course information, resources, discussion forums, communication tools, surveys and autograded testing for each course.
- **Latent Print Examiner Training I.** A cohort group progressed through 12 courses over a 10-month timeframe, with online activities assigned in between course sessions.
- **Tenprint Fingerprint Training.** A cohort group progressed through four courses over an eight-month timeframe, with online activities assigned in between course sessions.
- **Footwear/Tire Track Examiner Training.** A cohort group progressed through four courses over a four-month timeframe, with online activities assigned in between course sessions.
- **Latent Print Examiner Training II.** A cohort group progressed through 11 courses over an eight-month timeframe, with online activities assigned in between course sessions.
- **Essentials of Crime Scene Investigation.** Currently ongoing. Delivered via NOLS. Includes 16 hours of online prerequisite training and 24 hours of practical-based onsite training.

For more information, visit <http://www.nfstc.org/meetings/>.

IMPROVING Video Surveillance to SOLVE CRIME

When a crime is committed at a business, video surveillance systems on the premises can provide detectives with vital clues and quickly lead to an arrest. But too often the resulting images are of low quality and therefore of limited use to investigators.

The Montgomery County Police Department in Maryland has an education program to help business owners improve the quality of their video surveillance by upgrading their systems and paying attention to placement of cameras.

"We knew that commercial video surveillance was available to detectives, but often when we obtained the images they were flawed in many ways," says Capt. Mitch Cunningham, director of the department's Information Support and Analysis Division. "We developed a public outreach prevention campaign and worked

- Place cameras on the outside of the building to catch images of accomplices/offenders who put on masks before coming in, as well as car license plates.
- Don't use "proprietary" systems that require police to buy software to decode the surveillance pictures.
- Consider networking with law enforcement; some jurisdictions provide tax breaks to business owners who enhance their security.

"They are very simple techniques, but are techniques that video surveillance companies don't necessarily address when they are teaching their clients how to use the products," Cunningham says. "They really help business owners and corporations that have video surveillance technology learn how to deploy it better and take measures that will greatly improve the quality of the video surveillance when a detective uses it."



closely with individual businesses, including corporations, to get the message out about how critical video surveillance is to reducing crime."

When a person is arrested and booked, his picture and fingerprints are entered and stored in a regional database system shared by Montgomery County, Prince George's County, District of Columbia and Northern Virginia law enforcement agencies. The Montgomery County Police Department has connected facial recognition software to the system. When an investigator obtains an image of an unknown subject, he can compare the unknown image against the mug shot records. An average quality digital image is needed for the recognition software to work well.

"From my perspective, leveraging facial recognition with a known offender database is a vastly untapped resource," Cunningham says. "Businesses need to work to improve the quality of surveillance camera images for the facial recognition software to be helpful."

Simple steps businesses can take to improve the quality and accessibility of their surveillance systems are listed on the county website:

- Change the camera position from the ceiling to head-and-shoulder height.
- Train all staff in the business on how to operate the camera in case a crime occurs and police arrive and want to see the surveillance shots.
- Leave the lights on at night and adjust lights.
- Make the move from analog to digital audio/video recording.

The program has been in place for several years. Cunningham is working with the National Retail Federation (NRF) in Washington, D.C. to possibly design a program to release nationally.

Joseph LaRocca, NRF senior adviser, asset protection, says the organization is reviewing the information from Montgomery County and will share it with key organization members before proceeding.

"So far there is universal agreement that these tips from law enforcement agencies are important and will provide the law enforcement and retail community with information that could help solve crimes quicker by leveraging available technologies," LaRocca says.

LaRocca noted that the retail industry is diverse and many retailers use camera technology. Each company has unique requirements that need to be considered by management.

"Our goal is to validate the information and see if there is anything from other communities that could complement the Montgomery program, and then release it to our key or core members for feedback or opinion," he says. "We would let 10 to 15 large retailers view the program before we do anything. Capt. Cunningham's program is fairly straightforward, and it really addresses every one of us. We have all seen those grainy images that are sometimes given to law enforcement."

Training of all staff in a business on how to use the surveillance system is as important as having the right technology, Cunningham says. Often, when an investigator responds, staff onsite do not know how to remove

the images and give them to the investigator, resulting in critical time lost. Many departments have the ability to take images from a crime scene and deploy them to officers who have mobile data technology.

"We ask people to no longer use VHS technology; it's surprising how many still use it," Cunningham says. "Digital technology is critical to having images at much higher resolution."

Also part of the effort is to encourage law enforcement departments to invest in facial recognition software, funding for which can be obtained through federal grants. Montgomery County used U.S. Department of Homeland Security Federal Urban Area Security Initiative Grants for the facial recognition software and the regional fingerprint and mug shot system.

Education on improving surveillance is an ongoing process in Montgomery County. The program can be instituted into regular community outreach programs or community service officers will make contact with business owners following a crime and discuss how to improve security.

For more information on the Montgomery County Police Department's video surveillance program, contact Capt. Mitch Cunningham at (240) 773-5321 or e-mail john.cunningham@montgomerycountymd.gov. For information on the National Institute of Justice's Biometrics Program, contact Steven Schuetz at (202) 514-7663 or e-mail steven.schuetz@usdoj.gov.

Process the crime scene WITH

FACTS



Software is available to provide on-the-spot crime scene processing information for law enforcement officers in the field.

The Forensic and Crime Scene Tool Set (FACTS) offers immediate on-the-scene access to detailed, critical information that guides officers responsible for maintaining integrity of evidence collected at the scene. It can help novice officers and serve as a refresher for experienced investigators.

The software was developed through the Small, Rural, Tribal and Border Regional Center (SRTB), which is part of the National Law Enforcement and Corrections Technology Center (NLECTC) system, with assistance from the Forensic Technologies Center of Excellence. NLECTC is a program of the Office of Justice Programs' National Institute of Justice.

The program is divided into three modules:

- **Managing and Searching the Scene.** Provides an overview of overall responsibilities and how to manage and approach the search of a crime scene, from the initial call to releasing the scene.

- **Documenting the Scene.** Lists the documentation required to ensure evidence will hold up in court (e.g., notes, sketches, videography).
- **Collecting Evidence.** Provides a guide on how to collect specific types of evidence, (e.g., accelerants, body fluids), each of which have their own protocols, including packaging and storing.

In each module, the user can choose from various topics. For example, topics under Managing and Searching the Scene include secure and protect the scene, manage witnesses, manage the media, and collect and secure evidence.

"Especially for agencies that don't have crime scene teams, it provides expertise on the computer right there, where they can find out how to collect evidence, properly document it and properly store it," says Danny Ball, a program manager for the center.

The software also has an authoring tool that allows agencies to customize it to fit their particular needs. Agencies can add, modify and maintain up-to-date protocols according to specific agency policies and procedures.

The FACTS software is for use with Windows® XP or 2000 and can be installed in a mobile computer in an officer's car. Developers are testing it on later versions of Windows. The free software can be obtained on either CD or DVD from the center or downloaded from http://www.ruletc.org/index.php?option=com_phocadownload&view=sections&Itemid=60.

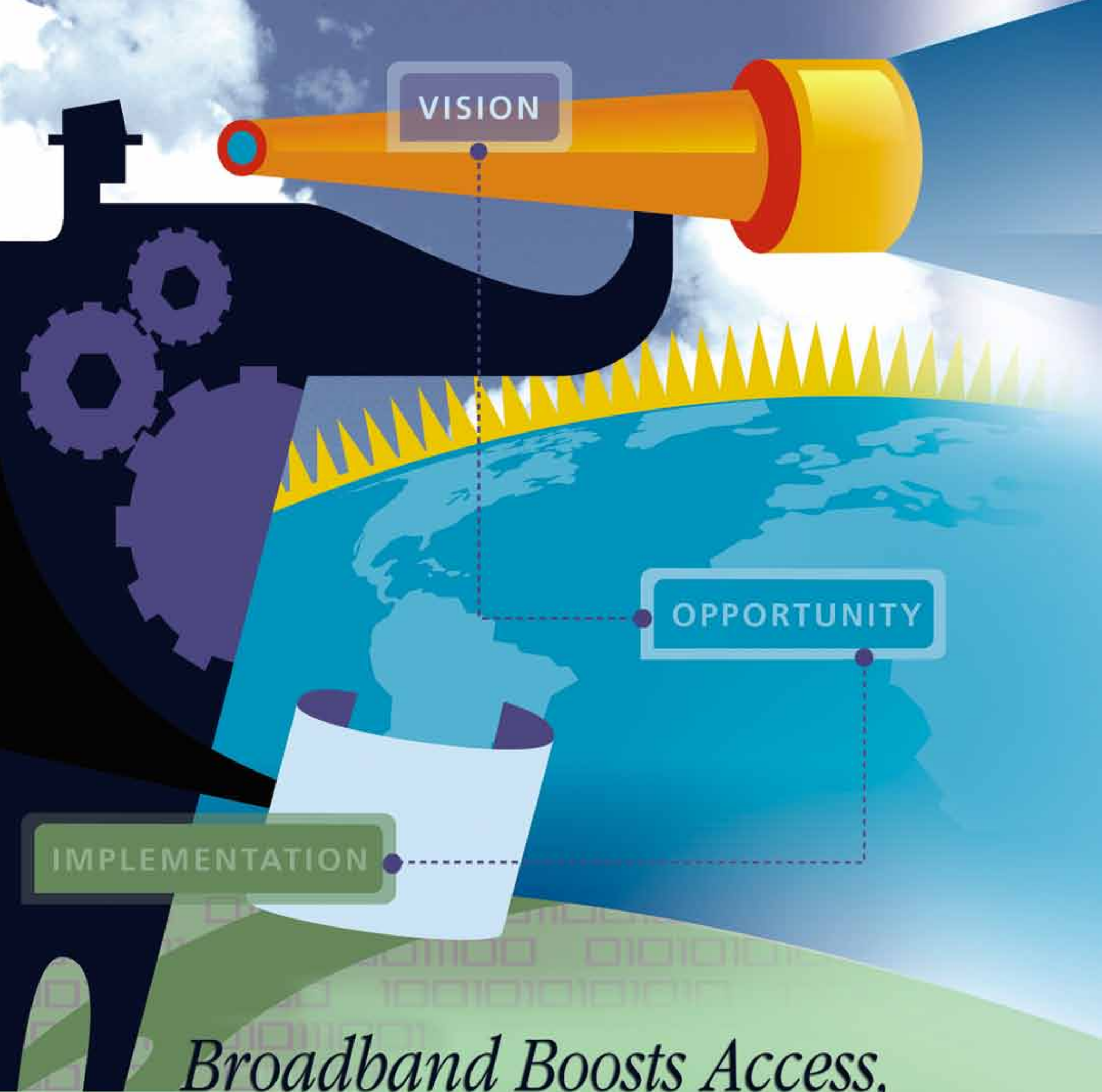
"Years ago we would carry three of four notebooks to use for crime scene processing," notes Scott Barker, SRTB center director. "This program replaces all those binders. It goes on a laptop and the officer can punch up the specific type of evidence and the software will take him step-by-step on how to process and package it."

Barker says the software is in beta form and available for agencies to use and provide comment. Modifications might be made to the software before its final release, but agencies can use it now.

For more information or to obtain a CD or DVD of the software, contact the Small, Rural, Tribal and Border Regional Center at (606) 436-8848 or e-mail info@srtbrc.org.

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VISION

OPPORTUNITY

IMPLEMENTATION

Broadband Boosts Access, **MOBILITY IN BROOKLINE**

In Brookline, Mass., the days of photocopied wanted posters cluttering a cruiser's dashboard are over. Trips back to the station to get database updates belong to the past. Filing reports no longer takes officers indoors and away from patrol.

Brookline, a Boston suburb that is home to approximately 60,000 people in a 6.8 square mile area, houses the nation's only dual 2.4/4.9 GHz broadband network that provides a municipality with blanket coverage. The new network eliminated the need for 38 wireless aircards and opened up a vast amount of bandwidth that, as Officer Scott Wilder puts it, "Completely changed the way we do our jobs."

Wilder, director of information technology and communications, says there now is essentially no difference between the capabilities of the desktop computers in the station and the laptops in the town's cruisers.

"The laptops connect to the server in the same way as the desktop units," he says. "We can do so many things we really couldn't do before."

Those new capabilities include real-time access to Brookline's computer-aided dispatch system, allowing officers to move in the direction of incidents before a dispatch comes out; the ability to file, review and submit/return incident reports from the patrol car laptops; and access to key emergency management information, such as school floor plans. The network also provides the ability to control video feeds, allowing the city to deploy mobile cameras

in areas where there have been crowd control is needed, such as

"It eliminates hiccups in coverage when using the aircards," Wilder says. "Coverage in Brookline is notorious for being spotty. We had to manage and handle the bandwidth ourselves. It gives us experience with video capability and also so much more."

Because of that poor cell phone coverage, the city was looking at other options in 2005.

“It eliminates hiccups in coverage that we had to deal with before, explaining that cell phone coverage in Brookline is spotty and handle the bandwidth ourselves. It gives us experience

Planning Key in Managing

CRITICAL BROADBAND COMMUNICATIONS

Increasingly, municipalities will be implementing broadband mobile networks like the one in Brookline, Mass. In so doing, they may emphasize technical aspects at the expense of taking time to develop appropriate policies. Ed Vea, program manager for Convergent Data Services at the Communications Technologies Center of Excellence (CoE), has given presentations on the importance of developing plans and policies for priority and preemption as part of the design process, and then continually exercising, observing and adjusting the network with the aim of achieving optimal performance, particularly during critical incidents.

“The mission critical broadband networks of the future are going to provide — and in many cases, through commercial carriers already provide — public safety practitioners with incredible services and efficiencies,” Vea says. “As public safety comes to rely on these networks more and more, there will be times when usage needs during critical incidents will overwhelm network capacity.”

Mission critical broadband networks could be 700 MHz, next-generation 911, fiber optic or 4.9 GHz. They differ from more conventional narrowband two-way channels in that narrowband communications are a discrete link: if there is an ongoing transmission on a channel, the channel is not available for another transmission at the same time. With a broadband network, many users can be on at the same time and for a variety of purposes such as voice, data and video.

“In the event of a critical incident, there might need to be constraints on the network,” Vea says. “Negotiating, in advance, who gets what access when the network is under extreme stress is essential to its successful and effective operation. Whether public safety ends up with a network it shares with commercial customers or a dedicated 700 MHz broadband network, priority and preemption cannot be overlooked.”

In a traditional two-way system, priority often goes to the next call waiting in line for an available channel. On a mission-critical broadband network, there are far more possibilities to consider. Municipalities and agencies need to decide how to prioritize calls when the need is greatest, and think about which services they can give up and

which ones they need to keep during a critical incident. Procedures then need to be established to preprogram these priorities into the network.

“Services such as video consume much more bandwidth than alerting and push-to-talk,” Vea says. “For this reason, it is reasonable to prioritize services based on their bandwidth requirements and, more importantly, their relative importance to protecting life and property. For example, a man-down alert would be prioritized over all other services. Not only does such an alert make use of very little relative bandwidth, its timely reception may be crucial to saving a life.”

A potential service hierarchy might be as follows:

- Alerts.
- Push-to-talk.
- Messages.
- Mission-oriented data.
- Full duplex voice.
- Video.

“As far as incident-related hierarchy goes, an active emergency or emergencies would take precedence over routine operations,” Vea explains. “In that event, video from an active incident would claim priority over routine data and video. But even in such a case sufficient bandwidth should be reserved for handling routine push-to-talk traffic.

There will still be unanticipated reasons to shift priorities. For instance, if network resources are limited by traffic loading or the failure of a cell tower, it may become necessary to limit, or even temporarily eliminate, ongoing sessions. This approach is referred to as graceful degradation.”

An example, he says, would be an active emergency in which video is being transmitted to an emergency operations center. During the emergency, a nearby tower becomes compromised and the relative signal level drops at the incident scene. At that time, video feed may have to be dropped in favor of supporting a minimum level of voice traffic. Notification of the change in status could be broadcast via a low bandwidth broadcast messaging service.

Vea explains that this needs to be an ongoing process, as feedback from exercises and actual incidents is processed to improve policies and procedures. Agencies such as the Federal Communications Commission and the Association of Public-Safety Communications Officials have developed some procedures that can be used as models, but they need to be adapted for, and implemented at, the local level.

“Admittedly, these are complex problems and getting it right will involve a number of different stakeholders and disciplines,” Vea says. “On the other hand, public safety will benefit from the services available from a wireless broadband network. Municipalities just have to make sure that the network is available and robust enough to provide service when it is needed most. The first step is to recognize the challenges ahead and the second is to start working on the solutions to those challenges.”

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one coverage, Brookline began
first considering implementation

of a 2.4 GHz network. Wilder pointed out that the Federal Communications Commission (FCC) was pushing 4.9 for public safety use, and suggested that the dual network would eliminate the need to revamp again in the near future. Only one vendor responded positively to the town’s request for a dual network, but with that one vendor, a local company, everything fell into place. Wilder explains that because Brookline owns the town’s lighting infrastructure, the vendor didn’t have to rent space because the town allowed access points on the lighting arms at no charge.

Brookline also gave the vendor rooftop access to town buildings. Thus, implementation cost the town nothing and Brookline now realizes savings of more than \$2,000 a month in aircard fees from the police department alone. (The fire department also gave up its aircard coverage.) The vendor, in turn, sells space on the 2.4 network to the public at a profit, resulting in a “win-win” situation for everyone involved. Access to the 4.9 side is limited to public safety, and if necessary during a critical incident, Brookline could take over the 2.4 network as a backup.

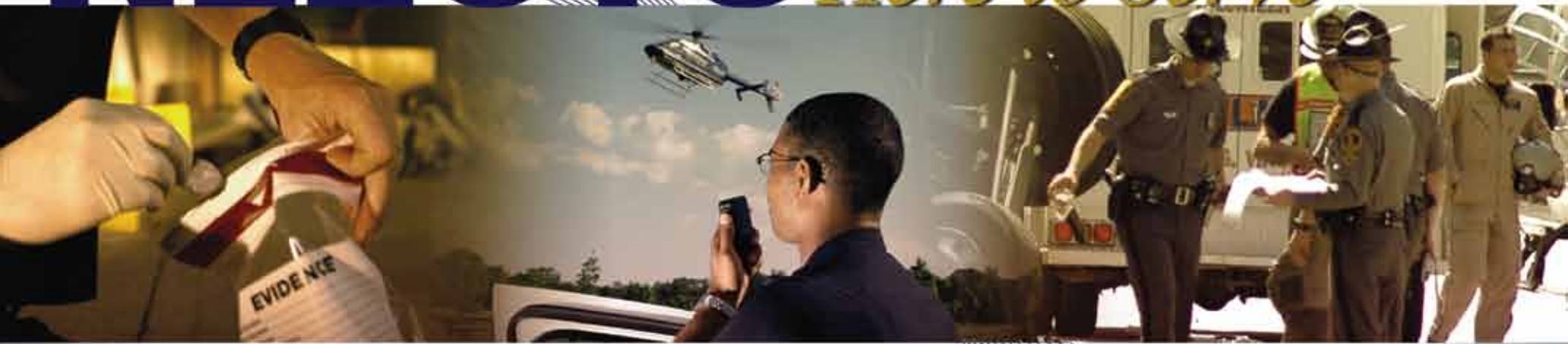
“Especially in these financial times, there is no way the town could have gone out and built this. It just was and is the perfect partnership,” Wilder says.

The uniqueness of Brookline’s network caught the attention of the National Institute of Justice’s Communications Technologies

deal with when using the aircards,” Wilder says,
notoriously poor. “With this network, we manage
expanded video capability and also so much more.”

(See *Broadband Boosts Access, Mobility in Brookline*, page 12)

NLECTC *Here to Serve*



Criminal justice professionals are increasingly reliant on technology and need sound advice and information to do their jobs. To meet that need, the National Law Enforcement and Corrections Technology Center (NLECTC) system has reorganized its resources to better serve the public safety community and foster communication and information sharing.

Members of law enforcement and staff from the National Institute of Justice (NIJ), NLECTC and legislative offices attended a ceremony and open house in April to mark the restructuring of the regional component of the system, a new phase in NLECTC's 16-year evolution.

Acting NIJ Director Kristina Rose recognized NLECTC as integral to NIJ's mission to provide the knowledge, tools and research necessary to improve criminal justice policy and practice in the United States, with a special emphasis on state, local and tribal criminal justice agencies.

"The NLECTC system is critical to our science and technology program," Rose said. "It assists NIJ in identifying the technology needs of the practitioner community and in testing and evaluating potential solutions to those needs. The NLECTC system administers NIJ's compliance testing program to ensure that vital criminal justice equipment, such as body armor, is both safe and effective. In addition, the NLECTC system serves as a clearinghouse to provide the latest information to our brethren in the field."

NLECTC began in 1994 and evolved into a system of regional and specialty centers across the country. Rose noted that when centers provided assistance to their regions, they sometimes duplicated the roles and functions of other centers. Under the revised structure, the system includes a national center, several Centers of Excellence (CoEs) and three outreach centers serving different demographic areas of the public safety community.

The outreach centers will serve as the point of entry to the resources of the NLECTC system and direct criminal justice agencies to the technology assistance resources they need, ensuring they have unbiased access to a full range of relevant scientific and technology-related information.

The States, Major Cities and Counties Regional Center concentrates on larger criminal justice agencies (those having 50 or more sworn personnel). The Small, Rural, Tribal and Border Regional Center focuses on the unique law enforcement challenges faced by those types of agencies. The Alaska Regional Center serves criminal justice agencies in that state, drawing on the resources of the entire NLECTC system.

The CoEs support NIJ's research, development, testing and evaluation efforts in communications technologies, electronic crime technology, forensic science, information and sensor systems and weapons and protective systems.

"If you carefully trace the efforts of the NLECTC system, you can see the clear efforts over time to make the system the premier go-to tech assistance and support center that it is today," Rose said.

Capt. Mitch Cunningham of the Montgomery County Police in Maryland attended the ceremony and is familiar with the contributions of NIJ and NLECTC.

"The critical thing that NIJ has provided is recognition that the vast majority of law enforcement is handled by state and local agencies," Cunningham said. "It has had a significant impact on raising the standards and improving safety equipment, education and technical support."

"One of the things NIJ has done is emphasize the role of technology in law enforcement meeting its goals of crime reduction," he said. "I'm of a generation of law enforcement that doesn't really have a technical background, and NIJ recognizing that and emphasizing the importance of technology helped police officers at every level in agencies recognize the importance of it and overcome their fears about the complexity of it. By highlighting the achievements of real crime reduction results, NIJ has excited police chiefs who may be intimidated by technology to really invest in technology and understand it and implement it. That just was not going on before NIJ and NLECTC."

Col. George F. Johnson, Superintendent, Maryland Natural Resources Police, and president of the Maryland Chiefs of Police Association, was not aware of what NLECTC offers before he attended the ceremony.

"I plan to go back to the chiefs throughout Maryland and encourage them to look at the NLECTC website and see how it can help their respective agencies," Johnson said.

The open house included a display of a mobile interactive firearms simulator housed at the rural center and a powered parachute that can be used for aerial surveillance.

Also attending the ceremony were NIJ NLECTC program staff, the Rockville mayor, and staff representing the offices of U.S. Reps. Hal Rogers of Kentucky, where the rural center is located, and Chris Van Hollen of Maryland, whose district includes Rockville, home of the states and major cities center.

For information on the NLECTC system, visit <http://www.justnet.org>, call (800) 248-2742 or e-mail asknlectc@nlectc.org, or contact the federal program manager, Michael O'Shea, at michael.oshea@usdoj.gov.

2010 Joint Law Enforcement Technology Institute

The National Institute of Justice (NIJ) has extended the visibility of its technology institutes. In March 2010, NIJ and the U.K. Home Office Scientific Development Branch jointly hosted a law enforcement technology institute in England. Law enforcement practitioners from the United States and the U.K. were invited to attend to discuss technology initiatives and issues with representatives of NIJ and NLECTC, providing participants with different perspectives on how to solve similar technology problems and fostering professional collaboration and networking relationships. Discussion topics included technology implementation in rural and urban law enforcement environments, U.S. body armor efforts, license plate recognition systems and border security.

the NLECTC 'center system'

The National Law Enforcement and Corrections Technology Center (NLECTC) system supports the National Institute of Justice (NIJ) mission of providing objective, independent, evidence-based knowledge and tools to enhance the administration of justice and public safety.

The NLECTC system is an integrated network of centers and Centers of Excellence that offer free criminal justice technology outreach, demonstration, testing and evaluation assistance to law enforcement, corrections, courts, other criminal justice agencies and crime laboratories — large or small, rural or urban and along U.S. borders — in the implementation of current and emerging technologies.

The NLECTC system has been reorganized to make it more sustainable, efficient and effective in providing services to the criminal justice community.

Established in 1994 by the Office of Justice Programs' NIJ as part of its research, development, testing and evaluation initiatives, the NLECTC system serves as an "honest broker" resource for technology information and assistance and helps introduce technologies into practice within the criminal justice community. The mission of NLECTC is to support NIJ's research and development activities, support the transfer and implementation of technology into practice, assist in the development and dissemination of guidelines and technology standards, and provide technology assistance, information and support.

The NLECTC system seamlessly delivers its expertise to the nation's 19,000-plus police agencies; 50 state correctional systems; thousands of prisons, jails, and probation and parole departments; courts; and crime laboratories in a number of technology areas. These technology areas are supported by technology partners who provide the leveraging of unique science and engineering expertise. In addition, technology working groups and a national advisory council provide guidance relating to the technology needs and operational requirements of the public safety community for NIJ's various technology focus areas and help to ensure that NIJ's activities focus on the real-world needs of public safety agencies.

Contact NLECTC for:

Technology Information

NLECTC disseminates information to the criminal justice community at no cost through educational bulletins, equipment performance reports, guides, consumer product lists, product information databases, news summaries, meeting/conference reports, online videos and CD-ROMs. Most publications are available in electronic form through the Justice Technology Information Network (JUST-NET) at www.justnet.org. Hard copies of all publications can be ordered through NLECTC's toll-free number, (800) 248-2742, or via e-mail at asknlectc@nlectc.org.

Technology Identification

The NLECTC system provides information and assistance to help agencies determine the most appropriate and cost-effective technology to solve an administrative or operational problem. We deliver information relating to technology availability, performance, durability, reliability, safety, ease of use, customization capabilities and interoperability.

Technology Assistance

Our staff serves as proxy scientists and engineers. Areas of assistance include systems engineering and communications and information systems support (e.g., interoperability, propagation studies and vulnerability assessments).

Technology Implementation

We develop technology guides, best practices and other information resources that are frequently leveraged from hands-on assistance projects and made available to other agencies.

Property Acquisition

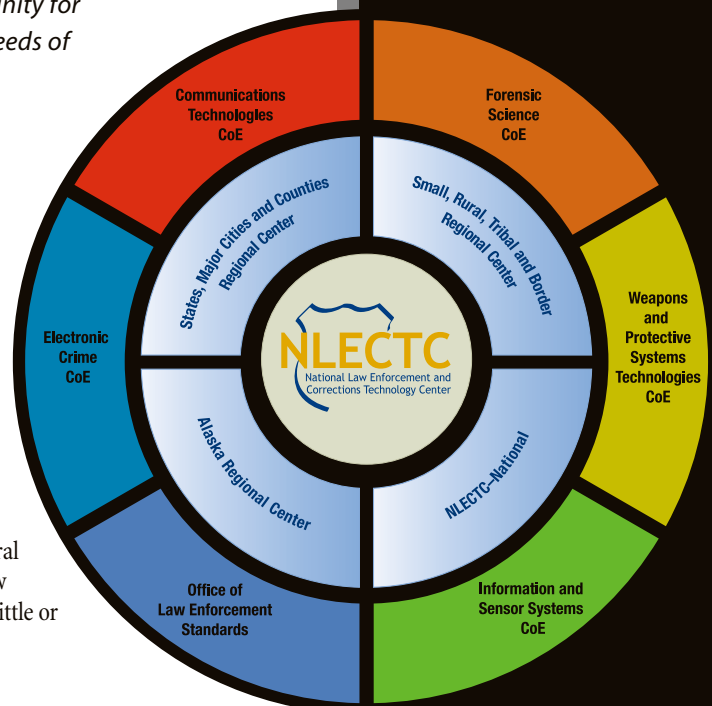
We help departments take advantage of surplus property programs that make federal excess and surplus property available to law enforcement and corrections personnel at little or no cost.

Equipment Testing and Standards

We oversee the development of performance standards and a standards-based testing program in which equipment such as ballistic- and stab-resistant body armor, double-locking metallic handcuffs and semiautomatic pistols is tested. NLECTC also conducts comparative evaluations (testing equipment under field conditions) on patrol vehicles; patrol vehicle tires and replacement brake pads; and cut-, puncture-, and pathogen-resistant gloves.

Technology Demonstrations and Capacity Building

We introduce and demonstrate new and emerging technologies through special events, conferences and practical demonstrations such as the Mock Prison Riot™. We also provide hands-on training assistance for the latest technologies through workshops and software programs dealing with crime mapping, community corrections and critical incident management. In addition, on a limited basis, NLECTC facilitates deployment of new technologies to agencies for operational testing and evaluation.



Communications Technologies Center of Excellence

(866) 493-4675
info@commtechcoe.org

Electronic Crime Technology Center of Excellence

(800) 540-3352, ext. 103
Director@ECTCOE.org

Forensic Technologies Center of Excellence

(727) 549-6067
info@nfstc.org

Information and Sensor Systems Center of Excellence

(843) 760-3258
isscoe@scra.org

Weapons and Protective Systems Technologies Center of Excellence

(814) 865-7098
Afm126@psu.edu

NLECTC-National

(800) 248-2742
asknlectc@nlectc.org

States, Major Cities and Counties Regional Center

(800) 248-2742
asknlectc@nlectc.org

Small, Rural, Tribal and Border Regional Center

(866) 787-2553
info@srtbrc.org

Alaska Regional Center

(877) 870-2747
NLECTC-AK@aacop.org

Office of Law Enforcement Standards

(301) 975-2757
oles@nist.gov

TECHshorts is a sampling of the technology projects, programs and initiatives being conducted by the Office of Justice Programs' National Institute of Justice (NIJ) and the centers and criminal justice technology Centers of Excellence (CoEs) that constitute its National Law Enforcement and Corrections Technology Center (NLECTC) system. If you would like additional information concerning any of the following TECHshorts, please refer to the specific point-of-contact information that is included at the end of each entry.

In addition to TECHshorts, an online, biweekly technology news summary containing articles relating to technology developments in public safety that have appeared in newspapers, newsmagazines and trade and professional journals is available through the NLECTC system's website, JUSTNET, at <http://www.justnet.org>. This service, the *Law Enforcement and Corrections Technology News Summary*, also is available through an electronic e-mail list, *JUSTNETNews*. Every other week, subscribers to *JUSTNETNews* receive the news summary directly via e-mail. To subscribe to *JUSTNETNews*, e-mail your request to asknlectc@nlectc.org or call (800) 248-2742.

Note: The mentioning of specific manufacturers or products in TECHshorts does not constitute the endorsement of the U.S. Department of Justice, NIJ or the NLECTC system.



Cell Phones Behind Bars

National Institute of Justice

Cell phones, a welcome convenience in the modern world, can become dangerous tools in prison as inmates use them to conduct illegal activity. *Cell Phones Behind Bars*, published as an NIJ InShort, provides an overview of the problems cell phones can present to corrections and public safety officials and approaches to stem their use by inmates.

Inmates can use the phones to plan escapes or harass victims. Corrections officials are experimenting with and using various cell phone detection and defeat methods, including sensors and specially trained dogs.

To view the publication, go to <http://www.ojp.usdoj.gov/nij/pubs-sum/227539.htm>.

FIDEX Receives Award for Innovation

Forensic Technologies CoE

The Forensic Information Data Exchange (FIDEX) system has won the International Association of Chiefs of Police Law Enforcement Information Management award for Innovation. FIDEX is an electronic Web-based platform for law enforcement agencies to submit examination requests that allows crime labs to more efficiently handle case management. NIJ developed FIDEX through the National Forensic Science Technology Center, which contracted with Waterhole Software in Colorado to design the software. A feature length article on FIDEX, "Enhancing Forensic Information Exchange with FIDEX," appeared in the Spring 2010 issue of *TechBeat*.

To view the full article, go to <http://www.justnet.org/Pages/TechBeatIssue.aspx>



Technology Webinars

Communications Technologies CoE

The Communications Technologies CoE is hosting a series of bimonthly webinars to provide expert information on various communications technologies. The free webinars highlight evolving cutting-edge technologies and current issues that affect public safety agencies, such as the 800 MHz transition for public safety.

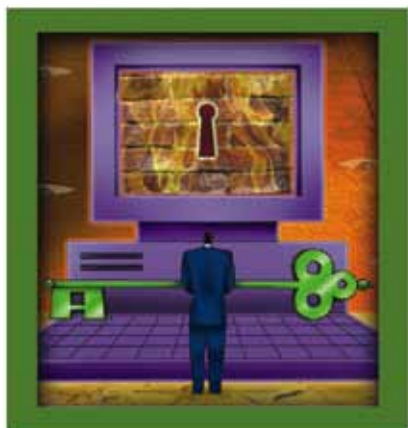
Other webinar topics have included voice interoperable voice communications, alternative power for remote communications sites and precision location for public safety.

For information on upcoming and past webinars, visit www.justnet.org/pages/commtech_coe_webinars.aspx or contact Charles Stephenson of the CoE at (866) 493-4675 or (267) 415-4762.

Field Search Helps Crack the Case

Weapons and Protective Systems Technologies CoE

In January 2009, the Marietta (Ohio) Police Department executed a search warrant on the



home of a local man suspected of sexually abusing young boys. Reports on this individual dated back to 1994, but the complaints mainly relied on the suspicions of local residents. No hard evidence of abuse had been located.

Recently, a child came forward claiming he had been abused by the suspect, and as a result of a search warrant, the suspect's computer was seized and sent to the FBI for analysis. The computer contained more than 6,000 images of child pornography. The reporting child had claimed that the suspect photographed him, but although the child described the photograph, it was not found upon review of the FBI report.

The FBI had provided a "mirror" image of the suspect's hard drive to Marietta Det. Troy Hawkins, who located the photograph described by the reporting child using Field Search. Field Search allows investigators to quickly search a computer and create a detailed report. The software's reporting feature provided the file path for the photo to the agent at the FBI.

During a three-week trial, the photos found by Field Search were used to corroborate the child's testimony and to support charges of child pornography. The suspect was found guilty of 29 charges, ranging from child pornography to rape to kidnapping. He received a sentence of 70 years in prison.

For information, contact the center at (800) 416-8086.



Transitioning Technologies Into Everyday Use

Forensic Technologies CoE

The Forensic Technologies CoE helps transition technologies from research results into everyday use in the field through a series of workshops on topics ranging from DNA analysis, to footwear and tire impressions, to the Field Investigation Drug Officer (FIDO) program. Workshops are sponsored by the National Institute of Justice at no cost to the agency. Although attendance at the workshops is limited and by invitation only, recorded content and instructor contact information for all previous workshops is available

online at <http://www.nfstc.org/lab/online-technology-transition-workshops>.

To view a list of all available topics, visit http://projects.nfstc.org/tech_transition. For more information, send an e-mail to info@nfstc.org.



Replacement Brake Pad Performance Evaluation

NLECTC-National

Publication of a comprehensive evaluation of replacement brake pads for police patrol vehicles, administered by the Michigan State Police Vehicle Test Team for NLECTC-National, is anticipated for September 2010. The evaluation project, conducted during summer 2010, will provide law enforcement agencies across the country with information that will help them make informed decisions regarding replacement brake pads. Companies with registered business addresses in the United States or Canada and experience with high-performance brakes and/or friction materials were invited to submit samples for the evaluation. Brake pads will be evaluated for the 2010 Chevrolet Impala, 2010 Chevrolet Tahoe and 2010 Ford Police Interceptor.

The project takes place in two stages: Stage One consists of an FMVSS 135-based inertia dynamometer laboratory performance screening brake effectiveness test. Stage Two includes a two-step, on-vehicle test consisting of high-speed, straight-line braking and pursuit-style driving. The top three performing materials for each vehicle application in Stage One will continue to Stage Two. All participating companies will receive a copy of the Stage One brake effectiveness test report for their product and an overall test summary, including confidentially coded competitors' results. The final test report, identifying the friction materials and performance results, will be available from NLECTC-National.

For information, contact NLECTC-National at (800) 248-2742.

In addition to funding the National Law Enforcement and Corrections Technology Center, the National Institute of Justice (NIJ) and other federal agencies support the National Criminal Justice Reference Service (NCJRS), assisting a global community of policymakers, practitioners, researchers and the general public with justice-related research, policies and programs.

NCJRS offers a range of services and resources, balancing the information needs of the field with the technological means to receive and access support.

Access NCJRS Online

The NCJRS website showcases the latest criminal and juvenile justice and drug policy information. Take advantage of:

- Topic-specific resources.
- Online registration and ordering.
- Searchable abstracts, calendar of events, and questions-and-answers databases.

Join the Information Network

Register at <http://www.ncjrs.gov/subreg.html> to receive:

JUSTINFO. A biweekly electronic newsletter that includes links to full text publications, notices of upcoming trainings, funding announcements and other resources.

E-mail notifications. Periodic messages about new resources that match your specific areas of interest.

RSS feed. Receive notices of NCJRS homepage updates or embed the feed on your website to pull content directly from our home page.

Contact NCJRS

Web: <http://www.ncjrs.gov>

Phone: (800) 851-3420
(Monday – Friday,
10 a.m. to 6 p.m. EST)

Fax: (301) 519-5212

Mail: NCJRS, P.O. Box 6000,
Rockville, MD 20879-6000



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TechBeat

ANYWHERE

TechBeat is the award-winning newsmagazine of the National Law Enforcement and Corrections Technology Center (NLECTC) system. Our goal is to keep you up to date with current and developing technologies for the public safety community, as well as other research and development efforts within the federal government and private industry. TechBeat is published four times a year.

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www.justnet.org

Online News Summary. Online News Summary includes article abstracts on law enforcement, corrections and forensics technologies that have appeared in major newspapers, magazines and periodicals and on national and international wire services and websites.

Testing Results. Up-to-date listing of public-safety equipment evaluated through NIJ's testing program. Includes ballistic- and stab-resistant armor, patrol vehicles and tires, protection gloves, handcuffs and more.

Publications. Publications from NIJ and NLECTC that you can view

or download to your system, including printer friendly versions of TechBeat articles and features.

Calendar of Events. Calendar of Events lists upcoming meetings, seminars and training.

Links. Links takes you to other important law enforcement and corrections websites.

The Office of Justice Programs (OJP) Announces the Launch of Grants 101

OJP Grants 101 (<http://www.ojp.gov/grants/101>) provides an overview of OJP grants and funding opportunities and describes the entire grant process — from choosing what type of grant is right for your organization to how to prepare an application.



Through OJP Grants 101 you will learn:

- How to find grants: <http://www.ojp.gov/grants101/findfunding.htm>
- What you need to know before getting started: <http://www.ojp.gov/grants101/findfunding.htm>
- The grant life cycle: <http://www.ojp.gov/grants101/lifeofgrant.htm>
- Grant writing tips: http://www.ojp.gov/grants101/overview_wtp.htm
- The peer review process: <http://www.ojp.gov/grants101/applicationreview.htm>
- The award process: <http://www.ojp.gov/grants101/award.htm>

To learn more, visit OJP Grants 101 today!



(Broadband Boosts Access, Mobility in Brookline . . . cont. from page 7)

Center of Excellence (CoE) in 2008, prompting an evaluation project that is expected to result in a number of reports dealing with both technical and operational aspects of the network. Ed Vea, a CoE program manager, says the CoE was looking for a 4.9 network to evaluate, and he made a connection with Brookline through Wilder's membership on NIJ's Communications Technologies Technology Working Group.

"There have been some challenges with implementing 4.9 networks," Vea says. "Many municipalities expressed interest when the FCC released 4.9 for public safety use, but very few of these projects came to fruition because so few vendors were interested in marketing the equipment."

The CoE split the operational evaluation into two parts, with the first part (Spiral I) focusing on the technical components of the network and measuring and quantifying its operational and financial benefits. The second part (Spiral II), to be conducted in late 2010/early 2011, will solicit vendors to submit Voice over Internet Protocol and/or push-to-talk solutions for operational evaluation.

Vea explains that 4.9 networks require many nodes to provide coverage, and Brookline's vendor has provided equipment that is very efficient in terms of performance and seems very cost-effective. However, he notes that is not the case with all vendors, particularly those seeking to enter the market when

4.9 first became available. It took time to work through the potential solutions being offered, and many municipalities simply did not have the time or the resources to figure out how 4.9 could work for them.

"Because it requires so many nodes, a municipality needs to have a certain population density before blanket coverage makes sense," Vea says. "Still, there is a role for hot spot networks, where cruisers could perhaps drive to a site such as a local school and get data uploads and file reports."

Framingham, about 50 miles from Brookline, is working on developing this type of network using the same vendor.

Wilder agrees that some hardware difficulties exist, citing the lack of 4.9 handheld devices that would help detectives in the same way that the laptops have helped patrol officers. He says that several vendors tried to dissuade Brookline from using 4.9 at all, saying there would be problems with the signal quality, but the town was pleasantly surprised to find that with 4.9 use limited to public safety agencies, very little interference occurs. And since Brookline uses a session management product, if the 4.9 network signal is lost, the officer's work is not.

"Without session management, if you lost the signal, you lost everything," Wilder says.

"You could be in the middle of typing a four-page document and it would all go away. When the 4.9 signal comes back, you're right at the same point where you left off. It also provides an audit trail, so we know if and when officers are accessing information. That gives us some nice checks and balances."

"I'm a big advocate. I'd like to see more municipalities take the plunge," he adds. "The benefits are incredible and invaluable."

For more information on the Brookline Dual 2.4/4.9 GHz network, contact Officer Scott Wilder at (617) 730-2259. A report on the project is forthcoming. For information on the NIJ Communications Program, contact Dr. John Kaplan at (202) 305-4503 or john.kaplan@usdoj.gov.

"I'm a big advocate. I'd like to see more municipalities take the plunge. The benefits are incredible and invaluable."