## CONTENTS

**Executive Summary**
National Law Enforcement and Corrections Technology Center System: Linking Research and Practice

**National Center**
Social Media Open Up New Avenues for Public Safety Professionals

**Follow-up Inspection and Testing Program**
Ballistic-Resistant Body Armor Follow-up Inspection and Testing Program Completes Initial Year

**States, Major Cities and Counties Regional Center**
“Capturing” More Information With Less Resources

**Small, Rural, Tribal and Border Regional Center**
Rural Law Enforcement Technology Institute Provides More Than Information

**Aviation Technology Program**
Tomball Police Department Takes to the “Open” Skies

**Alaska Regional Center**
Leveraging an Opportunity to Expand Training

**Technology Needs and Identification Process**
Setting Priorities Based on Practitioner Needs
Technology Institutes
Distributing, Gathering and Sharing Information .......................... 51

Outreach
Listening to and Learning From Practitioners and Stakeholders .......... 57

Communications Technology Center of Excellence
Technology Operational Evaluation Program .................................. 65

Corrections Technology Center of Excellence
Taking the “Green Way” to Reducing Costs and Increasing Efficiency .... 73

Criminal Justice Electronic Crime Technology Center of Excellence
NJ Electronic Crime and Digital Evidence Resource Website .............. 79

Forensics Technology Center of Excellence
“Traveling to Training” Via a Live Stream ........................................ 85

Information and Geospatial Technologies Center of Excellence
A Firsthand Search for Information .................................................. 91

Sensor, Surveillance and Biometric Technologies Center of Excellence
Identifying Stakeholders, Building Relationships ........................... 97

Weapons and Protective Systems Technology Center of Excellence
Guidance on Excited Delirium Syndrome Pocket Guide ................... 103
EXECUTIVE SUMMARY

National Law Enforcement and Corrections Technology Center System: Linking Research and Practice

As a program of the National Institute of Justice (NIJ), the National Law Enforcement and Corrections Technology Center (NLECTC) System serves as a conduit between researchers and criminal justice professionals in the field. The 11 centers that made up the NLECTC System during 2011 work with criminal justice professionals to identify urgent and emerging technology needs; NIJ sponsors research and development or identifies best practices to address those needs. At the core of the NLECTC System is the notion of “translational technology;” simply put, NLECTC links research with practice.

Originally created in 1994 as a program of NIJ’s Office of Science and Technology, the NLECTC System plays a critical role in enabling NIJ to carry out its mission to assist state, local, tribal and federal law enforcement, corrections and other criminal justice agencies in addressing their technology needs and challenges.
The NLECTC System provides:

- Scientific and technical support to NIJ’s research, development, test and evaluation (RDT&E) projects.
- Support for the transfer and adoption of technology into practice by law enforcement and corrections agencies, courts and crime laboratories.
- Assistance in developing and disseminating equipment performance standards and technology guides.
- Assistance in the demonstration, testing and evaluation of criminal justice tools and technologies.
- Technology information.
- General and specialized technology assistance.
- Assistance with convening practitioner-based advisory groups that help NIJ identify criminal justice technology needs and gaps.

As law enforcement and correctional agency budgets continue to shrink, the NLECTC System continues to expand its efforts to find new ways to reach out to those who put themselves on the front lines (see Exhibit 1). The following pages highlight some of the success stories of the component centers from the past year.

**National Center**

NLECTC-National plays a key role in the success of the entire NLECTC system, serving as the information hub for the three regional centers and the seven Centers of Excellence (CoEs). The National Center serves as both the initial point of entry for criminal justice professionals and other interested parties into the system, and as the clearing-house that disseminates information. Thus, NLECTC-National serves as a resource to the criminal justice community regarding the tools and technology criminal justice professionals need to protect themselves and the communities they serve. Read about
EXHIBIT 1. JUSTICE PROGRAMS CLIENT COST IMPROVEMENTS

<table>
<thead>
<tr>
<th>Description of Cost Savings or Avoidance</th>
<th>Contract Inception-to-Date Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move print TechBeat subscriptions to new e-newsletter</td>
<td>$108,700</td>
</tr>
<tr>
<td>Switch publication distribution at outreach events from hard copy to electronic</td>
<td>$21,296</td>
</tr>
<tr>
<td>Reduce costs for TWG/STC meeting supplies with more cost-effective products</td>
<td>$61</td>
</tr>
<tr>
<td>Reduce phone/data service costs by using a central provisioning system</td>
<td>$6,180</td>
</tr>
<tr>
<td><strong>TOTAL SAVINGS</strong></td>
<td><strong>$136,237</strong></td>
</tr>
</tbody>
</table>

the National Center’s entry into the world of social media (p. 9) and its management of the NIJ-funded Compliance Testing Program for ballistic-resistant body armor and other “tools of the trade” (p. 17).

Regional Centers

The States, Major Cities and Counties (SMCC) Regional Center reaches out to meet the needs of law enforcement and corrections agencies with 50 or more sworn officers, providing them with a full range of scientific and technology-related information, including results from NIJ research, development, testing and evaluation (RDT&E) activities. Read about how SMCC developed a new content management system that streamlines the way that all 11 centers track their efforts to meet constituent needs on p. 23. The Small, Rural, Tribal and Border Regional Center (SRTB-RC) serves the unique needs of agencies that have fewer than 50 officers; read about a specific effort to help one of these agencies get the most of out of scarce resources through cooperative efforts on p. 29. Through the Law Enforcement Aviation Program, NIJ helps put low-cost alternative aviation technology into the hands of small law enforcement agencies (p. 35). The Alaska Regional Center (p. 41) targets the unique needs of agencies in the nation’s largest state, where agencies often have only a few officers to cover large areas of difficult terrain.
Centers of Excellence

The seven CoEs serve as the authoritative resource within the system for both practitioners and developers in specific technology areas of focus. They assist in the transition of law enforcement technology from the laboratory into practice by first adopters. Highlights of their efforts include:

- The Communications Technology CoE supports operational evaluations of new technology in the field (p. 65).
- The Corrections Technology CoE produced a new publication that helps correctional facilities implement use of “green technologies.” (p. 73).
- The Forensic Technology CoE implemented live streaming of training to expand outreach at little additional cost (p. 85).
- The Information and Geospatial Technologies CoE used a “bottoms up” approach to learn more about agencies’ needs in this time of ever-shrinking budgets (p. 91).
- The Sensor, Surveillance, and Biometric Technologies CoE identified key stakeholders among other federal agencies to leverage and promote cooperative efforts (p. 97)
- The Weapons and Protective Systems Technology CoE developed a pocket guide (p. 103) that helps first responders identify signs and symptoms of “excited delirium.”

Other Assistance

The NLECTC System also helps NIJ reach out to the field in other ways, including helping set research priorities based on practitioner needs by sponsoring Technology Working Groups (TWGs) and Constituent Advisory Groups (CAGs) that provide input to NIJ, input that is also validated via the Law Enforcement and Corrections Technology
The reorganized NLECTC system is poised to carry out its critical mission to assist the criminal justice community.

Advisory Council (LECTAC). Together, these groups form a bridge between the criminal justice community and the NIJ Office of Science and Technology. Read more on p. 45.

NIJ’s Technology Institutes bring together law enforcement and corrections practitioners to freely share ideas and exchange technology-related challenges and solutions. Through peer presentations, the institutes allow participants to collaborate and see the inner workings of other agencies (p. 51).

And in addition to answering e-mail and telephone inquiries, conducting surveys and producing publications, NLECTC System staff go out and actively engage the community at conferences and meetings, where they not only provide one-on-one assistance but also gather valuable input and feedback to further shape the NIJ RDT&E process (p. 57).
Social Media Open Up New Avenues for Public Safety Professionals

It has been said that you can’t make more time…but you can use it more efficiently. With the addition of social media outlets to its Internet presence through JUSTNET, the National Law Enforcement and Corrections Technology Center (NLECTC) System website, NLECTC-National has made it easier for public safety professionals around the country to do just that.

The National Center made its debut on YouTube in late spring 2011, posting the already popular “NLECTC Minutes” video series and Surviving a Shooting, the National Institute of Justice’s (NIJ’s) body armor video there in addition to their presence on JUSTNET. Staff added a Twitter feed and a Facebook® page in early summer.

“It’s become apparent that society in general uses these channels to communicate on a daily basis, and so of course, law enforcement and corrections professionals are interested in using them to tune into what’s going on in the communities they serve. They also use them to push information to the public about everything from community events to open and unsolved cases. That made us think about how they are
another avenue of getting practitioners the information they need about new technologies, new research and new reports,” says Kate Poindexter, JUSTNET and social media content developer for the National Center. “It’s also a way for them to speak to us.”

In the months since social media became part of the National Center’s Internet package, staff have continued to add “NLECTC Minutes” to the YouTube site, along with both the practitioner and procurement versions of the new NIJ body armor video, *Body Armor: Survive in the Line of Fire*. Staff also have begun taping conference and meeting presentations for posting on YouTube, in whole or in part. Poindexter says staff can upload presentations immediately; in addition, by adding a “clickable” picture and a description to Facebook and sending out an informative Tweet, they can lead interested practitioners to the new video immediately.

“The really great thing about all three of these channels is that it’s instant and it doesn’t cost anything to use them,” she says.
National Center staff have also used Facebook to announce the availability of new publications from NIJ and the NLECTC System, to promote upcoming events and to encourage practitioners to participate in the surveys posted on JUSTNET (see “Capturing More Information With Less Resources, p. 23). The JUSTNET Facebook site also promotes events sponsored by other organizations, including conferences by organizations such as the International Association of Chiefs of Police, the National Sheriffs Association and the American Correctional Association, and community events such as National Night Out, sponsored by the National Association of Town Watch.

By the end of 2011, some 227 individuals were following the JUSTNET Facebook site to pick up on that information. National Center staff also followed more than 500 other Facebook sites (ranging from large associations to individual agencies) in 2011 to help ensure that relevant, current information receives the promotion it deserves.

“If they put up something that is of interest to our audience, we can send a Tweet about it and ensure that practitioners know where to look for it,” Pindexter says. “We often get requests from our followers to follow them, and then we find out they have a Twitter feed to follow, and we pick up on that too.”

Staff also continue to solicit feedback and comments via JUSTNET. When talking with individuals who stop by a conference exhibit, they find that these practitioners generally are aware of JUSTNET and its rich information resources. Staff are then quick to point these individuals in the direction of the social media outlets as well.

“Social media give you an opportunity to post things in an appropriate place. If practitioners need to know about something right away, they don’t have to wait for the next JUSTNET News in two weeks or for a full publication from NIJ in several months. Also, if we find that callers to the NLECTC System 800 line are repeatedly asking for the same information, we can send out a Tweet telling them where to find it. This gets the message out quickly and means that staff don’t have to answer the same question over
and over. It lets us use our own time more efficiently in addition to helping practitioners maximize the use of their time,” Poindexter says. “We have found it’s a really good enhancement to JUSTNET. Some people like looking around the website and researching various topics of interest, but others don’t have time to go through a large website and are very happy to get the targeted information they need in a timely fashion.”

EXHIBIT 4. JUSTNET WEB ACTIVITY

<table>
<thead>
<tr>
<th>Hits</th>
<th>Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEC. 2009–NOV. 2010</td>
<td>19,616,957</td>
</tr>
<tr>
<td>DEC. 2010–NOV. 2011</td>
<td>21,716,647</td>
</tr>
</tbody>
</table>

*Hits: Each file requested by a visitor registers as a hit. There can be several hits on each page. While the volume of hits reflects the amount of server traffic, it is not an accurate reflection of the number of pages viewed.

**Visits: Number of visits to a site during the specified time interval. A visit is a series of actions that begins when a visitor views their first page from the server, and ends when the visitor leaves the site or remains idle beyond the idle-time limit. The default idle-time limit is 30 minutes. This time limit can be changed by the system administrator.
Highlights

As the hub of the NLECTC System, NLECTC-National provides law enforcement and corrections professionals with an entry portal into the system. As the focal point for information dissemination, NLECTC-National ensures that requests for information and assistance are channeled to the appropriate site. By channeling information in these two ways, the National Center fulfills one of its two primary missions: offering the criminal justice community a variety of ways in which to obtain information about relevant technology and related matters of interest. The National Center also supports NIJ’s standards development and implementation and its Compliance Testing Program (CTP), which ensures the safety and effectiveness of equipment used by the law enforcement and corrections communities.

Highlighted activities include:

- Developed a demonstration database housed on the CTP site to track officer shootings and record information relevant to the program. The CTP will track this information as it is reported in media outlets, and then coordinate with staff of both the Bureau of Justice Assistance’s Bulletproof Vest Partnership Grant Act Program and the FBI’s Uniform Crime Reports. Data collected by these agencies can be used to determine modifications that may be needed in future revisions to NIJ standards.
Created new filters for the Compliant Product List, which allow users to search and sort NIJ-compliant ballistic-resistant body armor models by various criteria such as threat level, gender, opening and size range.

Coordinated and provided logistical support for two Law Enforcement Technology Institutes (see “Distributing, Gathering and Sharing Information,” p. 51). At each event, more than 30 participants (a rank of lieutenant and above) selected from a pool of applicants shared their technology challenges, networked and received an overview of current and emerging NIJ projects.

Conducted four 1-day technical workshops for body armor manufacturers and one for ballistic helmets manufacturers. This included one workshop for all body armor manufacturers in May, two for stab-resistant armor manufacturers in July and December, one for ballistic helmets manufacturers in July and one for ballistic-resistant body armor manufacturers in November.

Through the CTP, provided oversight and administration for the testing of 152 models of ballistic-resistant body armor, 15 models of stab-resistant armor, 11 restraints and four autoloading pistols.

ARTIST DICK KRAMER CREATES EXCLUSIVE NLECTC COLLECTION

Dick Kramer, an artist well known to the public safety community, is creating hand-sketched drawings for a series of NLECTC System posters. The first two posters in the series, “Tools of the Trade” and “NIJ’s Aviation Technology Program,” are currently available; additional posters are planned for 2012. The posters raise awareness of the NLECTC System by prominently displaying NLECTC’s toll-free phone number and JUSTNET address (http://www.justnet.org). They are free of charge to criminal justice personnel on request.
Provided meeting coordination, subject-matter expert and/or technical writing/editing support for 22 Technology Working Group and Special Technical Committee meetings, including those for body armor, offender tracking, metal detectors, ballistic helmets, stab-resistant armor and conducted energy devices.

Exhibited at 20 national law enforcement and corrections conferences (along with the States, Major Cities and Counties Regional Center).

Produced four issues of TechBeat, the award-winning newsletter for law enforcement and corrections professionals, in both interactive online and print versions.

In conjunction with the Michigan State Police, conducted police vehicle tire and 2012 model year police vehicle testing.

Handled approximately 1,025 requests for information and publications.

For more information on NLECTC-National, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.

Interactive TechBeat
### EXHIBIT 6. SUMMARY OF TECHNOLOGY ASSISTANCE: INFORMATION CENTER

<table>
<thead>
<tr>
<th>Program Areas</th>
<th>Number of Requests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications interoperability/Information sharing</td>
<td>48</td>
</tr>
<tr>
<td>Crime prevention technologies</td>
<td>16</td>
</tr>
<tr>
<td>Critical incident management/Counterterrorism technologies</td>
<td>6</td>
</tr>
<tr>
<td>CyberCrime</td>
<td>6</td>
</tr>
<tr>
<td>Events</td>
<td>16</td>
</tr>
<tr>
<td>Federal Property Programs</td>
<td>18</td>
</tr>
<tr>
<td>General NLECTC information</td>
<td>567</td>
</tr>
<tr>
<td>Investigative and forensic sciences</td>
<td>170</td>
</tr>
<tr>
<td>Learning technology/Education training</td>
<td>12</td>
</tr>
<tr>
<td>Less-than-lethal incapacitation</td>
<td>3</td>
</tr>
<tr>
<td>Protective systems technologies</td>
<td>22</td>
</tr>
<tr>
<td>School safety</td>
<td>9</td>
</tr>
<tr>
<td>Standards and testing</td>
<td>132</td>
</tr>
</tbody>
</table>
Ballistic-Resistant Body Armor
Follow-up Inspection and Testing
Program Completes Initial Year

Developing equipment standards and standards-based testing for the law enforcement and corrections communities is a vital part of the National Institute of Justice’s (NIJ’s) work. One of the most well-known and visible standards and testing efforts is the Ballistic-Resistant Body Armor Program.

The National Center supports NIJ’s standards development program and administers the Compliance Testing Program (CTP); in this program, armor models undergo a series of tests to verify that they comply with the standard. Models that comply are added to the Compliant Product List (CPL), which is posted online on the National Law Enforcement and Corrections Technology Center (NLECTC) System website, http://www.justnet.org.

The Follow-Up Inspection and Testing (FIT) Program is the latest improvement in the CTP. Its first full year of operation occurred in 2011. The FIT Program provides critical oversight to ensure that recently manufactured ballistic-resistant body armor will perform similarly to
armor samples previously tested and deemed compliant with *Ballistic Resistance of Body Armor, NIJ Standard 0101.06*.

By comparing the construction of newly made armor with samples previously tested under the CTP, the FIT Program provides a window into the manufacturing process to ensure that armor coming off the assembly line is manufactured in the same way and performs in the same way as what was originally tested and found to comply with the standard.

“We want to ensure that the men and women who wear these vests on a daily basis have as much confidence in these products as we can possibly give them,” says Lance Miller, NLECTC-National director.

“We’ve already had a couple of scenarios, or instances, come up in the FIT Program that have called out performance issues with certain models of armor,” he adds. “Program staff at NLECTC and NIJ have worked actively with the affected manufacturers to identify the root cause of that problem, and in cases where it was a significant issue, manufacturers voluntarily took immediate action to recall and replace units or take some sort of corrective action out in the field.”

**Background**

The FIT Program applies to armor models that the CTP found to be compliant with the latest version of the standard, published in 2008. Under FIT, periodic surprise inspections are conducted, during which independent inspectors pull production armor samples and send them for testing and inspection.

FIT has two aspects: performance testing and construction inspection. Each month, the CTP prepares a list of armor types and locations for follow-up inspection, based on the number of models a manufacturer location currently has on the CPL that have not been inspected within the past 10 months.
After the tests are conducted, the laboratories send the follow-up ballistic test results and the test armor samples to the CTP for inspection. The testing and CTP inspection will ensure the vest is built in the same way as samples submitted for initial compliance testing. The multiple inspections, both before and after production begins, result in greater confidence that body armor fielded to practitioners meets the requirements of NIJ Standard 0101.06.

Some models of ballistic body armor are initially manufactured for a single contract and are not produced again for a significant amount of time. In these cases, the CTP does not analyze production samples for comparison with samples initially tested for compliance. To address this issue, the FIT Program now includes initial product inspection, which requires that follow-up inspection occur as soon as a model is listed on the CPL and production begins.

**Results**

The first follow-up inspection was conducted in September 2010, and inspections continue. Through December 2011, inspectors had completed 75 inspections of manufacturing locations in the United States, Canada, Mexico, Columbia and China, and pulled 191 models of ballistic-resistant armor, according to Jamie Phillips, NLECTC conformity assessment coordinator. Of those models, three sustained multiple perforations during laboratory testing, resulting in a manufacturer’s total recall and replacement of more than 1,750 fielded armors to ensure that practitioners had effective ballistic body armor compliant with NIJ Standard 0101.06.

During the same period, inspections discovered seven major construction variations that could impact ballistic performance. Examples of major construction variations include a difference in the number of layers in a vest between the follow-up testing samples and the original samples, or vest covers that leak and allow water to penetrate to the ballistic panel. Inspections also identified 32 minor construction variations, which means the deviation does not affect ballistic performance. In response to documented variations, manufacturers worked with the CTP to implement quality control improvements at several manufacturing locations to prevent additional variations.
Inherent to the FIT Program is additional communication and interaction between body armor manufacturers and the CTP. “It has given us an opportunity to work more closely with manufacturers to ensure that the armor that is fielded is more likely to comply with requirements,” Phillips says. “I believe manufacturers initially had concerns that the FIT Program would be a significant burden to them in labor, materials and ultimately, financially. However, keeping in mind that additional production costs (such as follow-up inspection and testing) would likely be transmitted to practitioners, we attempted to strike a balanced approach, one that would provide additional value (in confidence) while not being cost prohibitive. Over the past year, I think those fears have been alleviated significantly. We’re not working in isolation. This allows manufacturers to express their concerns, and we in turn are able to explain the reasons behind our decisions and how those decisions support the law enforcement community as a whole.”

Body armor has been credited with saving the lives of more than 3,000 law enforcement officers since the mid-1970s, when NIJ began testing body armor and developing performance standards.

**Future Plans**

Major changes are not anticipated for the near future, but staff will work on fine-tuning the FIT Program as it evolves.

“I think we view it in the same light as the entire compliance testing program,” Miller says. “We view the standard itself as a living, breathing document that is flexible and can adapt to changing trends in industry and new testing methods, and I don’t see the FIT Program as any different. We obviously have learned much. As we continue this dialogue with manufacturers, we continue to learn more about the body armor manufacturing processes and how quality management in that industry works, and as we learn more, we are going to adapt the program.”
Standard Revision

In 2011, NIJ laid the groundwork for revising the ballistic-resistant standard, conducting workshops for body armor manufacturers to obtain comments and suggestions and conducting a needs and requirements meeting with practitioners. During the needs and requirements meeting, practitioners identified the operational environments where they work along with missions and roles performed while wearing armor, and identified other equipment that may be affected while wearing armor. This information will serve as a starting point for the Special Technical Committee (STC) that will develop the standard. The STC is scheduled to begin work on the revision in July 2012.

For more information on the Follow-up Inspection and Testing and Compliance Testing Programs, visit https://www.justnet.org/body_armor/index.html or contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.

<table>
<thead>
<tr>
<th>EXHIBIT 7. 2011 BALLISTIC BODY ARMOR FOLLOW-UP INSPECTION AND TESTING</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inspections (at manufacturing location)</td>
<td>58</td>
</tr>
<tr>
<td>Models inspected (at manufacturing location)</td>
<td>140</td>
</tr>
<tr>
<td>Models tested</td>
<td>132</td>
</tr>
<tr>
<td>NIJ Notices issued</td>
<td>35</td>
</tr>
<tr>
<td>Inspections (at NIJ BA CTP)</td>
<td>154</td>
</tr>
</tbody>
</table>
“Capturing” More Information With Less Resources

In today’s uncertain economic times, we hear the phrase “doing more with less” almost every day, until it becomes nearly meaningless. Yet with the development of CaptureNet 2.0, the States, Major Cities and Counties (SMCC) Regional Center has created a new customer relationship system (CRM) that exemplifies what that statement means.

CaptureNet 1.0 served as the National Law Enforcement and Corrections Technology Center (NLECTC) System’s CRM for more than a decade. It provided a database into which selected users could input information about individuals who sought assistance from the system and could order publications in response to user requests. With the July 2011 advent of CaptureNet 2.0, users from all centers have the ability to enter information, process and assign requests, and order publications. Practitioners can access CaptureNet directly through JUSTNET, the NLECTC System website, and place their own publication orders. In addition, the new system allows the centers to target information to customers’ interests and will provide detailed analysis that will help the NLECTC System provide better customer service in the future.
“We’ve been charged with capturing information on all the contacts we make, whether they are in person at conferences, on the phone, through e-mail or through the Web portal,” says Ron Pierce, SMCC deputy director. “NIJ also wants to know how successful those efforts are, and the new CaptureNet allows us to do more evaluation of the various centers’ impact. We’ll be able to show NIJ, through detailed analysis, the positive impact the institute has on the practitioner community through the NLECTC system.”

A trained evaluation and impact analyst will repackgage the information from the system into easy-to-understand reports, showing “in this time of shrinking budgets how the NLECTC System can take its outreach efforts and do an even better job of giving practitioners the information they need more efficiently,” Pierce says.

One way in which CaptureNet 2.0 already “does more with less,” even before enough data have been collected for a sophisticated analysis, is streamlining the publication ordering process so that employees throughout the NLECTC System no longer need to go through a central coordinator to complete requests. Adding a public ordering interface to JUSTNET also helped to streamline the process. And, because access is systemwide, an employee at one center can pass a request for assistance directly to another center that can better meet the requester’s needs by assigning a tracking ticket that will follow the request to its successful completion.

In 2012, planned enhancements will allow users to tag practitioners’ interests when they enter new contact information, thus enabling the creation of products targeted to specific interests. “For example,” Pierce says, “at present the biweekly newsletter JUSTNETNews contains a wide range of public safety information. In the future, it might be split into several editions, targeting areas such as corrections, law enforcement, forensics and the courts, and practitioners would receive the most relevant one. It’s all about customizing the experience for the user. Instead of needing to wade through information that isn’t relevant to their field, they would receive information that keys in on their interests.”

SMCC has also implemented the use of several other tools that complement this effort, including forms soliciting information on practitioners’ interests (https://www.justnet.org/your_input.html) and their perceptions of the field’s technology needs. Other forms soliciting more targeted information come into play at various times throughout the year and
can be accessed from the JUSTNET home page. Information collected on these forms helps NIJ target future solicitations, standards development efforts and the publication process.

System Development

As SMCC, through its outreach program, led the NLECTC System’s effort to collect additional information, it became apparent that although CaptureNet 1.0 did a good job of allowing users to capture information on day-to-day contacts, it had a limited user pool and lacked the key features of CaptureNet 2.0. Also, the NLECTC System’s reorganization in 2009 made several processes obsolete. A team started a search for a tool that would be cost-effective, yet customizable enough to produce the reports and information that NIJ and the NLECTC System needed. SMCC purchased a commercial off-the-shelf product and used in-house IT support to shape it into a new version that meets the centers’ needs.

“We did look at quite a few alternatives and this was by far was the most cost-effective. We knew we could capitalize on our in-house talent to make it do what we wanted, and that we didn’t have to use it just as it came out of the box,” Pierce says.

Once the IT team completed the first tier of refinements and the system was ready to launch, SMCC began to provide in-house training to users throughout the NLECTC System. A total of four online sessions reached out to employees from centers across the country, guiding them through the process of inputting information.

“Throughout the NLECTC System, we keep improving the way we reach people in everything we do. SMCC has been doing lots of different things at conferences and through local outreach, and we’ve made more contacts than in previous years. These contacts don’t just sit in a database, they all get something from us: e-TechBeat, JUSTNETNews, promotional posters (see “Artist Dick Kramer Creates Exclusive NLECTC Collection,” p. 14) and other items. We’ve cut down on the print run of TechBeat by getting more subscribers for the online edition and we’re doing lots of other things to save money for NIJ. We’re reaching more people and using less resources to do it. CaptureNet is the back end that shows how all of that happens,” Pierce says.
Highlights

The SMCC Regional Center provides a resource and outreach mechanism for larger criminal justice agencies (those with 50 or more sworn personnel). Through the services of SMCC, these agencies gain access to a full range of relevant scientific and technology-related information and publications, including the resources and technology assistance activities of the entire NLECTC System and results from NIJ research, development, testing and evaluation.

Highlighted activities include:

- Arranged for a presentation by NIJ Program Manager Mike O’Shea to a combined meeting of the Major Cities Chiefs of Police Association and the Major County Sheriffs Association in January, so that members could learn about the services available through the NLECTC System. This presentation was a follow-up to one given by the SMCC director to the Major Cities Chiefs of Police Association in October 2010.

- Exhibited at 20 national, regional and state law enforcement and corrections conferences (along with the National Center).

- Migrated the distribution of conference materials from hard copy to a USB drive, resulting in savings of more than $21,000 in the first year of its use.

- Disseminated information about NIJ and NLECTC to individuals from 45 states, including the District of Columbia, representing 495 cities and counties within the continental United States along with 886 law enforcement and corrections agencies.

- Entered information for 1,435 contacts into CaptureNet 2.0.

- Developed the following partnerships:
— National Tactical Officers Association, which represents more than 35,000 officers and 1,600 tactical teams across the United States.

— International Law Enforcement Educators and Trainers Association, which serves the needs of criminal justice trainers and educators throughout the world.

— FBI National Academy Associates, a nonprofit international organization of professionals dedicated to providing communities, states and counties with professional training, education and information.

— FBI Law Enforcement Executive Development Association (LEEDS), which is composed of chief executive officers of law enforcement agencies, directors and commissioners of public safety, and elected sheriffs throughout the United States and other countries who have participated in a Command Institute for Law Enforcement Executives, the LEEDS training program at the FBI Academy or one of the 23 regional FBI Command Colleges located in the United States.

— International Association of Law Enforcement Firearms Instructors, which was organized in 1981 by a group of concerned firearms instructors to update and modernize instruction and teaching techniques.

— Southern States Correctional Association, made up of professionals from 14 states representing all types of corrections agencies.

— LawOfficer.com, which is owned and operated by Elsevier Public Safety; the site includes editorial content targeting the law enforcement community.

- Served as liaison with the FBI in the following areas: National Academy, E-Guardian Program (national suspicious activity reporting), National Data Exchange (N-DEX), and Defense Systems Unit and Critical Incident Response Group (primarily the Hostage Rescue Team).

For more information on the States, Major Cities and Counties Regional Center, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.
Rural Law Enforcement Technology Institute Provides More Than Information

Police Chief Kevin Billiot of Montgomery, La., came to the 2011 Fall Rural Law Enforcement Technology Institute (RLETI) looking for technology assistance and advice on the use of in-car video systems. He left with a commitment of donated “new to you” equipment and a nationwide network of contacts to help him manage his financially struggling three-officer department.

Thirty-one command-level (lieutenant and above) law enforcement officers were selected from across the country to attend the 12th RLETI session held December 2011 in Annapolis, Md. Officers apply to attend the five-day institute, where they each provide a presentation on a technology challenge faced by their department, hear presentations from the sponsoring National Institute of Justice (NIJ) and spend time outside the formal sessions networking and developing contacts.

“One of the advantages of having this kind of event is the officers get to talk to each other when they’re on break, before and after sessions start, and in the evenings,” says Dave Mather, executive director of the Small, Rural, Tribal and Border Regional Center (SRTB-RC), which coordinates the event on behalf of NIJ. “The more they get to know
each other, the more they share, and the more they share, the more they find ways to help each other with their problems. Most of these solutions are discovered during conversations offline, not in the classroom. If the institutes were done in a format where they couldn’t share time outside the classroom (such as via webcam), these solutions wouldn’t happen.”

Billiot, who is an active ordained minister in addition to being police chief, came to the fall 2011 RLETI looking for information on in-car and officer-worn video recording systems. Although he sought to obtain information only, he also obtained equipment.

“During his presentation, Billiot mentioned the incredible economic challenges his agency was facing, to the extent that he had asked his officers to buy their own winter jackets because the town just didn’t have the funds to purchase them. When he started talking about the things he did not have, I asked him to make a list and to share that list with the rest of the group,” Mather says. “By the end of the week, agencies had offered to donate everything on his list and more. The stuff may not be new, but it’s new to them. This is a great example of sharing resources.”

Capt. Rick Grassi of the Tomball (Texas) Police Department offered Billiot two in-car video systems not being used by his department. Cmdr. Dan Brown of the Gila River (Ariz.) Police Department volunteered to donate three used patrol vehicles along with uniforms, recorders and other equipment no longer used by his agency. Other agencies offered conducted energy devices, mobile data computers, radars and assistance with writing a new policy manual.

“We have a group of dedicated officers and some of the most basic equipment, but beyond that we have little else,” says Billiot, who took over as the town’s police chief in April 2011. Located in Grant Parish, La., Montgomery has a population of only 730 residents. “The opening of Interstate 49 drew traffic, commerce and people away from our community. As a result, our tax base is virtually nonexistent and we have very few resources.”
“I am familiar with the camaraderie and brotherhood of police departments, but to actually see it in action, and to be the primary beneficiary of that at this conference, is humbling and really overwhelming,” he adds.

SRTB-RC conducted two RLETI sessions in 2011, with a total of 60 participants from 19 states. NIJ pays all expenses associated with the events. In all, 366 officers have participated in RLETI since 2006.

For more information about the NIJ-sponsored technology institutes for rural and states/major cities and counties law enforcement, and for corrections, see “Distributing, Gathering and Sharing Information” on p. 57.

**Highlights**

Small criminal justice agencies with fewer than 50 sworn officers, along with rural, tribal and border agencies, represent the largest number of criminal justice agencies in the United States (11,372 agencies, according to the 2004 Census of State and Local Law Enforcement Agencies). SRTB-RC publicizes NIJ and National Law Enforcement and Corrections Technology Center (NLECTC) System programs and services to this historically underserved segment of the criminal justice system.

Highlighted activities include:

- Held a small border agency summit in October 2011, inviting law enforcement executives from small, rural and tribal agencies located near the U.S.-Canada border to identify their top five concerns. When this list of the top five concerns was finalized, it matched the 2009 and 2010 small agency summit issues (see sidebar, National Summit for Small Law Enforcement Agencies), indicating that the most important issues facing small border agencies are the same as those faced by other small agencies, rather than issues related to their location next to the border. SRTB-RC scheduled follow-up studies with participants to determine the issues related to their border location that need to be addressed.
Attended, exhibited at and/or presented at 73 different conferences, including national conferences such as the International Association of Chiefs of Police, National Sheriffs’ Association, International Law Enforcement Educators and Trainers Association, Technologies for Critical Incident Preparedness, FBI National Academy Associates, National Native American Law Enforcement Association and International Association of Women Police.

Distributed 37,620 informational CDs/DVDs, including files downloaded from the website (http://www.srtbrc.org). Video topics include less-lethal technologies and school safety, along with the release of the Forensic and Crime Scene Tool Set in beta version.

**NATIONAL SUMMIT FOR SMALL LAW ENFORCEMENT AGENCIES**

In 2011, the Small, Rural, Tribal and Border Regional Center continued supporting efforts to address the concerns of small and rural agencies that originated with the 2010 National Summit for Small Law Enforcement Agencies (see “Many Agencies, One Voice,” NLECTC System Annual Report 2010, p. 29). As reported at that time, the top five concerns identified by attendees were:

1. Lack of representation/voice at the national level.
2. Appearance of inequity regarding grant awards.
3. The hardship placed on small agencies when they must backfill shifts of officers who are attending training.
4. Concerns over meeting the Federal Communications Commission mandate for narrowbanding.
5. Challenges faced by small agencies as technology becomes integral to law enforcement.

Follow-up activities in 2011 include:

- Constituent Advisory Group (CAG) Vice-Chair Sheriff William Brueggemann was appointed as co-chair of the National Sheriffs’ Association Small Agency Committee.
- SRTB-RC presented on the results of the summit and ongoing follow-up efforts to more than 23 state-level chiefs’ and sheriffs’ associations.
- CAG member Chief Jeff Sale was appointed to the small agency committee for the State Associations of Chiefs of Police (SACOP), a subsidiary of the International Association of Chiefs of Police (IACP), as a result of his efforts at the small agency summits for the previous two years. When Sale moved to a mid-sized agency, SACOP allowed him to pick fellow CAG member Chief Rob Hauck of the Tomball (Texas) Police Department as his replacement.
- During the 2011 IACP Conference, Chief Sale, Chief Hauck and Mather presented at several committee meetings on the programs offered by SRTB-RC and the need for better representation of small and rural agency needs when considering national policies.
Continued the low-cost firearm simulator demonstration project to evaluate the value of this technology to small and rural agencies. This project received mention in the November 2011 issue of Law Officer Magazine (http://www.lawofficer.com/magazines/2011/november).

Employed the services of a law enforcement liaison to assist agencies throughout the country with the process of requesting property through the 1033 and 1122 Federal Surplus Property Programs. This liaison responded to nearly 600 requests for assistance from small, rural and border agencies. The requests were received from 46 states and a number of federal agencies. In addition, the liaison made presentations at 23 conferences, the two RLETI sessions, the Law Enforcement Technology Institute sessions and the U.S. Attorney’s Conference in Des Moines, Iowa.

Helped coordinate the annual Law Enforcement Support Office (LESO) Conference in San Antonio, Texas. A total of 122 attendees represented 40 states; 54 city, county or state law enforcement agencies; and 28 federal law enforcement agencies. During 2011, LESO reported that equipment valued at more than $498 million (including 5,907 weapons) was distributed to law enforcement agencies.

Visited 68 agencies across the United States for outreach purposes. At each visit, the sheriff or chief was provided a briefing on the services and resources available from NIJ and the NLECTC System.

For more information on the Small, Rural, Tribal and Border Regional Center, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.
Tomball Police Department Takes to the “Open” Skies

No doors? No roof? No problem, not for the pilot officers who have been flying an Auto-Gyro MTO Sport gyroplane to provide aerial support to the Tomball (Texas) Police Department since March 2011.

The Auto-Gyro MTO Sport, a two-seat, open-cockpit gyroplane, costs approximately $75,000 to purchase and about $50 an hour to operate, and runs on the same type of gasoline used in automobiles. It needs minimal room to take off and land, and takes up very little hangar space. The craft can fly at speeds up to 115 miles per hour (mph) or as slow as 0 mph. With these advantages, Tomball’s use of the MTO Sport gyroplane scored high enough to be named one of the “Top 30 Law Enforcement Technology Stories of 2011” by Government Technology (http://www.govtech.com/public-safety/The-Top-30-Law-Enforcement-Technology-Stories-of-2011.html).

Tomball, a municipality of 14,000 to 15,000 people located in Harris County (a suburb of Houston), used National Institute of Justice (NIJ) grant funding to launch the nation’s first-ever law enforcement gyroplane in March 2011. Chief Hauck and two officers attended a week of
pilot training, along with a certified pilot from the Harris County Sheriff’s Office (HCSO). On March 25, the gyroplane flew its first mission, providing aerial support at a community festival. Since then, the 60-officer agency has found many uses for the gyroplane, including aggressive driver patrols, incident patrols, aerial photography and event support. The demonstration project has a goal of reporting best practices, actual operating costs and other benefits to NIJ following 300 operational hours of flight time. The aircraft has also been used as a shared resource with HCSO.

According to Aviation Technology Program Manager Mike O’Shea, NIJ had researched the gyroplane and found it to have an outstanding safety record; in addition, it was affordable to small and rural agencies that are not able to spend $3 million on a helicopter to provide aerial support. Those findings placed it alongside powered parachutes and light sport aircraft as options offered to agencies that participate in the program’s demonstration efforts.

To read more about the project, visit “Flying the Police Aircraft of the Future” (blog), at http://jalopnik.com/autogyro-mto-sport/ and AirBeat magazine, July/August 2011.

**Highlights**

In fall 2005, NIJ began evaluating low-cost aviation assets for law enforcement, formally creating the Aviation Technology Program in 2006. The program’s goal is to evaluate low-cost aviation options for functionality and safety and then place them with an agency for hard data on use.
Highlighted activities include:

- Conducted an ongoing evaluation of 17 aircraft, including two unmanned aircraft systems. These aircraft served more than 130 agencies in 2011 by flying 560 missions for a total of approximately 1,000 flight hours.

- Held an Aviation Demonstration Day at the Bay Bridge Airport in Stevensville, Md., on June 9. The goal was to provide a hands-on look at the numerous low-cost aviation technologies available to meet law enforcement's aviation needs, with an emphasis on small and rural policing. Almost 200 law enforcement officials from federal, state and local agencies got a firsthand look at these aviation technologies.

- Attended several meetings with Federal Aviation Administration officials to help streamline the process by which law enforcement unmanned aircraft systems are operated in the national airspace.

- Worked with the Airborne Law Enforcement Accreditation Commission to develop standards for the use of light sport aircraft (LSA) in law enforcement operations. The resulting document is intended to encompass all aspects of law enforcement operations related to LSA and is divided into five major sections: administration, operations, safety, training and maintenance. Standards are separated into two categories: mandatory and recommended. The benefits of adopting the published standards include safe, effective and cost-efficient LSA operations; greater accountability within agencies; controlled liability insurance costs and stronger support from government officials and the community.

- Presented some of the aircraft during the Joint Service Open House and Airshow at Andrews Air Force Base in May. The program demonstrated several unmanned aircraft systems, two gyroplanes, a light sport fixed-wing airplane and a powered parachute.

- Attended the Congressional Unmanned Systems Caucus at the Sam Rayburn building in June. The program displayed three unmanned aircraft systems, and several members of Congress visited the display.
Following is a summary of some of the missions flown by program participants in 2011:

- In February, an agency in Alabama used a powered parachute to help a bordering agency in Florida locate several stolen motorcycles in a wooded area.

- In March, an agency in North Carolina used a program aircraft to conduct surveillance on a suspect involved in a narcotics investigation. Once the suspect left his residence in a vehicle, air support directed ground units to make a traffic stop, resulting in the suspect's arrest. A subsequent search of the suspect's vehicle and residence revealed approximately 104 grams of cocaine with a street value estimated at $10,000. Seven grams of marijuana and approximately $2,500 in cash were also seized.

- In April, an agency in North Carolina used a program aircraft to search a large wooded area for a stolen all-terrain vehicle (ATV) after ground units could not locate it. During the 2.4-hour mission, the ATV, valued at $11,000, was located approximately 50 yards from a trail.

- In June, an agency in Florida used a powered parachute to search for a man in a wooded area near his home after he left a note indicating he was going to take his own life. After a 20-minute aerial search, the suspect emerged from the woods. The man stated to his mother that he came out of hiding because he was surprised to see an aircraft being used to search for him. He was taken to a treatment facility.

- In August, an agency in California used a powered parachute to investigate a suspected marijuana-growing operation and detected evidence of an illegal marijuana crop during the flight. Photos appeared to show a suspect tending the illegal crop. Ground units were directed to the location, where they contacted the suspect and confirmed the illegal operation.

- In August, an agency in South Carolina used a program aircraft to support an investigation by the U.S. Drug Enforcement Administration and several local law enforcement agencies. The aircraft conducted surveillance on a suspected drug dealer who was very cautious and conscious of attempts to follow him on the ground. He was observed using counter-surveillance techniques in an attempt to get away from
EXHIBIT 8.
2011 NIJ LAW ENFORCEMENT AVIATION EVALUATION PROJECT

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft evaluated</td>
<td>17</td>
</tr>
<tr>
<td>Agencies served</td>
<td>130</td>
</tr>
<tr>
<td>Missions flown</td>
<td>560</td>
</tr>
<tr>
<td>Flight hours</td>
<td>1,000</td>
</tr>
</tbody>
</table>

ground units. According to agents involved in the investigation, the aircraft was “invaluable” in the successful conclusion of this investigation.

In September, a deputy with HCSO was fired on by theft suspects during a vehicular pursuit. After crashing their vehicle, the two suspects ran into the woods. After a protracted perimeter search involving numerous deputies and multiple K9 units, the HCSO incident commander requested the assistance of the Tomball gyroplane. A joint air crew made up of an HCSO sergeant and a Tomball sergeant launched from the Hooks Airport and within minutes were overhead searching for the two suspects, now wanted for the attempted murder of a peace officer. After circling for approximately 45 minutes, the flight crew spotted a suspect running through a neighborhood, jumping fences and going from yard to yard. Ground units were directed to the area and the suspect (the alleged shooter) was quickly captured. With the second suspect still at large, the gyroplane flight crew contacted the Texas Department of Public Safety Aviation Unit and requested assistance as a means of providing additional air support. With two aircraft searching the area, the second suspect began running from the woods into an adjacent subdivision. Again, the gyroplane flight crew directed ground officers and K9 units to the area and the second suspect was taken into custody. Both the Texas DPS Aviation Unit and the Tomball units conducted the same mission, but the gyroplane’s mission cost was significantly less at approximately $150.
Also in September, Tomball used the gyroplane to fly over a large wildfire and coordinate the ground efforts of multiple fire departments.

For more information about the Aviation Technology Program, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.
Leveraging an Opportunity to Expand Training

To better serve law enforcement agencies scattered across 586,412 square miles, the Alaska Regional Center tries to help criminal justice professionals in Alaska make the most of every opportunity when representatives from a majority of agencies are gathered in one place. One such event took place in May 2011, when the National Law Enforcement and Corrections Technology Center (NLECTC)-Alaska facilitated the addition of Suspicious Activity Reporting (SAR) initiative training to the annual Alaska Peace Officers Conference held in Anchorage.

“Since a significant number of the criminal justice agencies in the state had representatives at the event, we saw it as a good opportunity to arrange for the deputy director of the SAR initiative to come in and provide training to all attendees,” says Alaska Regional Center Director Bob Griffiths.

NLECTC-Alaska also arranged for all attendees to receive materials that would allow them to share the training with their colleagues when they returned to their agencies. The SAR training took place in two sessions; the conference’s main session had 110 participants and another session that targeted chiefs and executive directors had 60 participants.
Griffiths decided to arrange for the training after he attended a SAR presentation at a National Institute of Justice (NIJ) event. “After the Alaska training was over, I got a lot of positive feedback from the SAR folks, who were very appreciative of the opportunity to reach so many professionals from Alaska in one place. It’s very difficult to do that here because of the geography,” he says. “And most of the practitioners didn’t know about the SAR initiative, so they were appreciative of the fact that they got information about this program, and about its goals related to information-sharing and anti-terrorism efforts.”

The SAR initiative, which is coordinated by the U.S. Department of Justice, is a collaborative effort to collect and share reports of suspicious activity. Suspicious behavior reports from local law enforcement and/or private citizens are forwarded to state and major urban area fusion centers, the U.S. Department of Homeland Security and the FBI for analysis. For more information, visit http://nsi.ncirc.gov/.

**Highlights**

Alaska’s criminal justice professionals, located in the country’s largest state in terms of land area, serve nearly 700,000 residents. They face unique challenges to their crime prevention, investigation and rehabilitation efforts. The Alaska Regional Center, located in Wasilla, ensures that the agencies scattered widely across this remote area have access to the services of the NLECTC System.

Highlighted activities include:

- As a follow-up to the work that resulted in the publication of the Spring 2011 TechBeat article, “Keeping Track Under Adverse Conditions” (http://www.justnet.org/InteractiveTechBeat/spring_2011/KeepingTrack.pdf), provided presentations and fielded inquiries for additional information from criminal justice professionals nationwide.
Represented NIJ and the NLECTC System by delivering presentations to update programmatic activities to the State Associations of Chiefs of Police section at national meetings held in Denver, Colo., and Atlantic City, N.J.

Provided technical assistance and capacity building (train-the-trainer courses) on information-sharing systems to the Fairbanks, Soldotna, Kenai, Seward and Cordova police departments as well as to Alaska’s departments of corrections and public safety.

Provided excess government equipment, advice and support to the Cordova Police Department to help resolve its criminal justice data storage crisis.

Provided information regarding federal Land Mobile Radio narrow-banding mandates and transition strategies for Alaska public service agencies.

Regularly distributed statewide announcements on NIJ-sponsored and other training opportunities available to criminal justice agencies.

Co-sponsored the forensic science summer camp “CSI Montana,” and promoted and supported the annual CSI Alaska Summer Youth Camp.

For more information about the Alaska Regional Center, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.
Setting Priorities Based on Practitioner Needs

The National Law Enforcement and Corrections Technology Center (NLECTC) System helps the National Institute of Justice (NIJ) with the task of setting research priorities based on practitioner needs by sponsoring Technology Working Groups (TWGs) and Constituent Advisory Groups (CAGs), which provide input to NIJ via the Law Enforcement and Corrections Technology Advisory Council (LECTAC). Together, these groups form a bridge between the criminal justice community and the NIJ Office of Science and Technology.

Constituent Advisory Groups

The States, Major Cities and Counties (SMCC) and Small, Rural, Tribal and Border (SRTB) Regional Centers both sponsor a CAG, whose members are experienced practitioners representing the respective center’s audience. These groups provide overall grassroots comments on the technology needs and requirements developed by the TWGs, channeling their input back to NIJ through their respective centers.
SMCC CAG

The SMCC CAG was established in cooperation with, and is composed of representa-
tion from, member agencies of the Major Cities Chiefs of Police Association and the
Major County Sheriffs’ Association. The members of this CAG were selected based on
their technology expertise; they will provide coordination for the technology committees
of both organizations to ensure the broadest possible perspectives and input from large
agencies on the needs and requirements developed by the TWGs. The first meeting of
the SMCC CAG will occur in early 2012.

SRTB-RC CAG

The CAG assists the SRTB-RC program by ensuring that the Center’s focus aligns with
its technological needs. Membership consists of law enforcement administrators or
training professionals from small and/or rural law enforcement agencies. Every mem-
ber of this CAG was chosen to be a part of the advisory council after attending a Rural
Law Enforcement Technology Institute or after being part of a TWG. Through continual
electronic communication and semiannual meetings, the CAG provides guidance and
recommendations to SRTB-RC on issues facing small law enforcement agencies across
the nation.

Technology Working Groups

These practitioner-based committees of 10 to 20 experienced individuals from local,
state, tribal and federal agencies and laboratories are each associated with a particular
NIJ technology investment portfolio, such as biometrics. Each portfolio has a TWG that
identifies criminal justice technology needs within that portfolio. The TWGs met in 2011
to establish and prioritize practitioner-based needs and requirements related to their
respective portfolios.

TWG members may also participate on peer review panels that review proposals written
in response to current NIJ solicitations, and their agencies often participate as testbeds
in evaluating NIJ-funded technology solutions.
TWGs identify and define technology needs and operational requirements in the field, then develop operational requirements and technology evaluation criteria. Determining whether a technology is already available in the marketplace or needs to be developed by the scientific community is the next step. TWGs relay information about NIJ’s technology programs and products back to the criminal justice community and work together with LECTAC to ensure that NIJ’s technology program meets high standards for safety and performance.

**Current Technology Working Groups**

Each TWG is coordinated by a regional center or a Center of Excellence (CoE), as follows:

- Aviation (Small, Rural, Tribal and Border Regional Center).
- Biometrics (Sensor, Surveillance and Biometric Technologies CoE).
- Body Armor (NLECTC-National).
- Communications Technologies (Communications Technology CoE).
- Community Corrections (Corrections Technology CoE).
- Digital Evidence (Electronic Crime Technology CoE).
- DNA Forensics (Forensic Technology CoE).
- Explosives (Weapons and Protective Systems Technology CoE).
- General Forensics (Forensic Technology CoE).
- Geospatial Technologies (Information and Geospatial Technologies CoE).
- Information-Led Policing (Information and Geospatial Technologies CoE).
- Institutional Corrections (Corrections Technology CoE).

Operations Research (Information and Geospatial Technologies CoE).

Modeling and Simulation (Information and Geospatial Technologies CoE).

Officer Safety and Protective Technologies (Weapons and Protective Systems Technology CoE).

Pursuit Management (Weapons and Protective Systems Technology CoE).

School Safety (NLECTC-National).

Sensors and Surveillance (Sensor, Surveillance and Biometric Technologies CoE).

Weapons Detection (Sensor, Surveillance and Biometric Technologies CoE).

How Do TWGs Meet the Needs of Practitioners?

TWGs identify and define technology needs and operational requirements in the field, then develop operational requirements and technology evaluation criteria. Determining whether a technology is already available in the marketplace or needs to be developed by the scientific community is the next step. TWGs relay information about NIJ’s technology programs and products back to the criminal justice community and work together with LECTAC to ensure that NIJ’s technology program meets high standards for safety and performance.

2011 TWG Efforts

In 2011, the TWGs began to move away from the previous schedule of twice-yearly face-to-face meetings, with many virtual meetings planned for 2012. They also took a fresh look at the needs and requirements documents produced by each group, looking for cost-effective approaches.

Some key highlights from the 2011 TWG meetings follow.
**NLECTC-National.** As the coordinator of the CTP, the National Center serves as the lead for the Body Armor TWG. In 2011, the TWG focused on completing a Selection and Application Guide (users' guide) to accompany *Ballistic Resistance of Body Armor*, NIJ Standard-0101.06, and made plans to begin the next revision to that standard. More than 3,000 officers' lives have been saved since NIJ began its ballistic-resistant body armor program in the 1970s. For more information about the National Center, contact Program Manager Mike O'Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.

**Information and Geospatial Technologies CoE.** In 2011, several of the TWGs led by the IGT CoE came up with new technology priorities aimed at doing “more with less.” The Information-Led Policing TWG named the creation of a free criminal justice repository for information and tool/code sharing as its top priority and also added a requirement to conduct a study on regional information-sharing strategies, which was seen as a potential cost-saving measure. The Geospatial Technologies TWG determined that its top priority was to conduct a survey to identify the nature and maturity of existing geospatial capabilities in departments (i.e., to assess the best use for geospatial tools). The Operations Research TWG's top priority was the development of problem-oriented policing guides on change management (with budget cuts the primary drivers of change). For more information on the Information and Geospatial Technologies Center of Excellence, contact Program Manager Steve Schuetz at (202) 514-7663 or by e-mail at steve.schuetz@usdoj.gov.

**Sensor, Surveillance and Biometric Technologies CoE.** In 2011, the Sensor, Surveillance and Biometric Technologies CoE planned a monthly webinar series for all of its TWG members. The webinars will be held in 2012 and will replace some face-to-face meetings. The CoE began using Microsoft® SharePoint for online collaborations among TWG members, and worked with the NIJ program manager to combine two TWGs into one. Both TWGs produced revised technology requirements documents for NIJ; the previous revision occurred in 2009 when a different host agency managed the CoE. For more information on the Sensor, Surveillance and Biometric Technologies Center of Excellence, contact Program Manager Mark Greene at (202) 307-3384 or by e-mail at mark.greene2@usdoj.gov.
NIJ Criminal Justice Electronic Crime Technology CoE. The Electronic Crime Technology TWG members assisted with identification of electronic crime and digital evidence challenges faced by state and local law enforcement in preparation for the development of a report on electronic crime and digital evidence technology needs, recommendations and technology gap focus areas. The TWG conducted one face-to-face meeting in 2011; subsequently, it continued to collaborate on recommendations and prioritization of needs via an e-mail distribution list, the ECTCoE website resource forum and a LinkedIn group.

For more information on the Criminal Justice Electronic Crime Technology Center of Excellence, contact Program Manager Martin Novak at (202) 616-0630 or by e-mail at martin.novak@usdoj.gov.

Law Enforcement and Corrections Technology Advisory Council

For a number of years, LECTAC has served as the primary “big picture” link between the law enforcement and corrections community and NIJ. Council members are appointed by NLECTC based on their records of distinguished service and include senior-level representatives from federal, state, local and international criminal justice agencies and organizations. LECTAC is presently undergoing a reorganization and did not meet in 2011; a meeting is scheduled for 2012.

For more information about the technology needs and identification process, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.
TECHNOLOGY INSTITUTES

Distributing, Gathering and Sharing Information

The National Institute of Justice (NIJ) Technology Institutes provide a platform for law enforcement and corrections practitioners to distribute, share and gather information, which encourages the free flow of ideas and exchange of technology-related challenges and solutions. Through peer presentations, the institutes allow participants to collaborate and see the inner workings of other agencies, providing valuable knowledge and networking opportunities that can help agencies reduce costs, improve efficiency and enhance officer safety.

The week-long institutes were first conducted in 1998 and initially targeted law enforcement officers only. The popular program was later expanded to include additional institutes specifically designed for corrections personnel and law enforcement officers from small and rural agencies. The institutes are sponsored through the National Law Enforcement and Corrections Technology Center (NLECTC) System.

“This is an awesome program that is hugely beneficial to all law enforcement. I now have a support system for technology issues. This will save us millions of dollars.”

—Technology Institute Participant
Since their inception, more than 1,000 law enforcement and corrections officers have attended a technology institute. In 2011, approximately 150 practitioners attended five separate institutes.

The institutes include speakers from other countries to provide an international as well as a national perspective. In addition to offering a forum to explore current and emerging technologies and solutions, the institutes give NIJ the opportunity to enhance its technology development programs based on participants’ experience and comments. At the end of each institute, participants are

**PARTICIPANT SUMMARIES**

Institute participants exchanged information on issues affecting their departments. Following are summaries highlighting two presentation topics from the 2011 institutes, which discussed situational awareness and surveillance.

**Situational Awareness Management System**

**Chief Michael Scott, Mount Rainier (Md.) Police Department**

Seeking to enhance interagency communication and officer safety, the Mount Rainier Police Department has tapped into a Situational Awareness Management System (SAMS); in this way, it is alerted immediately about incidents in other jurisdictions that could affect the community.

Mount Rainier, with a population of about 10,000, borders Washington, D.C.; it began using SAMS in 2010. The system allows Mount Rainier police officers to see the District of Columbia’s Metropolitan Police Department computer-aided dispatch (CAD) information in real time. Within five seconds after a crime is entered into the CAD system, it will be visible in Mount Rainier’s police station and in police vehicles. The information allows Mount Rainier police officers to anticipate and respond to crime incidents as they happen, instead of having to wait to be notified by another jurisdiction.

“It allows us to see what may be coming our way,” says Police Chief Michael Scott. “We are adjacent to the city. If someone carjacks a car in D.C. within a few blocks of our border, chances are they will head into Mount Rainier, not D.C.”

“It gives us a heads up and increases officer safety. Our guys are able to know what is going on around them from a D.C. perspective. We are able to see when a major crime occurs close to us so we know what to be on the lookout for,” he says.

The system also allows police to search recent CAD records to look for patterns and analyze crime areas in the District that might spill over the border into Mount Rainier.

The District also has ShotSpotter, a gunshot detection and location system. When a gunshot is fired, the system’s sensors trigger the CAD system and Mount Rainier knows about it within five seconds. “Because of the nature of our terrain, we get a lot of reports of gunshots fired in Mount Rainier that actually occur in D.C.,” Scott explains.

“This was the most professional event I have ever attended. The content and knowledge sharing that I have learned will assist me in conducting my role in my organization. It is imperative that this event continue.”

— Technology Institute Participant
asked to complete a survey to evaluate the session’s technological usefulness and suggest ways to enhance future meetings. In general, the comments provided after every session are overwhelmingly positive.

Technology Institute for Law Enforcement

Coordinated by NLECTC-National, topics covered during the 2011 Law Enforcement Technology Institute sessions (held in Annapolis, Md., in May and September) included predictive analytics, information sharing, campus emergency notification systems, surveillance technology and establishment of a fusion center. In all-day events at the Bay Bridge Airport in Stevensville, Md., participants learned about a variety of tech-

can go to the area of our city that borders that area. It also gives my citizens some peace of mind so if they call to report a gunshot, we can say the gunshots came from D.C.”

“I’m convinced that the more situation awareness we have in the field, the better we will respond to crime and the safer our officers will be,” he says.

“The NIJ technology institute was outstanding. It was a privilege to be a part of it. Some of the things people are doing are phenomenal and the NIJ tech institute really needs to continue. I think it’s terribly important that we get together as a law enforcement community.”

H.A.L.O. Camera System
Lt. Ernest Martinez, Denver (Colo.)
Police Department

A sophisticated, citywide camera system has proven instrumental in fighting crime in Denver. Prompted by the need for surveillance in high-crime areas, the first cameras for the High Activity Location Observation (H.A.L.O.) system were installed in Denver about five years ago. The system is funded through private donations, asset forfeiture funds and federal grants, according to Lt. Ernest Martinez.

“We wanted an open architecture scalable technology that would not need a forklift upgrade in five years,” Martinez says. “We developed our own requirements to ensure an overarching crime suppression and investigation tool, as well as a first responder asset.”

The program includes the use of 135 cameras in the city. Imagery is recorded continuously and is retained for 30 days. Portable tactical cameras are available for SWAT and hostage negotiation situations. The camera system integrates with the city’s public schools, which police monitor only in the event of an incident, and also with traffic cameras. In addition to crime fighting, the cameras can help coordinate response in the event of a natural or manmade disaster.

The system includes real-time, high-resolution video and helps the department dedicate resources to “hot spot” areas. Imagery is sent to a central wireless repository at police headquarters. Officers can also view video from the field.

“Since installing the H.A.L.O. system, we’ve seen a drop in crime from between five percent to 45 percent,” Martinez says. “Neighborhood surveys have revealed that citizens love these cameras and don’t want them to go away. Also, it takes up to 50 percent less time to investigate and prosecute crimes with video in hand, establishing a quick return on investment.”
nologies, including NIJ’s Aviation Technology Program, which provided demonstrations of light sport aircraft and unmanned aircraft systems. These technologies provide a viable option for law enforcement agencies that cannot afford traditional aircraft such as helicopters. The aircraft are valuable in time-critical situations such as searching for missing persons or surveying a hostage scene.

“The presentations were extremely helpful, especially to understand the current developments and daily problems. These presentations were all entertaining and informative, and they were just opening the door to get in touch with colleagues.”

—Technology Institute Participant

Technology Institute for Corrections

Hosted by the Corrections Technology Center of Excellence, the 2011 Technology Institute for Corrections (held in Washington, D.C., in August) provided information on institutional and community corrections technology and issues. Topics included controlling contraband cell phones, monitoring sex offenders with GPS, a biometric-based entrance and exit system, designing and implementing a high-technology forensic lab in a correctional setting, less-lethal weapons for institutional corrections and substance abuse testing using pupillometry, which can be used to monitor parole, probation and corrections inmates for drug and alcohol use. Tours were conducted of a suburban Maryland correctional facility, the Federal Bureau of Prisons headquarters and the Court Services and Offender Supervision Agency’s drug testing lab.

Technology Institute for Rural Law Enforcement

The Small, Rural, Tribal and Border Regional Center hosted technology institutes for small and rural law enforcement practitioners in May and December in Annapolis, Md. Topics included the challenges of managing technology and finding grant funding for small agencies, using “green” vehicles in law enforcement, threat assessment and the use of technology, using low-cost video to solve crimes and law enforcement use of social media.
For more information on NIJ’s law enforcement technology institutes, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov. For more information on the corrections technology institutes, contact Program Manager Jack Harne at (202) 616-2911 or by e-mail at jack.harne@usdoj.gov.

“The conference was well organized. All instructors were very knowledgeable and provided thought-provoking presentations.”

—Technology Institute Participant
OUTREACH

Listening to and Learning From Practitioners and Stakeholders

The International Association of Chiefs of Police (IACP) Annual Conference brings thousands of law enforcement professionals and hundreds of other stakeholders together in one venue. The annual Mock Prison Riot™ in the former penitentiary in Moundsville, W.Va., sponsored by the National Institute of Justice (NIJ) from 1997 through 2011, provides another major venue in which corrections professionals and other stakeholders gather for several days. For practitioners and other stakeholders looking to make contacts and learn from each other, events like these can be a gold mine. And it can be a lot easier to “hit pay dirt” if you have a knowledgeable and experienced contact to provide advice.

National Law Enforcement and Corrections Technology Center (NLECTC) System staff provide this knowledge and experience at every event where they attend or exhibit.

“It’s not just us sitting here waiting for calls or e-mails to come in. We go out and actively engage the community,” says Lance Miller, director of the National Center and the States, Major Cities and Counties (SMCC) Regional Center. “Getting comments and feedback from the
field is an extremely important component of our strategy to provide assistance to public safety professionals.”

In 2011, SMCC Assistant Director Scott Barker made the rounds of a number of smaller conferences and regional events, including the California Association of Tactical Officers conference held November 27 to December 2 in San Diego. SMCC staff made a total of 375 attendee contacts at that event, including Jason Grimm of the California Highway Patrol, who needed information on patrol vehicle testing.

“He was looking for something more than the report on the JUSTNET website (Police Vehicle Evaluation Model Year 2011,)(https://www.justnet.org/pdf/VehicleTestBook2011-Web.pdf) so I put him in direct contact with the Michigan State Police to obtain draft information on the 2012 testing. A number of other individuals later asked for the same information,” Barker says.

JUSTNET Content Developer Kate Poindexter helped staff the National Center booth at the Mock Prison Riot from May 1-4, where she obtained much valuable feedback on JUSTNET and its content. “It helped shape our development plans for the remainder of the calendar year,” she says. “I met several educators who said they use the site as a classroom resource, and they suggested that we develop a special section targeting students that would help with their research efforts. We have incorporated that into our content development plan. Without our going into the field, we wouldn’t have learned about this need and been able to make plans to meet it.”

Like Barker, Outreach Coordinator Bruce Blair attended a number of events during the year, including a trip to Chicago on October 20-26 for the 2011 IACP event.

“We have a vast network of practitioner contacts, and we look to make good matches,” Blair says. “Because of these contacts, we knew of several alumni from our Law Enforcement Technology Institutes who were knowledgeable about video networking. When Mark White from Digital Barriers in McLean, Va., came up to the booth at the IACP Conference, we knew just the individuals who could help him with a project involving streaming live low latency video, audio and meta data over narrow bandwidths.”

Blair followed up with White after the event, who thanked him for his assistance and said that Digital Barriers would be in touch with the practitioner contacts in the near future.
Highlights

In 2011, the National Center and the three Regional Centers (Alaska, SMCC, and Small, Rural, Tribal and Border) “took the NLECTC System show on the road” 97 times to public safety conferences and events large and small located all across the country. They made 12 presentations and facilitated/hosted five events. Through these presentations, staff taught conference attendees about the NLECTC System and the services available to them. In turn, the practitioners were asked to inform their colleagues about the NLECTC System. This exchange of information is an important part of raising the level of awareness about the NLECTC System and establishing relationships that strengthen NLECTC’s network of subject-matter experts in the field.

EXHIBIT 9. CONFERENCES AND EVENTS

The map shows the various conferences and events that the National Center and the three regional centers attended in calendar year 2011.
Staff actively engaged approximately 3,600 participants; they distributed 15,194 publications and other informational products and signed up 1,671 subscribers to TechBeat and JUSTNETNews. Most importantly, staff listened while the participants described their needs, the challenges they face and how they would like NIJ and the NLECTC System to help.

Following are some conference highlights by month:

January

- NLECTC-National staff participated in an NIJ workshop at the American Correctional Association Winter Conference held in San Antonio, Texas. They presented on the Special Technical Committee’s plan to revise the NIJ stab-resistant body armor standard and on the draft restraints and duty holster standards.

- SRTB-RC staff attended and presented at the Idaho Association of Chiefs of Police (IACOP) conference. Boise Police Chief Mike Materson, IACOP president, said he felt that SRTB-RC had provided some very beneficial information to the group.

February

- SRTB-RC staffed an exhibit booth and gave a presentation on Center services at the California Police Chiefs Association’s Annual Training Symposium and Trade Show.

- This month marked the first of four quarterly FBI National Academy Associates Days attended by both SMCC and SRTB-RC staff. Exhibitors at this invitation-only event have the opportunity to network with the 250 students in the current FBI National Academy session and with in-service FBI analysts and other police officers.

March

- The Alaska Regional Center director participated in the winter meeting of the State Association of Chiefs of Police in Atlantic City, N.J., presenting information on the NLECTC System and its various programs and initiatives.
Through a contract with the Safe Schools Advocacy Council (SSAC), SRTB-RC provided the first Rural School Safety and Technology Conference in Somerset, Ky., bringing together school administrators and law enforcement to discuss school safety issues and challenges in a rural environment. The event drew 134 registered attendees from 13 states, and Congressman Harold “Hal” Rogers (KY-05) received the 2011 National School Safety Award from SSAC for his continued support of school safety initiatives.

SMCC co-hosted a Threat Assessment in Schools Conference in Ocean City, Md., in conjunction with the Worcester County (Md.) Sheriff’s Office and the U.S. Secret Service. This event targeted school officials, healthcare professionals and school resource officers (SROs) from Maryland’s Eastern Shore, teaching them the principles of critical incident preplanning, management and mitigation as well as post-incident responsibilities.

April

SMCC, in conjunction with SSAC, co-sponsored the California School Safety Technology Conference in Anaheim; approximately 200 SROs, school administrators and school counselors attended. The conference featured several of the nation’s most sought-after speakers in school and student safety, and was provided at no charge to attendees.

At the request of NIJ Program Manager Mike O’Shea, SMCC presented an overview of NIJ and the NLECTC System at the Ohio Chiefs of Police Annual Conference in Newark. The audience consisted of 157 chiefs and their assistants.

SRTB-RC staff made a presentation and demonstrated a firearms simulator during the Oklahoma Association of Chiefs of Police New Chiefs and Command Staff Conference in Oklahoma City.

“The positive evaluations of the training are a reflection of the need for this type of training within the law enforcement industry.”

—Stacey Puckett, Oklahoma Association of Chiefs of Police Executive Director
May

- The Alaska Regional Center presented on NLECTC System projects at the annual Alaska Peace Officers Association Training Conference.

- SRTB-RC staff presented on the NLECTC System and the 1033 Federal Surplus Property Program at the 25th Annual Law Enforcement Coordinating Committee training in Des Moines, Iowa.

June

- Along with staff from several Centers of Excellence, SMCC staff attended and exhibited at the NIJ Annual Conference (subtitled “Translational Criminology — Shaping Policy and Practice With Research”) in Crystal City, Va. For more than a decade, NIJ’s annual conference has brought together criminal justice scholars, policymakers and practitioners at the local, state and federal levels to share the most recent findings from research and technology. The conference showcases what works, what does not work and what the research shows as promising.

- The Alaska Regional Center director attended the annual meeting of AccredNet in Charlotte, N.C., providing attendees with a brief overview of the NLECTC System, the Alaska Regional Center and various NIJ programs and activities. AccredNet is a network of chiefs of police and state associations of chiefs that administer agency accreditation programs within their respective states.

- SRTB-RC demonstrated its low-cost firearms simulator and gave a presentation to attendees on NLECTC System services at the Tennessee Association of Chiefs of Police Conference, which had approximately 150 attendees. More than 50 attendees used the simulator.

“It was a pleasure meeting you and attending your session at the Instructor Conference. In my job at FDLE I inspect and assist criminal justice agencies in 10 counties. I have several that have a chief and one or two officers. I can’t wait to share what you showed us with them.”

—Donna J. Suereth, Florida Department of Law Enforcement Field Specialist
SMCC staff gave two presentations at the Florida Department of Law Enforcement 2011 Criminal Justice Instructor Training Workshop. One presentation was titled “NIJ Overview/Public Safety Technology Assistance” and the second presentation discussed the 2010 Rural Law Enforcement Summit. Following the presentations, 19 individuals expressed an interest in participating as members of various NIJ Technology Working Groups. The workshop provided training to approximately 250 Florida criminal justice instructors, training center coordinators and directors. The theme was “Providing Quality Training on a Shoe-String Budget.”

August

- SRTB-RC staff presented a breakout session on “Safe School Technology for Small and Rural Agencies” at the SSAC event held in Phoenix for approximately 450 attendees from across the United States.

- SMCC staff exhibited at the Technologies for Critical Incident Preparedness Conference at the National Harbor Convention Center in Oxon Hill, Md., which is sponsored by the U.S. Department of Homeland Security and the U.S. Department of Justice. Staff received the following letter of thanks from Shawn Monien, Director of Strategic Planning, Forceprotector Gear: “Just wanted to drop you a line and extend my thanks for your taking time out of your schedule at TCIP to talk to and educate me.”

September

- SRTB-RC staff presented on “Protecting Those Who Protect and Serve” at the National Native American Law Enforcement Association Annual Conference in Las Vegas.

“On behalf of the Criminal Justice Standards and Training Commission, I would like to thank you for your participation... The Commission could not have asked for better results.... Your presentation on “NIJ Overview/Public Safety Technology Assistance” was inspiring and well received.... The Commission thanks you for sharing your insight with those in attendance as well as being so flexible.”

—Dwight Floyd, Bureau Chief of Training, Florida Department of Law Enforcement Criminal Justice Professionalism Program
October

- Staff from both SMCC and SRTB-RC exhibited at the IACP Annual Conference in Chicago. The joint exhibit included highlights and accomplishments of the past year, including the ballistic-resistant body armor educational video and the NIJ Aviation Technology Program (see “Tomball Police Department Takes to the Open Skies,” p. 35). SRTB-RC staff also made several presentations during various committee meetings.

November

- With assistance from SMCC, NIJ hosted the Mid-Atlantic School Safety Conference in Baltimore for 642 SROs from the Mid-Atlantic region. Nationally known speakers provided their perspectives on a number of subjects that affect school safety. The conference was held in conjunction with programs provided by SSAC. SMCC staff assisted with coordination of the event and also exhibited at the conference.

For more information about the regional centers’ conferencing efforts, contact Program Manager Mike O’Shea at (202) 305-7954 or by e-mail at michael.oshea@usdoj.gov.
Technology Operational Evaluation Program

Historically, the National Institute of Justice (NIJ) has served the criminal justice community by facilitating social science research through the Office of Research and Evaluation (ORE) and laboratory-based evaluations of emerging technologies through the Office of Science and Technology (OS&T). The NIJ Technology Operational Evaluation Portfolio (TOEP) builds on the strength of both ORE and OS&T to design and support operational evaluations of new criminal justice technologies as implemented in the field.

TOEP staff work with criminal justice agencies at the local, state and national levels, and maintain ongoing collaborative relationships with numerous federal agencies and academic institutions. The staff also work with practitioners, vendors, academics and representatives from other disciplines to identify and articulate the needs of the field, foster relevant technology transfer, assess and respond to technology gaps, design and implement operational evaluations, and disseminate research findings.

Many products go directly from commercial development to the field. Operational evaluations test new technologies before widespread
adoption to determine applicability in different settings and for various uses. In addition to answering basic questions about a technology's effectiveness, a thorough evaluation also measures effectiveness in the field. Operational evaluations answer critical questions such as:

- How is this technology expected to enhance existing operations?
- How is effectiveness quantified and assessed?
- Is the technology effective as implemented?
- What policies and regulations must be considered in adopting the new technologies?
- What is the cost per unit of improvement?
- What are the training requirements?
- What external factors affect the technology’s usefulness?
- What is the ideal geographic, cultural, demographic and situational environment for a tested technology?

In 2011, the Communications Technology Center of Excellence (CoE) TOEP primarily focused on Brookline, Mass., where a CoE research team led by an ORE senior policy advisor is in the late stages of an operational evaluation of a public safety wireless broadband technology deployed via a public-private partnership. Prior to the operational evaluation, the CoE conducted a technical baseline study that included discussions with representatives of both the user and provider communities to establish the technical and business model understanding of the broadband capability. The preliminary report resulting from this study was provided as a background document in support of NIJ’s first Technology Operational Evaluation (TOE), currently being conducted by Dr. Eric Grommon and Dr. Jeremy Carter under the direction of NIJ’s Dr. Nancy Merritt.

In the early stages of the TOE, the research team developed the research plan and protocols, which were then approved by an institutional review board to ensure compliance
with privacy and human-subject testing standards. The CoE also worked with the Brookline Police Department to identify data that could be analyzed as part of the research. The study will produce both system implementation and system impact reports in 2012. Findings will be based on the analysis of quantitative and qualitative data gathered at the Brookline test site.

In 2011, the CoE also began work on an operational evaluation of managed access technology to counter the use of contraband cell phones in prisons. The issue of contraband cell phone use has been identified by corrections professionals as an important one that has generated significant activity among both legislative and regulatory bodies. Managed access technology has the potential to address the system by ensuring that a call is from a legitimate cell phone before handing the call off to a carrier. One such system has been installed and is operational in a corrections facility in Parchman, Miss. The CoE has started to research the technology baseline and will perform an operational evaluation to assess the impact on the corrections agency during the next year.

In addition to the Brookline broadband wireless evaluation, the CoE and NIJ began planning for potential operational evaluations associated with land mobile radio technology, multiband radio technology and high-definition television datacasting for criminal justice applications, using the Brookline study as a template for pending research. It is anticipated that future TOEP evaluations will focus not only on existing technology, but also on new devices developed specifically for criminal justice system use and technology transfer products that have been borrowed from other fields and adapted for law enforcement use.

**Highlights**

The Communications Technology CoE, headquartered in Rome, N.Y., continued its support of the NIJ Communications portfolio with several other diverse activities and initiatives in 2011: a Technology Integration Pilot Program, outreach to/requirements from law enforcement and criminal justice practitioners, support for frequency planning and management through the Regional Planning Committees (RPCs) and support to all NIJ radio frequency (RF) portfolio initiatives (including, but not limited to, through-the-wall surveillance and assault intervention devices).
Technology Integration Pilot Program

For the past few years, NIJ has funded research and development of communications technology, particularly in the areas of software-defined radio and cognitive radio. In 2011, these efforts yielded demonstration and prototype capabilities, including the following:

- Prototype public safety cognitive radio capable of network discovery and reconfiguration, functioning as a bridge between disparate networks operating in different frequency bands for voice communications.

- Cognitive radio capabilities for managing interference avoidance and power management.

- RF/Micro-Electro-Mechanical Systems-based reconfigurable/steerable multiband antenna technology.

- Channel bonding to create single (larger bandwidth) virtual channels from individual channels of disparate networks that use different frequency bands and different protocols.

As the first step in working with these projects, the CoE set up demonstrations of each of the above projects at the Federal Communications Commission (FCC) on March 17. The CoE worked with Technology Working Group (TWG) members and senior NIJ ORE staff to develop a script that was used to illustrate how the various technologies would benefit public safety during both day-to-day operations and during a major incident such as an ice storm. CoE personnel also obtained the necessary experimental FCC temporary authorizations in support of these demonstrations. The CoE used these demonstrations again, in conjunction with TWG support, as part of the FCC’s Technology Experience Conference in September.

To provide both a permanent facility for technology demonstration as well as a laboratory for integrating the various prototype capabilities into a device, the CoE established a small integration lab in Washington, D.C., in existing L-3 (contract holder) communications facilities. The goal of this effort is to integrate the customer-driven demonstrated functionalities into a common platform prototype. The CoE began work in this facility to
define the standards-based common platform prototype on which future research will be conducted and functionally integrated for demonstration and/or commercialization.

Outreach to/Requirements From Law Enforcement and Criminal Justice Agencies

The CoE continued to work with law enforcement and criminal justice practitioners. As part of the process of gathering requirements and ensuring that CoE activities are consistent with those requirements, the CoE hosted spring and fall TWG meetings in Washington, D.C. Activities included public safety outreach, industry outreach and outreach to federal partners.

Frequency Planning and Management

The CoE continued to support Regional Planning Councils (RPCs). This support included facilitating and hosting the annual 700 MHz national meeting for RPC members in Dallas, Texas, in March. The CoE also maintained the Computer-Assisted Pre-Coordination Resource and Database system, provided technical support services for RPC members, and facilitated and hosted regularly scheduled monthly teleconferences in support of RPC members.

Outreach to Industry

The CoE participated in numerous conferences and symposia to describe the program and activities to both the law enforcement and research communities to encourage researchers to consider public safety applications in their research. Events included:

- Institute of Electrical and Electronics Engineers (IEEE) Dynamic Spectrum Access Workshop.
- Military Wireless Conference.
The CoE also continued to chair the Wireless Innovation Forum Public Safety Special Interest Group (PSSIG) activities, which bring together law enforcement practitioners, public safety vendors, researchers and regulators to consider how to develop and deploy wireless communications technology to benefit public safety. Through weekly teleconferences, PSSIG began work on assessing the state of cognitive radio technology related to a number of functional capabilities that will benefit public safety (based on previously published PSSIG cases).

**Other Engagement With Partners**

CoE outreach and support to federal partners included:

- Participated in the 700 MHz broadband Waiver City Waiver Recipient/Operational Advisory Committee meetings and teleconferences held throughout the year. Waiver recipients are those entities that have received waivers from the FCC to allow build-out of public safety 700 MHz broadband data systems that will provide valuable lessons learned for the eventual nationwide public safety broadband data system.

- Participated in related Public Safety Communications Research (PSCR) events associated with Long Term Evolution wireless technology testing, standards adoption/ modification and early adopter deployment planning in support of the public safety broadband network. The PSCR program run by the Institute for Telecommunications Sciences conducts research, development, testing and evaluation to foster nationwide communications interoperability. CoE engagement ensures the flow of information between the programs and avoids duplication of effort.

- Participated in the National Institute of Standards and Technology Visiting Committee on Advanced Technology Public Safety Broadband Subcommittee process and meetings, which culminated in a report describing the desirable characteristics of a public safety broadband network. CoE staff and TWG members provided verbal and written input to the committee and to the report.

- Participated in Federal Wireless Spectrum Research and Development (WSRD) events sponsored by the National Telecommunications and Information Administration, with a goal of understanding how similar technology research efforts can
be leveraged for better results and to potentially eliminate duplicate efforts. The objective of the WSRD initiative is to coordinate spectrum-related research and development activities across the federal government. CoE staff participated in the first workshop and provided input to the initial WSRD reports on federal spectrum-related research and development, and participated in planning for workshops that will be held in 2012.

For more information on the Communications Technology Center of Excellence, contact Program Manager Joe Heaps at (202) 305-1554 or by e-mail at joseph.heaps@usdoj.gov.
Taking the “Green Way” to Reducing Costs and Increasing Efficiency

Looking for ways to involve inmates in more diverse training programs that promote marketable skills, ways to decrease energy consumption or ways to cut costs? Correctional facility administrators can find all of this information and more in Greening Corrections Technology Guidebook, a free online publication produced by the Corrections Technology Center of Excellence (CoE).

The 62-page guidebook provides case studies, references and other detailed information on topics such as integrating technology and people, lighting, HVAC systems, plug-in appliances, materials flow (including recycling and toxics), water, energy and transportation, and financing mechanisms.

Joe Russo, Corrections Technology CoE director, explains that the impetus for the guidebook came from the Institutional Corrections Technology Working Group (TWG) at its fall 2007 meeting. He says, “In our meetings, we discussed various subject areas where guidebooks would be useful in helping correctional administrators understand new technologies, and green technologies was one of the most requested topics. TWG members felt that in the current economic climate,
administrators need to explore ways to be more efficient and they need to know about strategies to reduce costs."

To develop this guidebook (http://www.justnet.org/pdf/Greening-Corrections-Technology-Guidebook-final-0229.pdf), the CoE brought in Paul Sheldon (a national expert in the area of sustainable energy solutions) in December 2010 and teamed him with Gene Atherton, the CoE’s institutional corrections program manager. They convened a focus group of corrections professionals from across the country who are spearheading a variety of green technology initiatives for their respective agencies. Sheldon and Atherton tapped into the experiences of focus group members for content; they also conducted their own research and site visits and compiled useful resources. They then created a draft document for the focus group to review and revise as necessary.

“Sheldon’s national perspective on sustainable energy and Atherton’s strong institutional corrections background, combined with the focus group’s real-world experiences in selecting, implementing and evaluating green technology initiatives, were key to the success of this project,” Russo says.

In addition to the focus group review, a peer review panel assembled by the National Institute of Justice (NIJ) also provided input on the draft before it entered the production process. Several members of the Institutional Corrections TWG participated on the peer review panel.

“The TWG had felt there was a real need for focused information in this area. Green technologies are not necessarily new to the corrections community, but they’re being looked at in new ways because of the economic climate. The TWG members felt it was important to have comprehensive information on at least an elementary level in one document, a document that explains what green technologies are, how they work, how
they’ve been applied in other facilities and resources they can explore if they want to take a particular approach. This was the main goal of the project and the peer review process validated its success,” Russo says. “The NLECTC System often says it serves as a ‘one-stop shop.’ This was an effort to provide a document that was the ‘one stop’ for green technologies information.”

**Highlights**

The Corrections Technology CoE serves as the authoritative resource in the National Law Enforcement and Corrections Technology Center (NLECTC) System for both practitioners and developers with respect to technologies that support both institutional and community corrections. The Center is able to leverage a wide array of the multidisciplinary research units of its host agency, the University of Denver, to further its mission.

The CoE helps transition technology from the laboratory into practice by first adopters in the corrections community. Specifically, the CoE supports NIJ’s research, development, testing and evaluation activities by:

- Coordinating the distribution of Field Search software. In 2011, criminal justice agencies submitted 1,019 requests for the software, which was downloaded 1,824 times. Criminal justice agencies from several other countries also requested the Field Search software. As of December 31, the Corrections Technology CoE had received 4,867 requests and the software had been downloaded 8,912 times. Field Search has been instrumental in a number of cases in support of child pornography arrests and convictions. In 2011, 17 additional persons from seven states qualified as Certified Field Search Instructors (CFSIs). The total number of CFSIs is now 68 and they represent 26 states and two other countries. In 2011, CFSIs trained 651 criminal justice personnel in the use of Field Search.

**APPA AWARD**

Corrections Technology Center of Excellence Director Joe Russo received the American Probation and Parole Association’s (APPA’s) 2011 University of Cincinnati Award. This award is presented to an individual who has made significant contributions to the field of probation, parole or criminal justice technology. APPA cited Russo’s contributions in the development of Field Search and efforts to train criminal justice personnel on its use.
Managing the Electronic Monitoring Resource Center, an online resource containing material related to electronic monitoring of offenders in the community. In 2011, 70 new users registered for the site and staff added 38 new documents. The site has 875 registered users across 49 states and 475 documents which include vendor lists, sample procurement documents, evaluations, reports and news articles.


Supporting professional associations such as APPA, American Correctional Association (ACA) and AJA.

Contributing content for articles appearing in TechBeat, Corrections Today (ACA) and Perspectives (APPA).

Managing the Offender Tracking Standard Special Technical Committee (STC). The STC has held 18 meetings and has also communicated via e-mail and conference call with a goal of completing the standard, which consists of performance requirements, test methods, a selection and application guide, and conformity assessment process documentation.

Developing a fact sheet titled Countering the Threat of Jammers to Offender Tracking Programs. The fact sheet is designed to inform criminal justice agencies about the existence of

![Countering The Threat of Jammers to Offender Tracking Programs](image)
INNOVATIVE TECHNOLOGIES FOR CORRECTIONS CONFERENCE

Corrections Technology Center of Excellence staff planned and executed the Innovative Technologies for Corrections conference, held in Indianapolis in June. This event included 22 workshops in two tracks—institutional corrections and community corrections. A total of 200 individuals from the United States, Canada, Jamaica, South Korea and Singapore participated in the conference. Topics included automated language translation technology, managed access approach to the cell phone contraband problem, voice biometrics as an inmate telephone surveillance tool, green technologies for older prison sites, advanced contraband detection using low-dose x-ray technology, the NIJ standard for offender tracking technology, delivering in-cell services in high-security settings, automated telephone reporting, monitoring offender computer use and using social networks for offender supervision and fugitive apprehension.

of GPS and cellular jammers, and the risks created when these illegal devices are used by supervised offenders in the community.

- Publishing a monthly electronic newsletter that provides information on new developments in corrections technology. The newsletter has more than 4,000 subscribers.

For more information on the Corrections Technology Center of Excellence, contact Program Manager Jack Harne at (202) 616-2911 or by e-mail at jack.harne@usdoj.gov.
**NIJ Electronic Crime and Digital Evidence Resource Website**

In 2011, the Criminal Justice Electronic Crime Technology Center of Excellence (ECT CoE) established and continued to develop the Electronic Crime and Digital Evidence Resource website (http://www.ECTCoE.net), which provides the criminal justice community with a wealth of information on training, publications and resources related to electronic crime.

The site provides secure access to:

- National Institute of Justice (NIJ)-funded electronic crime tools and technologies.

- Comprehensive keyword searchable databases of electronic crime, digital evidence, and cell phone training courses and conferences.

- Contact information for digital evidence analysis and electronic crime investigation units throughout the United States.

- NIJ electronic crime and digital evidence publications.
ECT CoE electronic crime tool testing and evaluation reports.

Electronic crime news feeds.

Online interactive tools available on the site include:

- **Law Enforcement Digital Forensics Training Planner.** This resource provides information on current training opportunities for law enforcement personnel. Users can easily search for available training courses based on keywords, training organization, training topic, training level and other criteria, and can share feedback on training courses.

- **Rhode Island Digital Forensics Center Law Enforcement Search String Assistant (LESA).** LESSA is a resource for digital forensics investigators who perform keyword searches for digital evidence. LESSA stores sets of commonly needed keyword lists that users can browse and export to investigative forensic tools such as FTK and EnCase. It also allows users to browse for preexisting expressions or create their own expressions for use in their forensic tools.

- **Digital Image Device Library.** The library can be used to locate and use digital evidence device image files for presentations, case preparation or other applications.

- **Digital Evidence Analysis and Electronic Crime Investigation Resources.** These resources include lists of digital evidence forensic analysis labs, electronic crime investigation units, and squads and task forces. The units vary in size, organization and mission; they provide the criminal justice community with valuable information and resources that can be used to establish and expand their high-technology crime enforcement capacity. This resource is also intended to foster information sharing.

The website provides information on projects such as US-LATT™, a live acquisition and triage tool that is an outgrowth of NIJ-sponsored research projects. US-LATT provides investigators and first responders with the ability to triage live evidence that is lost during pull-the-plug-only investigations. US-LATT is available on many removable devices and can be obtained free from the CoE. Through the website, more than 250 copies of US-LATT have been requested and distributed.
In July 2011, the CoE relaunched the website into a secure portal, which requires users to register to obtain certain information. A total of 944 individuals had registered as of December 31.

**Highlights**

The ECT CoE helps build the capacity of state and local law enforcement to handle electronic crime prevention and investigation as well as digital evidence collection and examination. The Center provides state and local law enforcement with needed tools, technology and training related to electronic crime.

Highlighted activities include:

- Performed electronic crime and digital evidence tool and technology testing and evaluations on a number of developing technologies for processing digital evidence. To date, testing and evaluation have been completed and published (http://www.ectcoe.net/resources/toolreports or http://www.justnet.org/our_centers/COES/Cri-tce-publications.html) on the following tools:
  - Crowbar.
  - The BKForensics publication Best Practice for Cell Phone Seizure Guide.
  - RedLight pornography detection software.
  - BKForensics radio frequency (RF) signal blocking tent.
  - EnCase® Portable.
  - TrueCrypt encryption software.
  - Lantern iOS forensics software by Katana Forensics.
  - Mac Marshal™ by ATC Corporation.
Performed testing and evaluation on the following additional tools:

- SAFEBoot.
- Peer 2 Peer (P2P) Marshal™.
- Router Marshal™.
- Adroit Photo Forensics software.
- Skout Drive from Skout Forensics.
- US-LATT.
- Registry Decoder.
— SFP1212WK Forensics pouch from Select Fabricators Inc.

— Dropbox Reader™.

— WebCase.

— Field Search.

— Cellebrite UFED.

— Paraben’s Device Seizure.

Conducted technology demonstrations to raise awareness of NIJ-funded electronic crime and digital evidence tools, technologies and training, including RedLight pornography scanner, US-LATT, RF signal blocking tent, Crowbar, P2P Marshal, digital evidence collection training, SAFE and the ECT CoE Resource website. These technology demonstrations were presented at NLECTC System meetings and at electronic crime and criminal justice conferences and workshops across the country.

Developed and conducted a survey titled “Electronic Crime and Digital Evidence Needs Assessment for State and Local Law Enforcement.”

Conducted 11 workshops and met with more than 150 criminal justice professionals, including first responders, investigators, police chiefs, prosecutors and digital evidence examiners, as well as corrections, probation and parole officers. The data gathered through the workshops will be compiled into the National Electronic Crime and Digital Evidence Needs Assessment for State and Local Law Enforcement Research Report. Needs assessment workshops were conducted in the following locations:

— Kingston, R.I., January 20.

— Atlanta, January 27.

— Phillipsburg, N.J., February 15.
— Dallas, March 16.
— Miami, May 27.
— Myrtle Beach, S.C., June 6.
— Birmingham, Ala., June 29.
— Denver, July 14.
— Ankeny, Iowa, July 19.
— Central Point, Ore., September 15.
— Somerset, Ky., September 22.

- Completed a draft administrative policy manual and a quality assurance manual for state and local law enforcement agencies to use as guidelines in developing appropriate in-house policies for the handling and processing of digital evidence.

- Hosted the NIJ Electronic Crime Technology Working Group, which evaluated NIJ-funded electronic crime and digital evidence tool, technology and training projects; identified criminal justice electronic crime and digital evidence technology needs; recommended solutions to address the identified technology needs; and served as peer review for tool, technology and training projects.

- Conducted a cell phone forensic solutions assessment, which identified cell phone forensic solutions available to state and local law enforcement in the United States, tested cell phone forensic solutions on a sampling of cell phones, identified cell phones for which there is no forensic solution and performed a gap analysis.

For more information on the Criminal Justice Electronic Crime Technology Center of Excellence, contact Program Manager Martin Novak at (202) 616-0630 or by e-mail at martin.novak@usdoj.gov.
“Traveling to Training” Via a Live Stream

Budget cuts and travel restrictions may add up to no training for public safety professionals who are often struggling to keep current in their field. Sometimes the answer to this problem can be found on the Internet, through solutions such as self-paced online training packages and webinars. With live streaming of the Trace Evidence Symposium held Aug. 8-11, 2011, in Kansas City, Mo., the Forensic Technology Center of Excellence (FT CoE) further expanded the list of potential solutions.

“Until the economy improves, restrictions on travel and attending conferences are likely to continue and probably increase,” says Kevin Lothridge, former FT CoE director. “Live streaming offers you the opportunity to really work the technology to your advantage, given the impact of the current economic situation, and at the same time allows you to safeguard any concerns about the content.” (With the use of live streaming, a video is sent over the Internet in compressed form and is displayed by the viewer in real time. A user does not have to wait to download a file and view it.)

“We knew the technology would work and we had to get everybody on board with providing it. This conference put [the National Institute of
Justice NIJ a little ahead of the curve in providing this service. NIJ and various parts of the NLECTC System have already provided webinars, and portions of the NIJ Conference in June were recorded and posted on the NIJ website, but offering live streaming was new for a forensic conference,” he says.

For three days of the four-day event, the FT CoE provided live streaming on topics such as evidence related to soil, paint, glass and fiber. About 200 individuals attended in person, while an additional 100 people from around the world viewed all or part of the event via live streaming. Those participants could only watch; they were not able to submit questions for the moderator to address at the end of a session. This option could be added in the future, Lothridge says: “We looked at this as the crawl-walk-run process. The next time NIJ uses this technology, the option to take limited questions could be added. Also, if travel funds become really limited, you could bring the presenters together and do the whole event via live streaming. It’s relatively inexpensive and gives NIJ a lot of options.”

Feedback was universally positive and the live streaming was well received, with many participants saying they appreciated the availability of this option.

Lothridge says the CoE broached the possibility of using live streaming to NIJ as available spaces began to fill up and inquiries about registration continued to come in via the NIJ website. “When you talk about economy of scale, if you divide the number of people present by the cost of the physical space and then you enroll almost an identical number for live streaming, you can cut the cost per participant in half. Plus, the event is sustain-

**WHAT IS TRACE EVIDENCE?**

According to the NIJ website (http://www.nij.gov/events/trace-evidence-symposium/), the nature of trace, or “transfer,” evidence is highly variable, and trace evidence can be found at nearly every crime or accident scene. Trace evidence is considered one of the most diverse of the forensic disciplines because it can include the analysis of hair, fiber, paint, glass, dirt/dust, botanical material, arson/fire debris, explosives and impression evidence. Although trace evidence is rarely the only evidence available in an investigation, identifying the origin of foreign material found at a crime scene and linking such material with that from different locations can be a powerful evidentiary finding.
able. In addition to the live streaming, we digitally recorded it just as we do other events, and it’s now available on the Internet for people who couldn’t attend to watch.”

Recorded sessions can be viewed at http://projects.nfstc.org/trace/2011/agenda.htm.

(Note: The National Forensic Science Technology Center (http://www.nfstc.org/) held the FT CoE contract from its inception through the end of fiscal year 2011. With the start of fiscal year 2012 on Oct. 1, 2011, Research Triangle Institute (RTI) International took over the contract. More information about RTI can be found at http://www.rti.org/.)

## Highlights

In 2011, the FT CoE provided numerous technology transition, assistance and support activities, responding to an average of four inquiries per week from agencies throughout the criminal justice community.

Highlighted activities include:

- Provided objective evaluations of technologies selected based on input from Technology Working Group meetings and recommendations from NIJ program managers. Evaluations conducted in 2011 included PHAZIR™ Near Infrared Analyzer, MMC Presumptive Test Kits, a comparison of four Raman handheld instruments, an assessment of new amplification kits and an assessment of standards.
Held a series of technology transition workshops to facilitate the transition of emerging technologies into practice by forensic practitioners. These workshops are a critical component of NIJ’s research, development, testing and evaluation efforts. All technology transition workshops can be found online at http://projects.nfstc.org/tech_transition. The following workshops were conducted in 2011: Field Detection of Drug and Explosive Odor Signatures Using Solid Phase Micro Extraction-Ion Mobility Spectrometry (SPME-IMS), Advances in Forensic Anthropology and Rapid Biological Screening and Analysis Methodologies for Improving Throughput.

Reached out to the community through workshops and the Internet, and participated in more than 35 national and regional industry conferences and events.

Hosted the following major symposia:

- **Public Safety Summit on Forensic Science.** Attended by 250 non-forensic criminal justice practitioners, with an emphasis on members of law enforcement and officers of the court. The goal was to teach non-forensic criminal justice practitioners about forensic science issues that may impact their agencies and the cases they are managing. Presentations offered insight on a variety of relevant topics, including emerging investigation; collection and field-based technologies; case review and laboratory policy trends; and private sector, volunteer and advocacy-based resources.

- **Trace Evidence Symposium.** This year’s theme was “Science, Significance and Impact.” The symposium was designed to bring together practitioners and researchers to enhance information sharing and promote collaboration among the trace evidence, law enforcement and legal communities. The symposium was very well received. Presentations have been posted online at http://projects.nfstc.org/trace/2011/agenda.htm.

“The practical exercises provided an opportunity to expand my perspective on contraband search methodologies.”

*(Workshop on Field Detection of Drug and Explosive Odor Signatures Using SPME-IMS.)*

—Adam Miller
Huntingdon County (Pa.) Emergency Management
“After the Fact.” Developed by the National Institute of Forensic Science in Australia, this virtual reality program allows students and practitioners to navigate through a crime scene scenario. Along the way, participants listen to witnesses, take notes, take photographs and collect items for future analysis. The FT CoE converted this tool to a Web-based platform.

- Presented at the Sexual Assault Response Team (SART) Conference Services Team’s Sixth National SART Training Conference in Austin, Texas.

- Used the National Forensic Science Technology Conference website’s Really Simple Syndication (RSS) feed to announce attendance at conferences, invite visitors and announce postings of technology evaluations, posters and presentations. More than 1,000 individuals subscribe to the RSS feed.

- Presented on the Science of DNA Evidence at a conference in Destin, Fla., which was attended by 30 judges.

- Presented FT CoE projects, technology evaluations and technology transition workshops to a specialized group of international researchers at the International Fingerprint Research Group in Linkoping, Sweden. The presentation was very well received, and excellent contacts were made with nearly 50 of the top scientists in the field.

- Visited crime laboratories across the country through the DNA Audit and Grant Progress Assessment (DNA/GPA) program. The purpose of the visits was to ensure that standards for public safety were met. In 2011, the Center completed 86 DNA audits for government crime laboratories (80) and vendor DNA laboratories (six); conducted GPA site visits to 52 agencies that had open NIJ forensic science grants in 20 states; and conducted GPA reviews for 107 open awards, representing a total of $44,136,561 in NIJ grants.

NIJ suspended the GPA portion of this program on Sept. 30, 2011. From the program’s inception until then, grantee progress had been assessed on more than 2,300 NIJ awards. This process provided crucial status information, including progress in meeting program goals and objectives, status of administrative documentation, identification
of challenges faced by the grantee in achieving program objectives, identification of successful or “model” programs and assessment of the impact of the grant funding.

For more information on the Forensics Technology Center of Excellence, contact Program Manager Charles Heurich at (202) 616-9264 or by e-mail at charles.heurich@usdoj.gov.

“The audit team was very professional, friendly and extremely organized. (We) felt very comfortable during the entire process. Both assessors were respectful of analyst time and made their presence as unobtrusive as possible.”

—Kimberly Fiorucci
Mesa (Ariz.) Police Department
Forensic Services Section
A Firsthand Search for Information

Is technology a money-saving solution or is it a line item that can be cut? In these days of tightened budgets, more and more criminal justice agency administrators find themselves pondering that question. In a series of interviews conducted by staff from the Information and Geospatial Technologies Center of Excellence (IGT CoE), one theme consistently emerged: if access to technology could be improved and lifecycle costs reduced, the answer to that question would be much clearer.

In its first year of operation, the IGT CoE implemented a plan to learn about practitioner needs from the bottom up. In addition to supporting the meetings of four National Institute of Justice (NIJ) Technology Working Groups (TWGs) (Geospatial Technologies, Information-Led Policing, Modeling and Simulation, and Operations Research), staff conducted interviews with personnel from 26 law enforcement agencies across the country to learn firsthand about their technology needs.

“This has been very helpful, because it told us about the priorities they have that you don’t hear about when you convene subject-matter expert panels,” says John Hollywood, CoE director. “We consistently heard that the biggest needs were improved access and reduced
lifecycle costs, particularly for records management systems and computer aided dispatch." Agencies also cited a need for assistance with camera systems — fixed, mobile and in-car — as well as mobile communications networks.

Many agencies also cited a need for improved interoperability that would facilitate information sharing between agencies’ records management systems (RMS). Hollywood says, “Right now sharing information across each other’s systems is very difficult to do and usually requires customized coding.”

Smaller agencies in particular cited a need for regionalized approaches, perhaps using the Cloud. The CoE worked with the Small, Rural, Tribal and Border Regional Center (SRTB-RC) to ensure that smaller agencies were represented in the interviews, drawing on agencies that had sent participants to a Rural Law Enforcement Technology Institute session (see p. 29 and p. 51 for more information on SRTB-RC and the Technology Institutes). The group of interviewees also included large departments such as those from New York City and Philadelphia, state-level agencies, mid-sized agencies and campus police. The agencies represented a wide range of technology knowledge and abilities. Most of the interviews took place onsite at agency offices and involved more than one agency representative.

“At all levels, we heard this is a time of extreme budget austerity. We heard that technology can be a solution in areas where budgets have been cut, but there are the hidden lifecycle costs to deal with,” Hollywood says. Beyond the cost of the equipment itself, lifecycle costs include training, IT maintenance fees, additional software and hardware servers. “Federal grants often pay for the purchase of the equipment but don’t cover the operational costs, and agencies find they can’t afford to keep the system going. Reducing lifecycle costs would make it more likely that technology would be seen as something to help with budget issues instead of an expense that can be cut.”

Agency requests/recommendations included having a repository for free information and analysis tools online, developing model policies and business practices, creating core standards for law enforcement information management and encouraging developers to follow these standards.
For more information on the Information and Geospatial Technologies CoE’s research, contact John Hollywood at (703) 413-1100, ext. 5689, or by e-mail at johnsh@rand.org.

**Highlights**

The IGT CoE provides strategic planning, evaluation and outreach support to NIJ for its four portfolios and TWGs related to IT and analytics:

- Information-Led Policing.
- Geospatial Technologies.
- Operations Research.
- Modeling and Simulation.

In January 2011, the CoE transitioned to the RAND Corporation, a nonprofit institution that seeks to improve policy and decision-making through research and analysis. CoE staff are completing an initial strategic assessment of the four portfolios. The assessment is providing an “investment roadmap” that includes prioritized and scheduled

---

**EXHIBIT 11. STRATEGIC ASSESSMENT METHODOLOGY**

- Synthesis of findings
- Discussion themes from various forums (interviews, conferences, TWGs, etc.)
- Synthesis of findings
- Ratings of candidate topics
- Capability supply/demand matrix
- Gap analysis
- Initial project selection & scheduling
- Cross-portfolio prioritization
- IGT roadmap
recommendations to NIJ on possible research, development, testing and evaluation investments over the next five years, along with recommendations on the types of solutions that could best address practitioners’ needs over the same timeframe. NIJ received the first version of this roadmap in October 2011. The methodology being employed is shown in exhibit 11; it includes four activities for gathering information (see the left side of the exhibit).

Related highlighted activities include:

- Hosted four TWG meetings (one for each portfolio), which included generating and collecting nominations for NIJ research topics from the subject-matter experts serving on the panels. Following each TWG meeting, members rated the topics on multiple criteria to determine those with the greatest expected value, measured as offering the greatest benefit to the practitioner as a function of likely cost and risk.

- Examined the current state of technology as well as research, development, testing and evaluation in the four portfolios. To date, the CoE has identified and characterized more than 300 relevant systems and projects. The CoE is comparing these systems and projects to several dozen criminal justice IT and analytics capabilities to find any gaps and shortfalls between what is needed and what is being done.

- Identified general themes (mostly major concerns about IT or the state of criminal justice in general) common to presentations and discussions on criminal justice IT and analytics, including agency interviews, TWG meetings, conferences, workshops, meetings and program/project visits in which the CoE participated.

The CoE is using the results of these four activities to recommend projects and initiatives likely to best address practitioner needs at comparatively low cost and risk over the next five years. The Center has developed and delivered to NIJ an initial list of technology needs, suggested projects and schedules; this will be revised in the first half of 2012. A report on the roadmap is scheduled to be published in 2012.
Other highlighted activities include:

- Wrote a draft report on Predictive Policing Technologies, assessing both major analytic methods and ways to use the findings to reduce crime. The report will be peer reviewed and published in 2012.

- Conducted an assessment of the JUSTNET Web portal and other methods of providing dissemination and outreach to criminal justice agencies in the four portfolio areas, and provided an initial set of options to improve dissemination to NIJ.

- Began a review of geospatial tools and methods that support crime analysis. The review includes the major NIJ-funded geospatial tools and NIJ’s Crime Mapping and Analysis Program (CMAP), which provides geospatial tool training classes to practitioners.

- Conducted a number of program/project visits to NIJ grantees in the four portfolios in support of the technology assessment and gap analysis.

- Presented a keynote address on change management to the Mid-America Regional Crime Analysis Network and a keynote address on predictive policing to the Virginia Association of Law Enforcement Planners.

- Sponsored the current version of CMAP, which provides crime mapping classes for criminal justice personnel. The program provided training to 161 practitioners in 2011, with an additional 150 persons trained at a preconference in Miami.

For more information on the Information and Geospatial Technologies Center of Excellence, contact Program Manager Steve Schuetz at (202) 514-7663 or by e-mail at steve.schuetz@usdoj.gov.
Identifying Stakeholders, Building Relationships

Although the newly awarded Sensor, Surveillance and Biometric Technologies Center of Excellence (SSBT CoE) only began activities in October 2010, it has already made progress in identifying stakeholders and building relationships among relevant federal agencies (U.S. Department of Homeland Security (DHS), U.S. Department of Defense (DoD) and the FBI), and state and local criminal justice agencies.

“We have been proactive in engaging with key persons and project managers in these organizations at the same time that our [National Institute of Justice] NIJ Program Manager, Mark Greene, has also been proactive in reaching out to introduce himself and our center,” says SSBT CoE Director Lars Ericson. “From that, we’ve made an effort to capitalize on opportunities to interact by volunteering for working groups, by participating in conferences and meetings, and by presenting our tasking and our mission. During these activities we explain this is what we’ll be working on and we’re able to provide information and pose the question of ‘How can our work help you?’ ”

This dedication to interagency collaboration and coordination has allowed the CoE to identify strategic interagency partnerships and to
quickly become a key participant in strategic planning and operational and research groups. The SSBT CoE has taken advantage of information learned from these partnerships to tailor its efforts to align with partner missions and objectives, thus reducing redundant efforts and enhancing the value of expected results. “It’s easy to get wrapped up in stovepipe activities and we’ve tried to be proactive in reaching across boundaries, because often, similar mission needs might exist in different areas,” Ericson says.

The SSBT CoE has started to build on this effort by planning testing and evaluation of relevant technologies, including collection of data and examination of prototype devices funded by past NIJ solicitations. Ericson says the evaluations are designed in such a way that the conclusions can be handed off to these new partners for use in their own research and planning of programmatic needs. “There will be a direct linkage between the relationships we’ve been developing and our ability to benefit multiple stakeholders, thus doing more with less.”

One example of such a project is the development of a data collection instrument presently under review (according to the Paperwork Reduction Act, which requires approval by the Office of Management and Budget). The objective is for the CoE to distribute the instrument to state and local law enforcement organizations nationwide to gather information on their biometric database systems and how they interoperate with other systems, including the FBI Integrated Automated Fingerprint Identification System and its replacement, the Next Generation Identification System.) This will be the first nationwide collection of this type of data.

The CoE also supports the objectives stated in the recently published National Biometric Challenge 2011, an interagency effort that summarizes the state of biometric use among federal agencies. “We’re supporting NIJ research strategies by helping them find out if another agency has already funded a company or university to research a certain topic. We don’t want to fund the same thing. There is no central repository where you can find out what’s being funded; you have to operate on a one-on-one basis and know what’s going on in the field,” Ericson says. “We’re helping NIJ make sure they maximize their funding support in areas not already funded under other umbrellas.”
The SSBT CoE has directly supported NIJ by participating in the following meetings and groups:

- DHS Biometrics Technology Working Group (TWG): Participated as an observer at both meetings in 2011.


- Biometrics Data Sharing Community of Interest: Attended multiple meetings of this interagency group focused on the interoperability and sharing of biometrics data.

- National Law Enforcement Telecommunications System Users Meeting: Presented on biometrics and sensors for law enforcement.

- Fast Capture Workshop: Supported NIJ by attending this interagency group focused on next-generation mobile biometrics and fast capture requirements. Representatives from the U.S. Department of Justice, DHS, DoD, the intelligence community and the National Institute of Standards and Technology (NIST) attended.

- Face Collaboration Working Group: Attended this interagency working group (sponsored by NIST and the FBI) on facial biometrics research and activities.

**Highlights**

Since October 2010, the SSBT CoE has helped transition technology from the laboratory to practice by working with first adopters in the public safety community. The SSBT CoE provides scientific engineering advice and support, RDT&E program support, and outreach and networking to law enforcement and corrections agencies nationwide. It offers the following services:
Identifying technology and operational requirements.

Supporting NIJ’s RDT&E programs.

Testing, evaluating and demonstrating technologies.

Supporting the adoption of new technology.

Developing technology guidelines and standards.

Providing technology assistance and support to criminal justice agencies throughout the United States.

Areas of focus include concealed weapons detection, through-the-wall surveillance, novel sensors, video surveillance, handheld biometric devices and biometric information technologies.

Highlighted activities include:

- Conducting independent test, evaluation and application analysis of advanced biometric prototypes currently being funded by NIJ. The goal is to improve ongoing RDT&E and provide an operational context for use by law enforcement.

- Evaluating the performance of a portable long-range 3D Facial Recognition Binocular prototype in laboratory and operational environments.

- Investigating the general operational use of facial recognition at a distance capability in law enforcement.

- Conducting a biometric collection and evaluation of 2D and 3D fingerprint images by investigating imaging approaches and comparing the performance of traditional 2D “flat” fingerprints used throughout law enforcement with newer 3D fingerprints to determine benefits, drawbacks and areas of research needed. This effort is being carried out in collaboration with DoD and NIST.
Evaluating a software tool developed to improve the match accuracy of latent fingerprints. The FBI Biometric Center of Excellence is supporting these activities by providing access to a robust testbed database of rolled fingerprints and corresponding latent prints on surfaces that would be collected using conventional forensic methods. The software tool is being applied to the latent prints and compared with the test database to determine match accuracy and speed.

Investigated body-worn camera systems used by law enforcement to produce a market survey of commercially available systems. The field deployment of body-worn camera systems by law enforcement practitioners, particularly SWAT and other tactical responders, offers significant advantages in keeping officers safe by enabling situational awareness to support or leadership personnel and by providing evidence for trial. A market survey is currently available on request and will be published through JUSTNET in 2012. In addition, a companion report is being prepared that expands on operational use and provides policy/procedure recommendations for agencies to consider during technology planning and acquisition.

Investigated the feasibility, availability and challenges of portable hazardous material (HAZMAT) sensors for first responders, a need identified through the NIJ Sensors and Surveillance TWG. The Center is helping NIJ determine if commercially available devices exist that meet law enforcement needs or if additional RDT&E efforts are needed to bridge technology gaps.

Additional Activities Planned for 2012

In addition to continuing and concluding the activities described above, the Center will embark on a number of new efforts in 2012, including the following:

- **Through-the-Wall Radar.** Testing and evaluation of a sensor prototype that uses radar to detect movement through solid walls. Testing will include both laboratory and field evaluations as well as coordination with law enforcement partners to define operational use case scenarios.
Crowd Behavior Video Analytics Tool. Testing and evaluation of a video analytics software suite developed to predict and detect crowd behavior. Activities will involve simulated engagement scenarios and the application of the software to archived law enforcement video footage.

Facial Matching With Feature Annotation. Testing and evaluation of software tools designed to improve the match accuracy of facial images using annotation of macro- and micro-features. The tools will be evaluated for operational performance.

For more information on the Sensor, Surveillance and Biometric Technologies Center of Excellence, contact Program Manager Mark Greene at (202) 307-3384 or by e-mail at mark.greene2@usdoj.gov.
Guidance on Excited Delirium Syndrome Pocket Guide

Law enforcement officers and other first responders who are not familiar with Excited Delirium Syndrome (ExDS) can now refer to a pocket guide developed by the Weapons and Protective Systems Technology Center of Excellence (WPSTC) to learn more about indicators and response measures.

The pocket guide is the first publication produced by a panel of expert medical and law enforcement practitioners convened by the WPSTC on behalf of the National Institute of Justice (NIJ) in April 2011. The panel, which included 23 subject-matter experts present at the Seattle site and others who participated through a meeting day telecon and pre- and post-meeting electronic discussions, was selected based on a survey of the published literature in the areas of emergency medicine, forensics, psychiatry, medical research, less lethal devices and use of force in-custody deaths, and included clinical psychologists, pharmacology educators and researchers in the areas of cocaine and methamphetamine use.

Excited Delirium Syndrome (ExDS) Pocket Guide

- Extremely aggressive or violent behavior
- Constant or near constant physical activity
- Does not respond to police presence
- Attracted to/destructive of glass/reflective
- Attracted to bright lights/loud sounds
- Naked/inadequately clothed
- Attempted "self-cooling" or hot to touch
- Rapid breathing
- Profuse sweating
- Keening (unintelligible animal-like noises)
- Insensitive to/extremely tolerant of pain
- Excessive strength (out of proportion)
- Does not tire despite heavy exertion

“Excited Delirium Syndrome,” is a medical crisis that may be due to a number of underlying conditions. Subjects can demonstrate some or all of the indicators below in law enforcement settings. More indicators will increase the need and urgency for medical attention.
Law enforcement practitioners, representatives of NIJ, and U.S. Department of Defense practitioners and researchers also participated. The panel drafted a report on ExDS (focusing on the areas of terminology, research, best practices and training); the report is scheduled for publication in 2012.

“The intent was to develop a guideline that takes advantage of the current body of knowledge and the experiences of first responders, and make that available to the law enforcement and corrections communities,” says Ed Hughes, WPSTC program manager for Less-Lethal Technologies. Hughes said the meeting’s main goal was to examine the phenomenon of excited delirium and its association with the use of force in general. Toward that end, the panel reviewed, discussed and examined related medical and other first responder protocols. The panel's objectives included assessing the current body of knowledge, determining whether or not existing protocols appear to mitigate the phenomenon, identifying research questions that might remain and quantifying associated risks.

WPSTC convened the panel at the request of the Less-Lethal Devices Technology Working Group (TWG). The TWG identified the need for post-incident protocols related to ExDS and the use of conducted energy devices (CEDs, of which Tasers™ are one example) as a high-priority requirement for the law enforcement and corrections communities. Hughes says the driving factor behind the request may have been “continued misperceptions about how incidents were being portrayed publicly.” Another motivating factor may have been the Sept. 10, 2009, publication of a White Paper by the American College of Emergency Physicians recognizing ExDS as a legitimate syndrome (http://ccpicd.com/Documents/Excited%20Delirium%20Task%20Force.pdf.)

“Many TWG members said we need to take a look at the body of work being published regarding excited delirium and at what kind of protocols were being used in the field. Based on that request, the WPSTC, in consultation with NIJ Less-Lethal Program Manager Joe Cecconi, decided to move forward with pulling together the right people and trying to answer their questions,” Hughes says.

These panel members continued to meet online throughout the remainder of 2011 and provided their final comments on the draft report late in the year. Hughes then compiled their comments into the draft that was in review at year’s end.
For more information on the work of this panel, contact Ed Hughes at (814) 863-1133 or by e-mail at Elh5@arl.psu.edu.

**Highlights**

Operated by the Pennsylvania State University (PSU), the WPSTC supports NIJ’s efforts related to the safety and effectiveness of protective equipment tools and technologies intended for use by public safety professionals. WPSTC supports NIJ research, development, testing and evaluation activities in the areas of improvised explosive device defeat, less-lethal devices, officer safety equipment and pursuit management.

WPSTC includes programs and projects in PSU’s Applied Research Laboratory, Institute for Non-Lethal Defense Technologies and Pennsylvania Transportation Institute. It also includes a partnership with the Denver Research Institute at the University of Denver.

Highlighted activities include:

- Conducted field testing of the NIJ 53 Tactical Mask Respirator prototypes using personnel from four local law enforcement and corrections agencies. This represents the culmination of a three-year project in cooperation with AVON Protective Systems. Final design modification recommendations have been implemented and final field testing is scheduled for the first quarter in 2012.

- Completed an attribute-based evaluation of the most commonly employed tire deflation devices, analyzing deflation times against different tires at various speeds and examining officer safety and risk associated with deployment, tire strike and spike scatter. This led to the development of reference cards and DVDs promoting the results, which have been well received by the law enforcement community.

- Prepared a draft report on consumer and commercial vehicle telematics, which is primarily descriptive in nature. Telematics generally depend on three enabling technologies: cellular networks, GPS and intravehicular communication buses.
- Coordinated an assessment by a panel of experts of the “Grabber” pursuit management system, which integrates a pneumatic clamp into the current patrol vehicle push bar that can latch onto and control a target vehicle.

- Completed a revision of operational scenarios originally designed in 2005 and in use by the Less-Lethal TWG since 2007. The revised scenarios are being incorporated into an upcoming revision of the Less-Lethal Guidebook.

- Coordinated a review by an independent panel of experts of the Less-Lethal Incident Monitoring System. The panel’s findings and recommendations are contained in a report submitted to NIJ.

- Continued to participate in NIJ analysis of standards for CEDs. The effort has yielded insights from researchers, operators and manufacturers regarding the goals and challenges of establishing CED standards as well as the potential benefits and unintended consequences. The WPSTC also continued to participate in the international examination of CED standards via the Conducted Energy Weapons Strategic Initiative hosted by Defence Research and Development in Canada.

- Continued an electrical characterization of CEDs associated with in-custody deaths. A number of new devices were also characterized, including the BodyGuard device by Armstar, Incorporated.

- Used the National Bomb Squad Commanders Advisory Board for testing of the RE 12-12 ME recoilless disrupter. The RE 12-12 ME, a U.S. military tool, had not previously been tested or designated by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF). One of the RE 12-12 MEs received by the WPSTC was sent to the ATF Firearms Section and received designation as a bomb disposal tool. It is currently being distributed.

For more information on the Weapons and Protective Systems Technology Center of Excellence, contact NIJ Program Manager Brian Montgomery at (202) 353-9786 or by e-mail at Brian.Montgomery@usdoj.gov.