



Ballistic Fingerprints on File

Late one Saturday night, a 911 call comes in . . . shots fired at a nearby convenience store. When officers arrive they find a clerk, wounded and unconscious. Their only clue—a spent shell casing. An attempt to match ballistic results with the national Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)/Federal Bureau of Investigation criminal ballistic imaging database—the National Integrated Ballistic Information Network—proves a dead end. But these officers have another avenue: a Reference Ballistic Imaging Database (RBID) that contains records of test firings of all new guns sold in their State.

The RBID matches the casing to a gun sold the week before, and the seller's records provide the buyer's name and address. Although the gun could have been stolen, lost, or resold in the meantime, the database has led the officers at least one step closer to finding a suspect.

Only New York and Maryland now have RBIDs, still in the early stages of development. As these relatively new databases yield more promising investigative results, interest in RBIDs by other States will grow. When that interest leads to development, these States can turn to "Ballistic Identification Capability Modeling—A Guide for State Program Establishment," a computer-based impact analysis model and handbook to help legislators and law enforcement officials evaluate the pros and cons of establishing and operating an RBID (referred to by ATF as a State Legislative Database).

An RBID contains images of shell casings (and possibly bullets) obtained from test firings, generally of new handguns prior to sale. It is distinct from a ballistic image database of shell casings and projectiles recovered from crime scenes. A criminal ballistic image database is useful for relating multiple crimes, whereas an RBID can be used to determine the original owner of a legally purchased firearm that has been linked to a crime. RBIDs, however, may have potential technical, economic, and policy issues associated with their development and use.

Developed by the Center for Criminal Justice Technology (CCJT) and released in February 2002, the model received extensive input from the Maryland State Police

Crime Laboratory, the New York State Police Forensic Investigation Center, ATF, and Forensic Technology, Inc., a vendor of ballistics identification technology. CCJT came up with the idea for the model through day-to-day dealings with criminal justice agencies, then proposed it to the National Institute of Justice (NIJ). After reviewing the project idea and plans, NIJ agreed that the idea qualified for congressional funding under a cooperative agreement.

The model consists of four user input worksheets and two results worksheets. The worksheets can help States identify and understand relevant issues, determine program feasibility, determine the number of equipment

NATIONAL BALLISTICS DATABASE STUDY

To help in Federal policy development relating to a national ballistics database, the National Institute of Justice funded the National Academy of Sciences in 2003 to independently assess the technical feasibility, accuracy, and technical capability of such a database to aid in criminal investigations.

The 30-month study will focus on fundamental issues, such as:

- Uniqueness of ballistic images.
- Ability of imaging systems to capture unique characteristics and extract reproducible information from ballistic impressions.
- Probability the ballistics evidence presented would lead to a match with an image in the database.
- Development of base rates for crimes that produce ballistic evidence.

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units and floor space needed, estimate needed manpower and associated costs, and develop plans and cost projections. The handbook provides an overview of ballistic imaging technology, a more complete explanation of operations in Maryland and New York, and a detailed description of how the planning model works.

By using the model, planners will know to consider such factors as geographic population distribution, firearms sales patterns, the types of images to be captured (e.g., casings, projectiles, both), and the structure of the imaging system (e.g., firings conducted by manufacturers, State police, both). California has used the model for preliminary planning and indicated that it helped produce a January 2003 report to the State legislature on the feasibility of developing an image database.

Potential benefits to States from implementing an RBID include closing more cold cases, reducing the time needed to close cases, and removing criminals from the street. If neighboring States also implement RBID systems, and they work together to ensure database compatibility and interstate cooperation, the benefits could be even greater.

[Editor's note: See related article, "National Ballistics Database Study."]

The Center for Criminal Justice Technology is operated by Mitretek Systems, a nonprofit company that conducts research in a number of areas, including criminal justice. To download a no-cost copy of Ballistic Identification Capability Modeling—A Guide for State Program Establishment (Adobe® PDF) and Planning Model for a Reference Ballistic Imaging System (Microsoft® Excel® file), access www.mitretek.org/home.nsf/CriminalJustice/products and scroll to bottom of page. For information about the National Integrated Ballistic Information Network, visit www.atf.gov/nibin.

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National Ballistics Database Study (continued)

- Probabilities and consequences of false positives and negatives.
- Operational utility of such a database in solving crimes.

Findings, conclusions, and recommendations of the study will be published. Additional information on this initiative can be found at the website of the National Academy of Sciences, www.nas.edu. Click on Current Projects on the menu on the left side, then enter the project number, LJXX-I-13-01-A, into the search field. Also see related article, "Ballistic Fingerprints on File."



This article was reprinted from the Summer 2004 edition of *TechBeat*, the award-winning quarterly newsmagazine of the National Law Enforcement and Corrections Technology Center system, a program of the National Institute of Justice under Cooperative Agreement #96-MU-MU-K011, awarded by the U.S. Department of Justice.

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