# EVIDENCE TECHNOLOGY MAGAZINE

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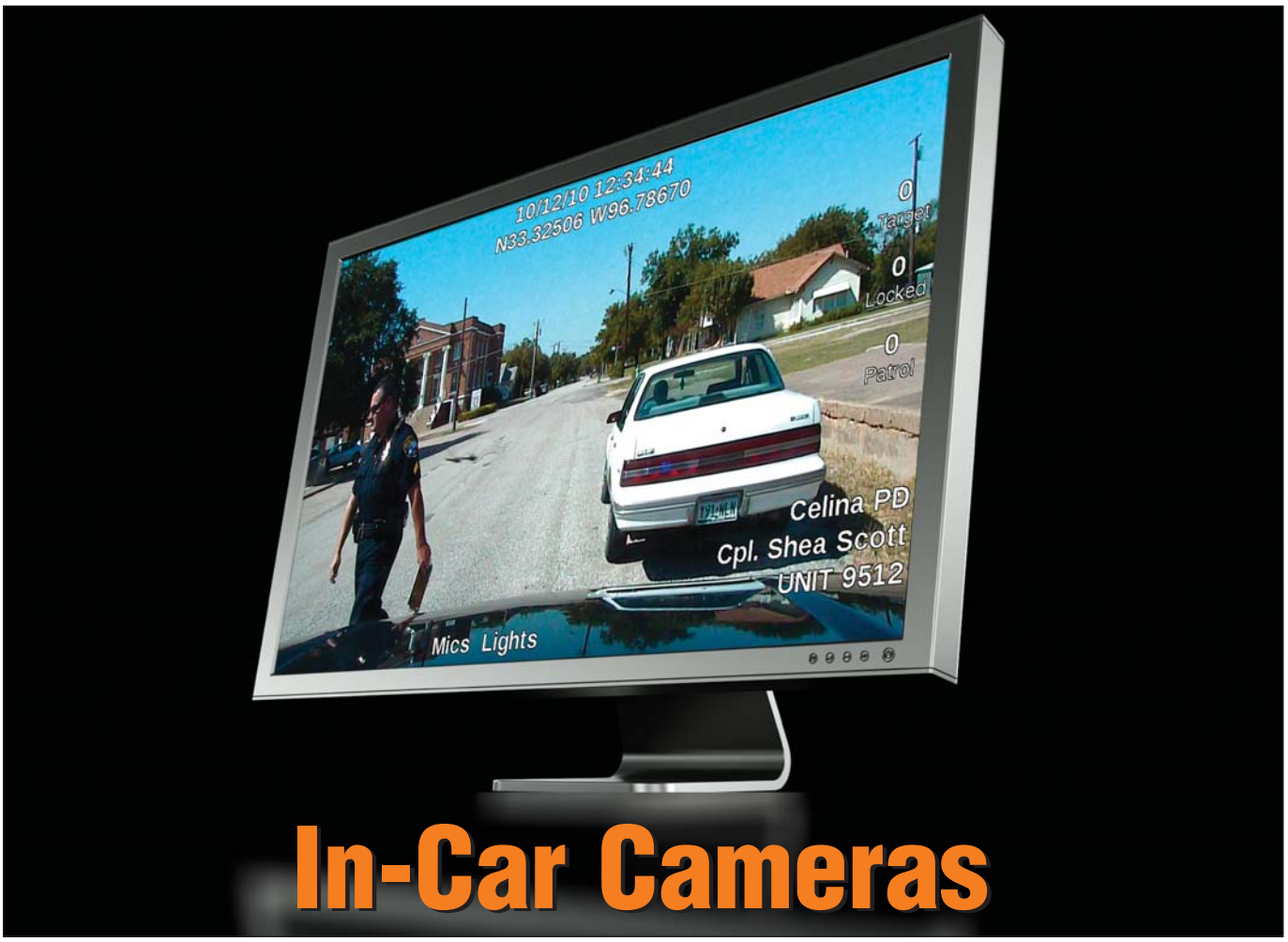


## In-Car Cameras

### TOPICS IN THIS ISSUE

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- The World of the Blood Drop
- Brady Material and the Expert Witness
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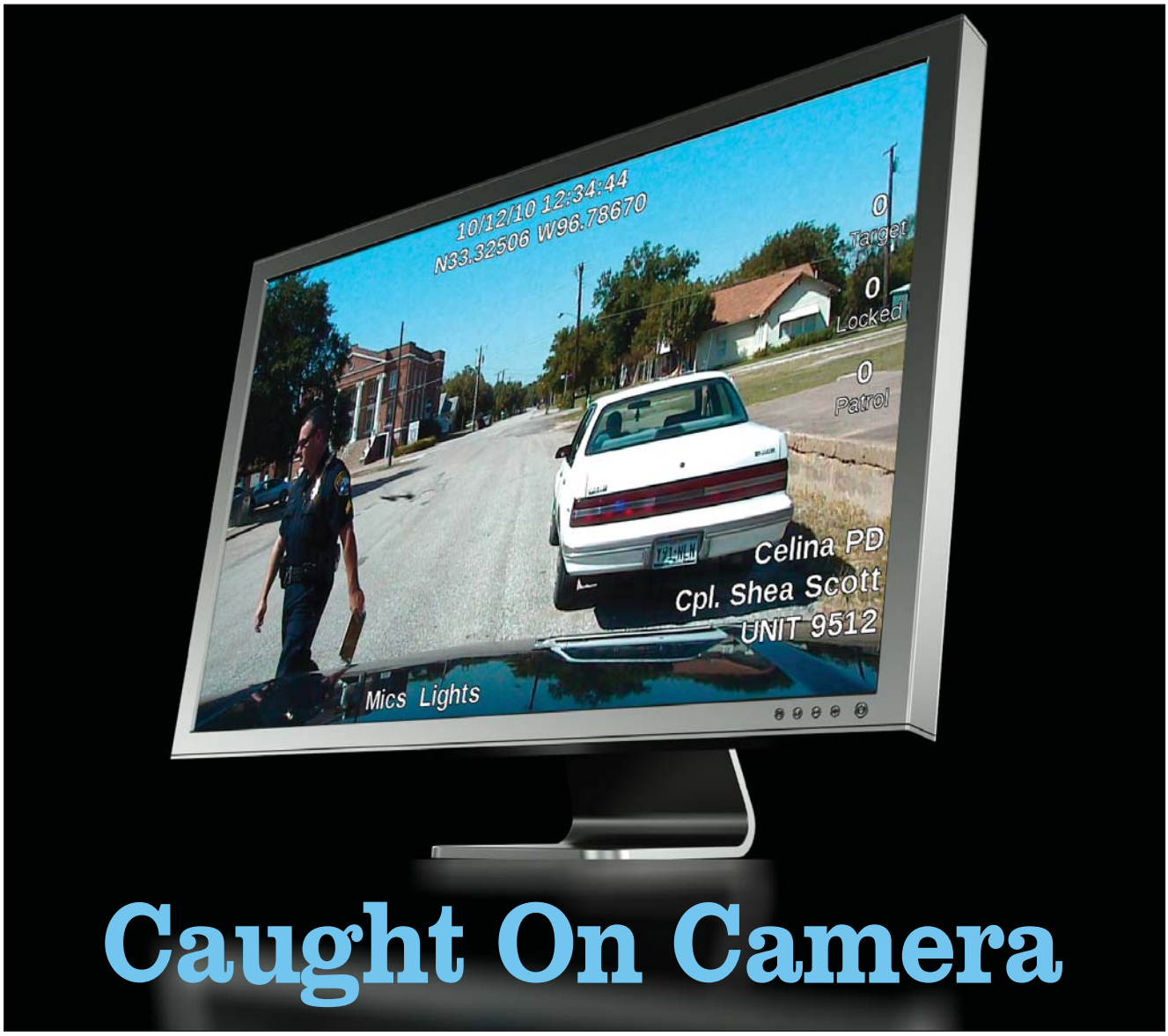



# Caught On Camera

## The clear capture of officer murders is a grim reality of this powerful technology

**Written by Grant Fredericks**

**THE UBIQUITY** of mobile video recording systems in police vehicles illustrates a grim statistic: on-duty deaths were up last year by a staggering 26 percent, highlighted by an equal rise in the number of officers murdered by gunfire: 49 in 2009 and 61 in 2010. Early 2011 statistics are even more frightening, with 11 officers shot in a single 24-hour period in January. The same number of officers were killed by gunfire last month alone, doubling the national trend of each of the previous years of the last decade…and an increasing number of officer deaths have been caught on dashboard cameras.

Videos depicting the last moments of an officer's life are always shocking, explicit, and immensely disturbing, yet they are often the only voices that officers have when they can no longer speak for themselves. Partially for that reason, mobile video recording is a "technology that is here to stay," according to 94 percent of law-enforcement professionals who responded to a recent national survey on in-car video systems.

Underscoring the value of in-car video technology, Georgia State Patrol (GSP) Major Mark McDonough announced at a press conference that "…a picture is worth a thousand words," referring to images that he believed irrefutably identified the man who shot and killed GSP Corporal Chad LeCroy on December 27. The images were recorded to LeCroy's mobile video recorder and included pictures of the killer actually leaving the scene in the officer's car.

The significance of mobile video as evidence during police murder investigations played out tragically multiple times across the United States in 2010. In Tampa, Florida, Officers David Curtis and Jeffery Kocab were murdered by a man during a traffic stop on June 29. Kocab's video system recorded the events leading up to

the killings, which included audio of the killer, and of a woman in his company, providing identification information during the stop. The video proved to be the key to the suspects' later arrest. In another double homicide of police last year, West Memphis (Arkansas) Police Department Sergeant Brandon Paudert and Officer Bill Evan were shot and killed on May 20. Evan's in-car video showed a 16 year old exiting the passenger side of a vehicle while shooting at the officers with an AK-47. "Since the officers are no longer available, I have to let the dash-cam video speak for itself," stated Prosecutor Mike Walden.

Despite the growing volume of in-car video images produced during police homicide cases, the images themselves might not always be good enough to act as the "silent witness", a description often used to suggest that the video quality is adequate for identification and reliability.

"Too often, we're receiving video evidence in these kinds of cases where the quality of the video is so poor that identification is impossible. Then, who speaks for the officer?" asked Alan Salmon of the Oklahoma State Bureau of Investigation's Forensic Video Unit. Salmon is also the President of the Law Enforcement & Emergency Services Video Association (LEVA), a professional organization that trains police video analysts from around the country. He said his organization's members are frustrated with the quality of much of the in-car video they are asked to process, analyze, and eventually take to court.

**In a recent survey of police agencies nationwide, 94% of the respondents said they agreed with this basic concept: "Mobile video recording is a technology that is here to stay."**

"We're fighting an uphill battle," said Salmon, "because there are currently no standards to regulate the operation, media format, and image quality of mobile video recording systems for police. As a result, each case tends to become a technical research project."

**Auditing the in-car camera market**

In an effort to help agencies better understand the in-car video market, LEVA has mounted a national audit of the industry. "Our goal is the advancement of mobile video applications for police," said Salmon. "Despite the growing application of video cameras in police cars, many agencies are installing the systems without a full understanding of the required infrastructure, without con-


*Scott Tidwell, technical services supervisor for the Knoxville (Tennessee) Police Department, sorts through endless boxes of DAT tapes. The tapes contain video data captured by cameras mounted inside the agency's 350 patrol vehicles. Management, including the storage and retention policy, for your video data should be a primary consideration when specifying a new in-car video system.*

sidering many of the operational pitfalls, and without a complete appreciation of the significant opportunities presented by the cameras."

As part of the LEVA initiative, the non-profit police organization is conducting a poll of law-enforcement agencies throughout the country with a national survey of in-car video systems. Preliminary results of the survey highlight some interesting responses. For example:

❏ Only 57% of agencies give the systems' image quality a grade of 7 out of 10 or higher;

❏ Only 60% of agencies give equipment reliability a grade of 7 out of 10 or higher;

❏ Only 57% of respondents say the systems are easy for the officers to use.

On the positive side:

❏ 83% of officers on the road accept the camera systems in the vehicles;

❏ 78% of respondents believe the cameras protect officers from bogus complaints;

❏ 75% of responding agencies report they are planning to purchase more camera systems in the future.

Salmon says the survey will stay active online for several more months. *(You can find a link to this survey on Page 24.)* LEVA plans to release final results of the survey and its national audit of the industry at the National Mobile Video Summit, in Coeur d'Alene, Idaho during the week of October 17, 2011. "We are very interested to see how agencies rank system capabilities and responsiveness to police needs," said Salmon.

**A fast-changing market**

At last count, about 15 primary vendors offer in-car video recording systems for police vehicles. The field of manufacturers was as large as 40 only six years ago, but market pressures continue to reduce the number of companies that remain competitive. One mid-sized vendor, Kansas-based ICOP, suspended its operations just before Christmas, laying off all of its employees. In a filing by the company with the Security and Exchange Commission, ICOP explained "we do not have adequate cash to meet our December 31, 2010, payroll." The failure of companies like ICOP put at risk investments by law-enforcement agencies that spend significant capital annually supporting the purchase, implementation, and maintenance of cameras in their patrol fleets. However, relief from that risk may not be far off.

In February, a panel of forensic video experts, scientists, and police gathered for a meeting in Washington, DC under the direction and guidance of the National Institute of Justice (NIJ). The meeting capped a five-year project initiated by the International Association of Chiefs of Police (IACP) to create in-car video standards. The NIJ document entitled "Vehicular Digital Multimedia Evidence Recording System Standard for Law Enforcement" (VDMERS) establishes "… a minimum level of performance for systems to enhance officer safety and the effectiveness of audio/video evidence."

In addition to developing a certification program for system testing, the NIJ is also developing a Selection and Application Guide that will provide law-enforcement agencies with a description of the standard, information about certified products, and guidance on selection, procurement, care, and maintenance. The NIJ will encourage law enforcement procurement officers to buy and use only certified products that are noted in certified products lists. Information on VDMERS will be posted on **www.justnet.org** when the standards project is concluded later this year.

NIJ's VDMERS publication will be welcomed not just by police agencies struggling to invest wisely in technology, but also by some of the more stable in-car manufacturers. With fewer vendors competing for technology dollars, consolidated market capital is expected to lead to a stronger industry where standards-compliance, features, services, and investment-security will win contracts over the lowest bid.

"We're seeing unprecedented layoffs of officers in police agencies across the country," said L-3 MobileVisions' Mike Burridge. "Agencies can't throw money away while they are, at the same time, laying off cops."

**Balancing budget and capability**

Burridge, former chief of the Farmington (New Mexico) Police Department, knows firsthand the difficult balancing act for police managers, challenged to keep their agencies technically viable in a downturned economy. "We're seeing agencies now that come to us, not just because of the strength and diversity of our products, but because they need the security of a proven in-car video company with significant financial backing."

Knoxville (Tennessee) Police Department's Technical Services Supervisor Scott Tidwell said his agency's 350 patrol vehicles have standardized on the Mobile-Vision camera systems because the department was confident that the company was stable and would service its warranty commitments over the long term. He said his agency has an in-car video recording system that officers, investigators, and senior executives are satisfied meets their needs.

One regret, explained Tidwell, is that the department didn't purchase the vendor's video-management system. To save money, the department purchased a less costly third-party solution to store the video evidence. According to Tidwell, the third-party company was sold and the new buyer ended its support of the storage system.

"We record an average of 400GB of video data every day in our vehicles," said Tidwell. With a 36-month retention policy, the department stores over 400TB of video evidence, all contained in boxes of DAT tapes at any given time.

"We were unprepared for the amount of data we would collect and the bottleneck is clearly the backup system," added Tidwell, who said they should have purchased the full


*The Post Falls (Idaho) police department uses both body-worn and in-car camera systems. The image to the left was captured by the in-car camera. And the image above was captured by the camera that was being worn by the officer in the white shirt as he was questioning the driver of the red pickup truck.*

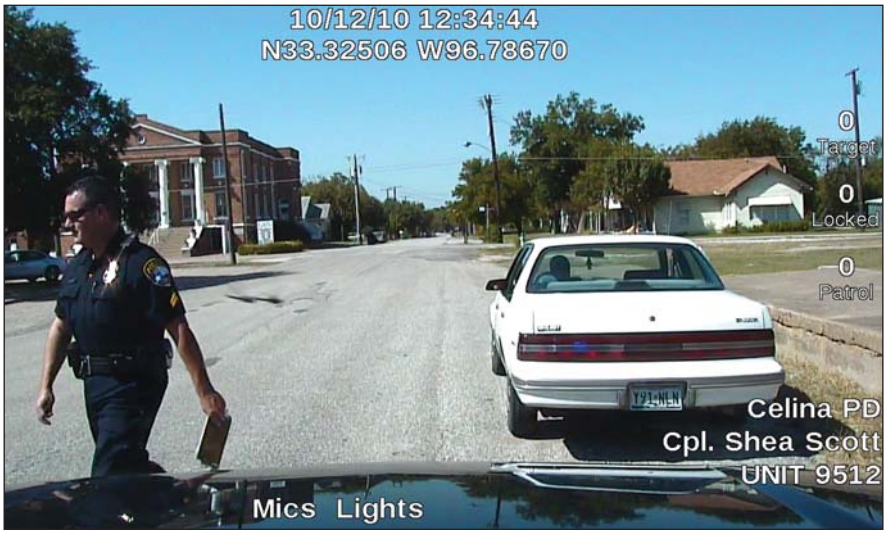
turnkey solution offered by Mobile-Vision to ensure interoperability between their in-car video evidence and the video-storage database.

Smaller agencies face the same financial challenges as larger departments, but their diminished purchasing power often limits their opportunities to secure volume-discounts and invest in enterprise-sized storage systems. "Perception matters," said Post Falls (Idaho) Police Chief Scot Haug of his 40-officer department. "Our mandate to service our community in a professional and transparent manner is measured by our contact with our citizens. For that reason, every contact by my officers is either audio-taped or videotaped."

Yet, he hasn't found the storage of all of that evidence daunting. The department's strategy unfolded over a few years, minimizing stresses to yearly capital funds, and the payoff is evident. Haug estimates that his officers spend less time in court, and the department gets fewer complaints from the public, because the video creates such a perfect record. "Nine times out of ten, a complainant who sees the officer's video walks away with a different perspective," said Haug.

**Part of the LEVA initiative is to conduct a nationwide survey of law-enforcement agencies about in-car video systems. That survey will be available online for several more months.**

Post Falls has invested in body-worn camera systems and in-car video technology, integrating both into a relatively inexpensive back-end media-management system supplied by Coban Technologies, their in-car vendor. The body-worn video system, produced by Seattle, Washington-based VieVu and priced around $750, is designed to be worn on an officer's chest. The body-worn cameras are perfect for motor officers, said Haug, who also likes the cameras for domestic dispute calls, when officers need to leave their vehicles and move out of view of the in-car recording




*High-definition (HD) video is a fairly new feature in the in-car camera market. This image was captured by WatchGuard's 4RE High Definition in-car video recording system, the first to integrate HD. According to Celina (Texas) Police Department Corporal Shea Scott (shown on-duty in this image), the system has a dual-stream recording process that records and stores standard-definition quality video of an entire shift, while dedicating HD-quality to event-based or evidence-based video recording.*

systems. Haug added that it is not uncommon in Post Falls for an event to be captured by a dash-cam from one officer's vehicle, and by a body-worn camera from another officer. This procedure gives two perspectives of the same event.

**Feature-rich options**

Another impressive perspective to mobile video is provided by Texas-based WatchGuard's 4RE High Definition (HD) in-car video recording system for law enforcement. It marks the first introduction of HD video to the industry. The company's HD solution provides more detail than other vendors' systems, and its 16:9 format offers a much wider field-of-view of the events. The unparalleled image quality will undoubtedly give WatchGuard a market-edge on evidence reliability, at least until other vendors catch up with their own recently promised HD solutions.

"We wirelessly upload the HD video," said Celina (Texas) Police Department Corporal Shea Scott. "We don't even know that it is moving data from the car, but when we need something, it is always right there."

Scott said the HD equipment is installed in eight patrol vehicles and everyone has been very impressed with the image quality. Equally inspiring is the company's dual-stream recording process, allowing agencies to simultaneously record and store standard-definition quality video of a complete shift (requiring less storage), while ensuring HD quality is dedicated to event-based or evidence-based video recording.

Arkansas' Pannin Technologies, formerly known as "Fleet Safety", has introduced a powerful remote-monitoring feature in its Mobile View product that automatically sends text messages and e-mails to up to 100 people when an event is triggered.

"Chiefs can set the system so that supervisors are e-mailed when patrol vehicles exceed 80 mph, or when a shotgun release is activated," said Pannin's Bryan Ritter. The most striking element of Mobile View is that it allows live remote-monitoring of the in-car video images over a 3G or higher network, giving instant visual access to police commanders and dispatch of unfolding events on the street. The feature can tap into many third-party metadata generators such as GPS systems, light-bar devices, airbag activations, and even heat sensors in the vehicle.

A review of in-car video systems, currently available on the market, reveals a feature-rich complement of technology. Most vendors offer all or most of the following:

- ❏ Two-camera solution (forward-facing and "prisoner" cameras);
- ❏ GPS;
- ❏ Wireless upload of audio and video data (802.11 a/g/n standards);
- ❏ Comprehensive media-management software that is fully integrated into the agency's storage infrastructure;
- ❏ Wireless microphone with at least 1,000-foot reach;
- ❏ Body-worn video camera;
- ❏ Removable storage media in the patrol car;
- ❏ Easy output of native files for disclosure and court requirements.

**Reliability: the important feature**

"All this technology is great, but cops need to know how to use the cameras strategically and safely during stops, and they need the confidence to know that the images and sound can be their best ally when they're accused of misconduct," said retired Prosecutor Jim Kuboviak. A nationally recognized police instructor on the uses of in-car video systems, Kuboviak said that communities and juries expect more from officers today, and that in some cases video is required corroboration.

"Gone are the days when an officer's word is always going to be accepted. It's a sad reality, but it means we must ensure that our officers have the tools to do their jobs and a mechanism to prove it," said Kuboviak. His Texas-based Law Enforcement Mobile Video Institute (LEMVI) focuses on the operational and policy applications of in-car video systems. His police trainers, all sworn officers, teach police how to use the cameras to gain evidence effectively, safely,

and professionally, enhancing the likelihood of convictions while minimizing public complaints and liability.

LEVA's Alan Salmon agrees that officer safety should be one of the primary purposes of system design, implementation, and training. However, LEVA's national survey shows that only 70 percent of respondents state that the cameras are effective in promoting officer safety. "The fact that law-enforcement video analysts are examining more police homicide video cases than in the past is more a testament to the number of agencies that are using the technology than to the systems' failure to protect officers," said Salmon. "The bottom line is that the cameras do more than simply mediate citizen complaints. They are identifying cop-killers. What agency can afford not to invest in that security?"

**About the Author**

*Grant Fredericks is a former police officer with the Vancouver (British Columbia) Police Department in Canada and head of the agency's Forensic Video Unit. He is an instructor of Forensic Video Analysis at the FBI National Academy. He testifies as an expert in Forensic Video Analysis in courts throughout North America. His company, Forensic Video Solutions, provides video analysis services for police agencies in the United States, Canada, and the United Kingdom. You can learn more or contact him by going to the Forensic Video Solutions website:*

**www.forensicvideoexpert.com**



## Here are some of the preliminary statistical results from the LEVA survey that is still underway* with law-enforcement agencies.

**(Additional results are listed in the text of this article on Page 20)**

**85%** *of those responding say that manufacturers demonstrate an understanding of real world patrol duties in their design*

**73%** *say the image quality of mobile video systems is good*

**49%** *of systems use wireless upload technology*

**29%** *use automated license-plate-reader technology*

**22%** *of the departments participating in the survey still use videotapes in their vehicles*

***To participate in the LEVA survey, go to www.mobilevideotechnology.com and look for the heading "Mobile Video Survey" …then click on "Take the Survey!"***

### For more information

*about the National Mobile Video Summit, (October 17-18, 2011) go to:* **www.mobilevideotechnology.com**

### To learn more

*about the Vehicular Digital Multimedia Evidence Recording System (VDMERS) Standard for go to:* **www.justnet.org**

### Here are links to the companies and organizations mentioned in this article:

Coban Technologies, Inc.
**www.cobantech.com**

Law Enforcement & Emergency Services Video Association
**www.leva.org**

Law Enforcement Mobile Video Institute, Inc.
**www.lemvi.com**

L-3 Mobile-Vision, Inc.
**www.mobile-vision.com**

Pannin Technologies, LLC
**www.pannin.com**

WatchGuard Video
**www.watchguardvideo.com**

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