2018 POLICE VIDEO GUIDE
The emerging tech, training and tactics shaping law enforcement

INSIDE

- 2 under-discussed issues with body-worn cameras
- 5 tactical considerations for throwable video-enabled robot deployment
- How body camera footage can enhance officer training
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EDITOR’S NOTE:

Police officers today have an arsenal of technologically-driven tools designed to better execute their mission to protect and serve, while also enhancing officer safety and improving operational efficiencies.

One of the most transformative of these tools has been the use of video in policing. PoliceOne’s yearlong special editorial focus on video in law enforcement has addressed all facets of the topic with expanded analysis and reporting.

This digital edition focuses specifically on best practices in the deployment of video tools to transform field operations.

In the following pages, our experts explore cutting-edge applications of police drones; discuss the capabilities and limitations of throwable video robots; and review the issues bystander videos present for law enforcement, from apprehending suspects to seizing the cellphone with the evidence.

We also look at issues around body-worn camera video including how to turn BWC footage into actionable data for police officer training purposes, and how to safely store and protect your video data.

How is video transforming operations in your police department? Email your best practices, ongoing challenges and lessons learned to editor@policeone.com.
The body-worn camera is a tool like any other an officer can deploy; proficiency in use requires a “train like you fight” approach.

By David Blake

Over the last several years, law enforcement has experienced unprecedented critiques from the public, media and politicians. The criticism ranges from speculation about rampant excessive force to implicit bias, with body-worn cameras originally introduced as being the solution for all. While BWCs have not solved all perceived problems, they have helped mitigate many of them. Yet with all the positives, there are two BWC problems that are under-discussed and worthy of attention.

The first problem involves the failure of officers to turn the cameras on during critical incidents. A quick Google search provides a long list of negative press on this topic and there is consistency coast to coast. The second problem is how BWC footage is interpreted (bias) both by the public and internally within the criminal justice system. Early mistakes with video evidence can have dire long-term consequences.

Deceit versus proficiency issues

There is typically very little hands-on training with using BWCs that is street transferrable. Many agencies purchase cameras, perform some preliminary testing, set up the software, write a policy and deploy.

These rollout actions are similar to the recommendations from the Department of Justice, which are the most inclusive I have seen. Yet the DOJ and other BWC experts provide little guidance on training officers to proficiency in order to comply with “shall turn on” policies.

The BWC is a tool like any other an officer can deploy. One cannot expect a human to fully comply with a
“shall turn on” BWC policy if the officer has not been provided sufficient training. For those thinking this is as simple as pushing a button or sliding a mechanism and requires no training, I’d say you probably don’t think of shooting as just a simple pull of the index finger, right? The law enforcement motto, “train like you fight” applies here as well.

In reality, human beings tend to focus their attention on the most important aspect of the environment. Attention is driven both consciously and unconsciously, is impacted by stress and may narrow (mentally and visually) based upon the situation.

A “shall turn on” policy, especially one that is not trained to street level proficiency, fails to account for human attention during stressful incidents. For example, do we focus on our BWC as we arrive on scene at volatile situations or do we focus on the potential threats and exiting the vehicle quickly? San Diego Police Department Chief Shelley Zimmerman clearly understands this concept when she defended her officers in this context:

“Things happened so very quickly I think everyone will understand it’s reasonable that officer safety and public safety will take precedence over an officer’s ability to record.”

The fix to this known problem is two-fold. The first is to utilize a system that removes the human factor from the equation. A camera system that automatically turns on mitigates the possibility of human error. Absent this option, officers need to be trained to create muscle memory (unconscious habit). This means lots of repetition in turning the device on in various situations, much like we train with our other tools.

One way to ensure proficiency is having officers wear inert BWCs in stress-based training while expecting them to follow the “shall turn on” policy. In my own experience, telling officers to turn on the camera prior to a stress-based simulation (e.g. Force Options Simulator) results in about a 50/50 chance of activation under stress.

Prevalence of video bias

The DOJ quotes Dr. Bill Lewinski of the Force Science Institute in regard to the 10 limitations of BWC video. These limitations range from a BWC’s fixed point of view to the two-dimensional images they provide. I have also written on the limitations of BWCs and come to understand how the video can create a bias for investigators, executives and the public.

**EARLY MISTAKES WITH VIDEO EVIDENCE CAN HAVE DIRE LONG-TERM CONSEQUENCES**

Law enforcement should make a pre-emptive effort to close this gap with the public through education. It is not difficult to demonstrate that what is seen on video is not necessarily what an officer sees. The Force Options Simulator is an underappreciated tool in regard to understanding and demonstrating differences between video, the human experience and subsequent memory of events. Having citizens, community groups and even the media participate in scenarios and then recount what occurred will open eyes to the deficits between their experience or memory and the facts.

Releasing BWC video

Another recommendation involves the release of BWC footage for high-profile events. The video should not stand alone. Consider a press conference that provides both the pros and cons of interpreting video, as well as what can reasonably be stated about the event in comparison. Real world examples, such as multiple video angles in sports required to confirm or dispute a referee’s call, are essential.

Finally, it is important to consider that investigators and others within the criminal justice system are not immune to bias based on video. Those who sit in judgment of performance must have some understanding of how a human being receives, processes and remembers information.
Humans do not work like cameras and what is experienced or remembered during rapidly evolving, tense, uncertain situations can vary from what is recorded. Investigations involving any video should be broken down frame by frame to see and understand more of what occurred as the human eye is not capable of picking up all the details at full speed.

My personal experience includes a video I’ve shown to hundreds of law enforcement officers and civilians that is initially determined to be excessive force. Once a frame by frame is shown a new vote is taken and the exact opposite occurs, with almost 100 percent of these groups reversing their original opinion.

Street level operator proficiency and video-created bias are rarely mentioned in regard to BWC rollout or training. There is also little research on the direct effect of BWCs in this regard, although there is associated video-based research to rely upon. These two areas have caused significant internal and external problems that can be reduced.

The solutions presented are topical and recommendations are provided for consideration but are not all inclusive. Investigators seeking to understand human vs. camera may consider downloading the peer-reviewed journal article, *Body Worn Cameras: Comparing Human and Device to Ensure Unbiased Investigations*.  

One of the biggest issues with body-worn cameras is getting officers to turn them on in situations that, per policy, require recording. There are many reasons why officers fail to capture an incident on video, as evidenced in the survey results.

Respondents were pretty evenly split between “operator error,” “device malfunction” and “stress” as the reason for failing to turn on a camera. The majority of those who chose the “other” option cited how quickly the incident occurred and their forgetfulness as the primary factors behind why their camera wasn’t on at the time of the incident.

Navigating the complexity of BWCs is a challenge police departments continue to face. If you’re in need of BWC training for your department, PoliceOne Academy has several online courses available, including “How to Implement a BWC Program.” Start your path to becoming an expert by visiting PoliceOneAcademy.com and submitting a request to learn more.

David Blake is a retired California Peace Officer and certified Ca-POST instructor in DT, Firearms, Force Options Simulator, and Reality Based Training. His experience includes SWAT, Force Option Unit, Field Training, Gangs/Narcotics, and Patrol. He is a certified Force Science Analyst®.
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5 TACTICAL CONSIDERATIONS

FOR THROWABLE VIDEO-ENABLED ROBOT DEPLOYMENT
By Mike Wood

Leveraging technology to enhance public and officer safety is essential, and in just a handful of years, law enforcement agencies have come to depend on a variety of robot platforms to help them accomplish that goal. Perhaps one of the most helpful of these systems is the throwable robot – a lightweight, ruggedized platform that can literally be thrown into position, then remotely controlled from a position of safety.

An industry leader in this technology, Recon Robotics constantly receives positive feedback from tactical teams who have used their “throwbots” (a registered trademark) to great effect in the field. These systems allow tactical teams to collect vital intelligence through onboard video and audio systems that have increased safety and effectiveness when the teams are deployed, saving the lives of innocents, officers and even suspects.

In the words of one of these tactical teams, the most significant advantage of the throwable robot is that it “allows them to own the real estate with their eyes, before they pay for it with their bodies.”

The throwable robot is a powerful tool, but as with any technology, there are limitations and issues to consider before deploying. Some of these include performance limitations, battery life, incomplete information, suspect response and priority of life.

1 Performance limitations

Throwing robots are incredibly tough machines made to withstand environmental rigors, but they have their limitations. The machines are water resistant and can withstand short-term immersions; however, they may not be capable of sustained operation in flooded environments. The machines can climb over some obstacles, such as doors or large, heavy items, but some surfaces or grades may be too much for them to handle and block their progress. Although the machines are designed to operate at a distance, building materials and construction may limit the effective range of signals, so teams should experiment with different structures and environments in advance to determine representative ranges.

A smart operator will understand the limitations of the technology, have realistic expectations and remain flexible enough to adapt when difficulties are encountered.

2 Battery life

Throwable robots have an excellent run time, but tactical situations like barricades and hostage negotiations can really run out the clock and push beyond the on-station time of these miniaturized systems. Tactical teams will need to develop plans for rotating throwable robots out so that batteries can be charged, and they may need to have multiple systems available to provide continuous coverage.

3 Incomplete information

Throwable robots can safely go places where we would not send an officer and can provide tremendous intelligence. The audio and visual feeds can provide vital information and help to fill in many of the gaps in our understanding of a threatening situation. Yet, as wonderful an asset as they are, they cannot provide a complete picture.

The camera eye can only see so much and there are many critical elements of information that may go undiscovered or unrecognized. Weapons and people can be hidden from view, dangers can go unnoticed, smells (like gasoline or natural gas) are undetectable, and the microphone may fail to pick up vital communications.
Throwable robots provide such an advance in situational awareness that it can be easy to forget that our understanding of the situation is still incomplete. Tactical commanders should always keep this consideration in mind as they develop and execute their plans.

**Suspect response**

Throwable robots are designed to operate quietly, which enhances their ability to get close to the target while avoiding detection. However, there is still a significant chance that the robot will be detected by the suspect or that the suspect may be alerted to it by others, including hostages.

Unfortunately, law enforcement cannot predict how an alerted suspect will react to the presence of the system, so contingency plans must be in place before it is deployed. An agitated suspect may try to shoot at the robot (which provides valuable intelligence itself, such as confirmation of armed status, location identification and an indicator of willingness to surrender) and place nearby hostages or officers in danger.

This may also be a sign that the suspect may initiate direct violence against hostages or officers.

In the wake of the widely publicized, 2016 deployment of robot-borne explosives by the Dallas Police Department to eliminate an active shooter, a suspect may fear that the robot is an IED and be provoked into violence. When this system is thrown into a room, it may be mistaken for a less-than-lethal munition or a diversionary device by the suspect, convincing him that an assault may be imminent. Therefore, it bears repeating that tactical commanders should have contingency plans in place and be ready to execute them, in the event that the system’s presence changes or destabilizes the situation.

**Priority of life**

The *Priority of Life* model places innocents before law enforcement and law enforcement before suspects. Tactical commanders should be vigilant to ensure that throwable robot deployments are conducted in accordance with this model.

For example, officers should not be encouraged to take unnecessary risks in order to deploy a throwable robot (such as approaching the target without suitable cover and protection). Similarly, commanders should not risk the lives of their personnel to recover a damaged, trapped or stranded system, as we have regrettably seen in some tactical operations. If the deployment of a throwable robot destabilizes a volatile situation and creates the threat of violence against innocents, then it should be delayed or appropriate safeguards should be emplaced before it is used.

Throwable robots offer significant advantages and have proven to be an essential part of a tactical team’s equipment in a very short time. They enhance situational awareness, safety and mission success, but should always be employed by teams who understand their limitations and who appreciate the various tactical considerations associated with using this exciting technology.

Be safe out there.

Colonel (Ret.) Mike Wood is an NRA Law Enforcement Division-certified Firearms Instructor and the author of “Newhall Shooting: A Tactical Analysis.”
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By Doug Wyllie

Los Angeles County Sheriff Jim McDonnell recently announced the department’s acquisition of an unmanned aircraft system for use in search and rescue, explosive ordnance detection, hazardous materials incidents, disaster response, arson fires, hostage rescue, as well as armed and barricaded subjects calls.

The UAS is assigned to the Special Enforcement Bureau, where it will be the most beneficial to units under its umbrella, including the Emergency Services Detail, Special Enforcement Detail, Arson/Explosives Detail and the HazMat Detail.

“Having such a versatile tool will prove to be a great asset because it can be quickly deployed and provide close-up views of outlying subjects,” the agency said in a written statement. “The ability to rapidly gather otherwise inaccessible, yet vital, information during tactical operations is exponentially increased and can, thus, assist deputies to better determine the safest, most prudent and humane approaches to uncertain, isolated or hostile situations.”
### Very specific missions

Captain Jack Ewell, who leads the new unit, told PoliceOne that the department had been looking at this type of technology for several years and waiting for the right time to implement it. A confluence of recent events created the opportunity to move forward with the effort to create the unit and acquire the technology.

“For the last few years, the regulations seemed very unclear about exactly when you can use them, how you can use them, how they’re regulated and that type of thing,” Ewell said. “The FAA last summer came out with solid public safety guidelines that cleared all that up for us and seemed to make it pretty straightforward.

“At the same time, the technology breakthroughs are just incredible. Even from just a few years ago until now, it’s night and day on how easy they are to operate, how safe they are, how efficient and how long they last. The cost has also dropped greatly over that period. All those things combined made us decide that it was an appropriate time to launch our unmanned aircraft program.”

Ewell’s team consists of six deputies who each received a Remote Pilot Certificate with a small Unmanned Aircraft System rating from the FAA. Each deputy completed a minimum of eight hours of supervised flight time in order to operate the aircraft, and did weeks of studying to have the knowledge to pass the written test and get the remote pilot license.

The UAS can remain aloft for 20-25 minutes without changing batteries, and if a mission requires more time aloft, the battery can be switched out in about one minute. But Ewell said that instances in which extended flight time will be required are likely to be rare.

“It may complement our manned aircraft program but it doesn’t take its place at all. We would not use the unmanned aircraft for surveillance purposes. So we don’t need it to be up for an extended period of time. The type of missions we use it on would be a search and rescue in a particular area that our manned aircraft can’t cover.”

Indeed, LASD’s airborne unit is a substantial fleet, comprised of 13 Eurocopter A-Star patrol helicopters and three Super-Puma rescue aircraft, as well as three fixed-wing aircraft – one Beechcraft King Air and two Cessna 210s. But it is far too dangerous for those aircraft to fly in some of the deep canyons in LASD’s jurisdiction. And they certainly cannot fly between trees under the canopy in search of a missing person.

### The floor, not the ceiling

When talking about UAS or UAV technology, people sometimes get hung up on what the ceiling for a unit might be, but in reality, it’s the floor that really matters – it’s how low you can go and how small the spaces are you can access. Further, a UAS can access places that would pose undue danger to deputies and officers.

“The unmanned aircraft can be used for looking into a vehicle, like if we had a barricaded suspect and don’t know if he is armed, he’s not coming out of the car, and we don’t want our deputies to approach it until it is safe,” Ewell said. “The unmanned aircraft is the ideal piece of technology to move up right at the
same level as the windshield of the vehicle, look in and see if this person is resisting. Or maybe he needs medical assistance. Maybe he is unconscious. Is he armed? Using that information, you can safely bring your deputies up to solve the situation.”

Ewell envisions using the newly acquired technology primarily for EOD calls – the department gets roughly 500 of those every year. In such a case, the UAS can be 5 or 10 feet off the ground and view a suspicious package or suspected IED from all angles to see what its components are. Ewell said the UAS does this in a fraction of the time it takes to get a robot deployed.

“Hazmat spills – same thing. It is going to be a first quick flight. You’re going to fly over the infected area, do an assessment and determine who needs to be evacuated, how far, what the spills consist of and that type of thing,” Ewell said.

**Improving safety for all**

“The dangers of law enforcement can never be eliminated,” said Sheriff McDonnell during a January press conference. “However, this technology can assist us in reducing the impact of risks on personnel and allow us to perform operations to enhance public safety.”

Recently, LASD deployed the UAS for an armed, barricaded suspect who fired shots at officers.

“The unmanned aircraft was used to assist in safely resolving the situation without any injuries to law enforcement personnel,” Ewell said.

That incident is an example of the tactically sound leverage the UAS will bring for LASD personnel and the citizens they serve. With the ability to safely collect video of a situation, LASD will help to improve safety for everyone in their jurisdiction.

Doug Wyllie is a PoliceOne contributor who provides police training content on a wide range of topics and trends affecting the law enforcement community. Doug has authored more than 1,000 articles and tactical tips and is a member of International Law Enforcement Educators and Trainers Association (ILEETA), an Associate Member of the California Peace Officers’ Association (CPOA), and a member of the Public Safety Writers Association (PSWA).
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Somebody, somewhere is recording:

HOW POLICE CAN OBTAIN BYSTANDER VIDEOS

Videos shot by civilians can be a critical part of your investigation
By Jennifer Rouse Bremer and Jack Williams

If you are paying attention to the news, you will notice the massive amounts of personal (bystander) videos depicting chaotic scenes such as officer-involved shootings, use of force and full-scale civil unrest.

Bystanders, and even the involved parties of these incidents, are using cellphones and other electronic devices to capture what is happening on the scene. There are two primary reasons individuals elect to record police activities:

1. They want to catch an officer doing something wrong.
2. They are seeking entertainment value and want something exciting to show all of their friends and family.

Due to the increasing trend of bystanders recording these events, many officers are developing the mentality of treating every citizen encounter as if everything that is happening or being said is being recorded.

Expectations of privacy

With the pervasiveness of cellphones and other recording devices, it is increasingly common to see videos of crimes or suspects hit social media before a police officer can even arrive on scene. In these cases, the videos are considered public and there is no expectation of privacy. This is both a blessing and a curse.

Because there is no expectation of privacy, law enforcement may view or even copy the videos on a social media site without a warrant.

Alternatively, what happens when an officer notices a bystander recording an incident in which the officer reasonably believes the video contains valuable evidence relative to the incident that has just occurred? How does the officer go about obtaining that video from the bystander – especially if he or she is uncooperative or belligerent – while preserving their Fourth Amendment rights that protect from illegal search and seizure?

Rights to record

If you are a police officer or attorney, you are probably already thinking of all the legal ways to obtain the bystander’s video. Let’s start there. Citizens have the right to record video or take pictures of anything in plain view in outdoor public places where they are considered legally present. This includes pictures and videos of government officials, transportation facilities, federal or state buildings and even police officers.

Obtaining a search warrant

Typically, without consent, officers must obtain a search warrant to gain access or seize a person’s electronic recording device. Any officer who has ever applied for a search warrant knows it is a lengthy and time-consuming process. Going through the process creates several risks, such as the citizen deleting the video or the warrant not being approved.

Under certain conditions known as exigent circumstances – where an officer believes that a recording might contain evidence of a crime – he or she may seize the phone or other equipment in order to prevent recordings from being lost or destroyed. However, the devices may not be searched, viewed or copied without proper legal authority such as a search warrant or subpoena (a June 2014 US Supreme Court decision in Riley v. California held that police need a warrant to search a cellphone). Under no circumstances may an officer delete or modify those recordings or order someone to do so.

Additionally, laws differ relating to whether the owner of the cellphone was present when it was
found or seized, if video or text was in plain view of an officer, if the cellphone was in plain view within a seized vehicle, and so on. The legal variables are endless.

Confused now? The bottom line for officers is that sometimes you can take the device with the recording and sometimes you legally can’t take it.

**The bottom line for officers is that sometimes you can take the device with the recording and sometimes you legally can’t take it.**

### Requesting the video

The question remains then, what is the best way to get it without having to jump through the confusing and ever-changing legal hoops? It’s simple. All you have to do is ask for it. The legal hurdles are no longer an issue if the citizen simply gives you the video. So, how do you convince someone to give you that video in their cellphone? Employing the basic tenants of community policing may be the best answer.

One of the fundamental principles of community policing is getting to know people in the community – becoming a part of the community and not just a visitor in a uniform. Research repeatedly shows that when community members have a good rapport and trust with officers, their view of police becomes more positive and they are more likely to assist police with issues and investigations. If citizens trust you and believe you are there to help them, they will be more likely to hand over the video you need once you ask them for it.

### Creating community trust

How do officers create that community rapport and trust? It’s simple. All you have to do is get out of the patrol car and walk the neighborhood. Stop and talk to people you see while you’re out walking. Introduce yourself to them and provide a business card. Tell them to call you directly if they need anything. Make sure to visit with local businesses, whether it’s to grab a bite to eat, get a haircut or buy your afternoon soda from the local corner store. If you show interest and commitment to the people in the community, they will reciprocate and help you when you ask for it.

Don’t be afraid to talk to the gang members, prostitutes and drug dealers in your area. Although they may be frequent fliers in the criminal justice system, they are a good source of information.
regarding criminal activity, and they have cellphones and tend to record incidents.

Another benefit to getting to know the criminal element is that when they trust and respect an officer, the likelihood of the officer getting hurt or killed during an encounter with them is significantly reduced. In some cases, they will even help and defend an officer who is being attacked because they view that officer as a person, not a uniform.

Even if the citizen in question is not a fan of police, they may be willing to provide the video to an officer they know and trust before they would an officer they don’t know.

When someone is detained by police or when they know the police are obtaining a search warrant to seize their property, they usually become more resistant to police efforts. If the person already has anti-police sentiments, those feelings can be enhanced, causing them to complain publicly and causing others to feel the same way they do about police. Using proven community policing strategies not only makes it easier to gain consent when a video is needed, but can also help to negate the negative sentiments people have toward police, which can ultimately save both citizens’ and officers’ lives.

Like it or not, social media, video and instant news are part of our culture. The best thing for officers to do is to accept and embrace this reality as part of your everyday policing. Citizen videos can be a critical part of your investigation, speed apprehension and aid in prosecution, which ultimately provides speed to justice for victims and their families.

Jennifer Rouse Bremer served on the IACP Community Policing Committee for six years. She has worked with law enforcement, DoD, DoJ and other organizations to help integrate the use of technology and community policing strategies to enable community engagement that creates force multipliers in high-risk communities.

Officer R.S. (Jack) Williams has been a police officer with the Raleigh, North Carolina Police Department for nine years. For the past four years, he has led the community policing efforts in the highest crime areas of Raleigh, realizing a 44 percent reduction in crime in one area and a 30 percent reduction in another area.

We asked 212 members of our audience to weigh in on a series of questions related to video in policing, including the use of body-worn cameras, crowdsourcing video evidence, the future of video in policing, and much more. Read more survey responses here.
There are many video redaction solutions available and they vary widely in capabilities and ease of use.

By Tim Dees

The cost of video archiving was the first unforeseen speed bump in the widespread deployment of police body-worn cameras (BWCs). The challenge of video analysis and redaction is the second.

Police agencies looking to demonstrate transparency in their operations by distribution of BWC-generated video are inundated with demands for video clips, but they can’t release the videos as recorded. Before video is made public, identifying characteristics such as license plates and faces must be redacted to protect the privacy of innocent bystanders.
There are many video redaction solutions available and they vary widely in capabilities and ease of use. Consider these issues in choosing a solution for your BWC deployment.

1. Be wary of an all-in-one package

Most BWC vendors include a video editing solution as a part of the total package they sell to their client agencies. In a few cases, the user is tied to using that video editing software, or it is difficult to get the video out of that software and into a third-party editor.

If that is the case, you’re tied to the feature set and limitations of that software, and when new capabilities come available, you won’t have them until the vendor decides to publish an update, and the BWC video editing tool may not work with videos from other sources like dash cams.

2. Understand the file formats

Digital video comes in several formats. The most common are *.avi, *.flv, *.wmv, *.mov, and *.mp4. An editor that will handle one file format may not be able to digest another. At some point, you will have to deal with video from an outside source, such as surveillance cameras or smartphones. That video can come to you in any format.

3. Protect the metadata

Most video from BWCs also includes a substantial amount of metadata that describes the time and date the video was made, the camera and user that produced it, GPS coordinates for its location, and details like whether the patrol car’s emergency lights and/or siren were on.

Editing the video in a third-party software package may not properly preserve the metadata. The metadata stream can be as important as the visual and audible content of the video, especially in a legal proceeding.

Editors with screen capture capabilities will seldom pick up the metadata. When using a screen capture application, the operator plays the video on their computer display, and uses the software to draw an outline around the video frame. The software records whatever is contained in the capture window. This method usually results in a file with lower resolution than the original (as it is limited to whatever was displayed), and without any metadata and/or audio track.

4. Police video redaction has to be perfect

A video is a series of still frames, usually about 30 per second. Any still frame can be extracted for closer examination. Redaction involves blurring or blocking details of faces and other identifying characteristics. If it is not 100 percent effective, one or more frames that contain part of the information you intended to redact may combine to reveal what you intended to keep hidden.

“One missed frame can reveal the identity of an individual and expose a police department to significant liabilities,” said Sean Varah, founder and CEO of MotionDSP. His company produces Ikena software for video redaction and forensic analysis that is offered by several BWC vendors.

Most redaction involves an operator placing a circle or rectangle over the sensitive area of the video frame. That area is blurred or occluded from view and the more advanced packages use artificial intelligence to follow the object as it moves, keeping the circle or rectangle over the object. If there is some lag between movement of the object and the redaction area, a portion of a face or a few letters or numbers can slip out and be visible.

This is especially common when the object to be redacted moves out of the frame. When this happens, the operator needs to repeat the redaction process when the object reappears in the frame and ensure that any auto-tracking keeps up with the object throughout the entire sequence.

5. Create an audit trail

If a video clip depicts a controversial incident, any video redaction will be met with claims the video was edited to conceal police misconduct. The best editors will automatically create an audit trail of any changes, showing exactly what was added or removed, with timecodes and video frame regions recorded. This feature is a tremendous time saver.
that also adds greater integrity and transparency to the process.

Software can be difficult to use

Anyone who has played with Photoshop or some other digital photo editor knows there is a substantial learning curve to edit photos skillfully. Video has all that complexity and more. An editing package that contains all the possible bells and whistles may provide more capability, but it will be more difficult for users to master. Knowing what features you need and selecting an editor that focuses on those, provides savings on multiple levels.

You will need to decide who will do the redaction and other editing chores. How long will it take to train people to use the software and how often will that person need to be replaced? If the software requires considerable expertise, your agency could be left with a big deficiency if your key operator leaves that position.

Hardware demands are high

Graphics editing requires more computing power than email and word processing, and video editing is even more demanding on computer resources. Many editing packages will run poorly on the typical desktop or laptop computer, if they run at all. The computer you use for video editing will need a fast, up-to-date CPU and an equally powerful graphic processing unit (GPU).

Video software packages are generally engineered to concentrate the load on either the CPU or GPU. You need to know how yours is designed and what the minimum performance requirements are. For best results, get a machine that can be dedicated to this task and has the most powerful graphics processing available.

A few vendors offer cloud-based video editing solutions, where the heaviest computing processes are run by remote computers. This reduces the need for a high-performance computer at your site, but demands considerable bandwidth from your internet connection. Many operators report that it can be extremely difficult to achieve frame accurate results with cloud-based video editing solutions.

Evaluate these factors in your selection and purchasing decision, and both you and the community you serve will be happier with the finished output.

Tim Dees is a retired police officer and the former editor of two major law enforcement websites who writes and consults on technology applications in criminal justice.
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CAPTURE, MANAGE AND SHARE with Motorola Solutions Digital Evidence Management Solution
Learn how this system will help you successfully capture and manage the overwhelming deluge of video evidence your department is becoming more reliant on.

By Doug Wylie for PoliceOne BrandFocus

With each passing year, body-worn camera and related software suites for law enforcement continue to evolve and improve.

This includes Motorola’s Digital Evidence Management Solution, which combines a police body camera with a high-quality radio speaker-microphone and touchscreen interface, and is integrated with a cloud-based storage and management solution called CommandCentral Vault Digital Evidence Management Software.

Here is a precis on each of the main components of the system.

**THE Si500 BODY-WORN CAMERA**

The Si500 body camera is a 3-in-1 device, incorporating a flexible body-worn camera, a rugged remote speaker microphone and a touchscreen video management device.

It has all of the same functionalities as a radio speaker-microphone, but adds in the ability to record body-worn video. It offers an intuitive user interface that combines voice communications, video, voice recording and still images, said Jerry Napolitano, Smart Public Safety Solutions, Motorola Solutions.

Both body-worn camera and remote speaker microphone feature intelligent recording capability along with the best-in-class audio quality of an APX radio. Napolitano said it delivers an exceptional
combination of rugged hardware, powerful software and Wi-Fi connectivity for video upload.

The body camera unit has a screen that can be worn facing outward, so that individuals can see that they are being recorded or will be recorded as part of a preview function. Or, it can be flipped around so the screen is facing the officer’s body. That is basically driven by whatever policies an organization might want to implement, Napolitano said.

“In some communities they may want that engagement to be kind of discreet, right? In other areas, they may want to engage with citizens and make them aware that they are being recorded in order to change their behaviors,” Napolitano said. “So the agency has the ability to switch that just by inverting it and turning it the other way.”

Further, because the lens on the device can be adjusted up or down by 210 degrees, the view can be changed to suit the size and stature of the officer, he said.

**COMMANDCENTRAL VAULT DIGITAL EVIDENCE MANAGEMENT SYSTEM**

CommandCentral Vault is designed to help agencies save valuable time and costs that are oftentimes associated with digital evidence management activities.

Agencies can seamlessly accommodate all digital evidence from a host of external sources all from this single application — not just body-worn footage collected from the Si500 units on officers in the field. This includes content from the device or imported from external sources such as fixed video cameras in places like interrogation rooms, fingerprint stations, Sally ports, and more. To facilitate this extensive amount of content, storage capacity scales overtime to account for retained content.

In addition, it is compliant with the Criminal Justice Information System (CJIS) security policy and has full audit logging capabilities to ensure that evidence is protected. Also, Amazon Web Services (AWS) along with Motorola Solutions and Socrata have come up with powerful tools to assist police using analytics to derive critical insights, reduce crime, deploy
resources more effectively and ultimately arm officers with information they need to protect their citizens using cloud-based Amazon Web Services. CommandCentral Vault also acts to eliminate manual, time consuming processes from digital evidence management. Anything that is associated with the video — the officer’s name, the location, the time, the incident type — become searchable meta-markers. There is even logic that can be associated to further tag content to automate the retention of the content.

Finally, CommandCentral Vault requires less time and energy from personnel in the management of the files. Napolitano said this is because using the Si500 body-worn cameras allows the officers to do classifications in the field in real time on the device itself without the use of a secondary device such as a smart phone. This eliminates the need for officers to spend time in front of a computer to annotate their video.

“For example, if an officer has a classified video as petty larceny, and petty larceny has a retention policy of 90 days, as soon as the officer tags it as petty larceny and no one requests that video within 90 days, it’s going to automatically get deleted,” he said. “That allows them to manage the storage cost or that overall evidence very seamlessly with a minimum amount of IT needs.

All of these components together place Motorola’s Digital Evidence Management Solution as one of the key ways to run a body-worn camera program, including its high-quality radio speaker-microphone touchscreen interface and reliable video cloud-based storage and management solution. Consider it to help manage the deluge of video evidence from BWC and other devices facing your department.

Doug Wyllie is a PoliceOne contributor who provides police training content on a wide range of topics and trends affecting the law enforcement community. Doug has authored more than 1,000 articles and tactical tips and is a member of International Law Enforcement Educators and Trainers Association (ILEETA), an Associate Member of the California Peace Officers’ Association (CPOA), and a member of the Public Safety Writers Association (PSWA).

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**NEED A WAY TO TRACK YOUR BWC COSTS?**

**CHECK OUT THIS CALCULATOR**

Check out this Digital Evidence Management Solution Cost Calculator to determine the budget you will need for a body-worn camera program. Just enter the number of cameras that your agency intends to buy, total number of officers who will use cameras and other data points. Click ‘calculate’ and the calculator provides estimates on the number of terabytes of storage that will be needed, the upfront equipment costs and more.
There is no question that the cyber threat is real for state, local and federal law enforcement agencies. According to a report by the University of San Diego, in addition to hackers looking to profit through the theft of critical data, “entire nation states are now using their cyber skills to infiltrate other governments and perform attacks on critical infrastructure.”

With the advent of on-officer video cameras, law enforcement agencies are dealing with an explosion of data that needs to be stored, managed, secured and safely shared with criminal justice partners and defense attorneys. This data is a top target for so-called “hacktivists,” state actors, terrorist organizations, international criminal organizations and others.

Certainly, digital evidence had existed before body-worn cameras – everything from dash-camera footage to computer files to mobile phone records – but the growth in volume over the past decade has been exponential.

While departments face the same challenges any entity faces regarding the protection of critical information, the odds of data being corrupted, stolen and held ransom are greater than ever before. Here are some questions agencies should address to assess risks:

1. What are some of the threats departments face in regard to protecting digital evidence?
2. What are some of the safeguards departments need to use to preserve chain of custody for digital evidence?
3. What other issues should departments consider as they add body camera files to their already massive databases of evidence?
Meeting cyber threats with force

One of the most dangerous cyber threats to police agencies is ransomware, a malicious software that attempts to break into as many storage systems as it can, steal (or copy) the data and then shut down the original servers so the data cannot be accessed until a ransom is paid.

Malcolm Palmore – who serves as assistant special agent in charge, Cyber Branch, at the San Francisco Office of the FBI – says that the challenge for any business or public sector entity is making investments in their digital or networked environments and prioritizing security.

“Departments must prioritize their digital posture – their protection against cyber threats in particular – as a priority and then hire professionals capable of building an architecture or delivering solutions that answer the mail on business operations,” Palmore said. “This is hard when you don’t properly prioritize the risks associated with diving into the digital arena. There is a cost to operate at these increasingly digitized levels. If a department takes steps early on to ensure adherence to information security fundamentals they will be in good shape.”

When it comes to safeguards departments can use to protect digital evidence and ensure chain of custody is maintained, Palmore says forensic chain of custody practices can be adapted to the digital environment. These long-standing procedures and protocols generally work well with digital evidence like body camera footage.

“The key is being able to attest to the integrity of the data being presented. The information security triangle, comprised of Confidentiality-Integrity-Availability, holds true for law enforcement in this realm as well. Typical practices include the capture or imaging of data/information in a format that allows it to remain in its original state and preserved as such for the purposes of future testimony,” Palmore said.

Leveraging the cloud and security professionals to prevent a cyber attack

Palmore explained that one of the ways agencies are protecting digital evidence is by leveraging the services of companies that provide secure cloud storage. A variety of body camera companies offer their own in-house cloud storage solution or work with a third-party vendor like Amazon Web Services that provides cloud services to myriad private enterprises and public safety entities.

“Cloud solutions are becoming increasingly the path of choice for simplification of data storage, and it’s a money saver that allows for expandability while transferring infrastructure responsibilities to the vendor,” Palmore said. “It can be a game changer.”

Palmore explained that there are differences in protecting against cyberattack for on-premises storage versus cloud storage. Cloud storage adds a viable solution to most entities because it transfers the action of creating a protected environment to a third-party vendor. However, the cloud does not alleviate the data owner of the responsibility to ensure the data is protected.

For on-premises data storage, Palmore said that agencies should consider hiring cybersecurity professionals to handle risk assessment and to deploy solutions.

“Departments should ensure the individuals or companies engaged in developing their information security apparatus are properly trained with a proven track record of success in the digital technologies or cyber security arena. Some departments may think they can accomplish these tasks in-house and ‘on the cheap.’ I would advise against it.”

{ This data is a top target for so-called “hacktivists” ;}
It behooves any agency with digital evidence to double check its vulnerability sooner rather than later to prevent an exposure.

**Doing a cyber threat self-assessment**

Agencies can leverage a program called the Cyber Resilience Review, offered by the United States Computer Emergency Readiness Team within the Department of Homeland Security. DHS says that the Cyber Resilience Review is a “no-cost, voluntary, non-technical assessment to evaluate an organization’s operational resilience and cybersecurity practices.”

The Cyber Resilience Review can be conducted as a self-assessment or as an on-site assessment facilitated by DHS cybersecurity professionals.

Whether or not you elect to go with a Cyber Resilience Review, or a security professional from a company specializing in cyber security, it behooves any agency with digital evidence to double check its vulnerability sooner rather than later to prevent an exposure.

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85% of officers receive less than 2 hours of BWC training.

We can help you determine if a body-worn camera program is right for your department and how to prepare your personnel to effectively use their devices through scenario-based courses in our complete training solution.
New research involving body camera footage explores situational and dynamic factors associated with decision-making and efficacy of police training

By PoliceOne Staff

In spite of the potential benefits of using body-worn camera footage to improve community interaction, increase officer safety and evaluate training, police departments are only minimally using the information available at their fingertips. The crux of the problem comes down to time: It is impossible for agencies to dedicate the manpower required to review hundreds of thousands of hours of footage generated by body-worn cameras.

Criminal justice experts at Washington State University (WSU) are hoping to solve this problem by using advanced scientific tools and techniques – such as data analytics, biometrics and machine learning – to examine the complex factors that shape interactions between police and community members.

Researchers in the new Complex Social Interaction (CSI) laboratory at WSU are designing algorithms and software that analyzes body-worn camera footage. Led by Dr. David Makin, the research team includes Dr. Dale Willits within the Department of Criminal Justice and Criminology, Dr. Rachel Baily within the Murrow College of Communication, and Dr. Bryce Dietrich from the University of Iowa, Iowa Informatics Initiative (UI3).

Since its launch early this year, the lab has analyzed more than 2,000 interactions between the police and community members and numerous records from law enforcement incidents to identify, code and catalog key variables associated with a range of outcomes, positive to negative. Location, lighting, time of day, number of people present, gender, race, verbal and physical stress, and intensity of the interaction are among the contextual factors assessed.
As a technologist, I adamantly believe we can reduce risk, enhance officer performance, and improve officer health and safety by converting body-worn camera footage into actionable data. We have been using machine learning and artificial intelligence to help agencies make the leap from having footage to having data.

For example, we are developing a classifier that allows agencies to scan footage for specific types of incidents. Let’s say we have an intensity classifier, so if you wanted to know which incidents are really intense, you could run a scan on thousands of hours of footage and pull up the incidents that are outliers among hours of benign incidents. Then when you view those calls, you can see problems developing early on during the response. Agencies can ask questions like:

- Why is this becoming more intense?
- What could we do to reduce the intensity?
- Does verbal de-escalation training work?
- Does CIT work?
- Does having police officers go through implicit bias training change their behavior in the field?

From an officer’s perspective, we know that early intervention is key, but if you use your body-worn camera footage as a risk management tool only after something bad happens, then you miss all the steps that lead to “bad outcomes” that could be used as predictors ahead of time.

How did you make the decision to analyze use-of-force incidents?

We started with use-of-force projects as most of the research out there merely looks at whether use of force occurred and does not consider how it occurred.
If you think about force and the sequence of events, you can measure the time of events: How quickly use of force occurred during the interaction, how long police officers applied force and the severity of the force applied. This changes how we think about force.

You could look at an agency’s data to see if officers are disproportionately using force against a particular group, but when you analyze how the use of force happens, you see all of those instances were legitimate uses of force. That is an entirely new story for an agency to be able to tell: We are doing everything in a legitimate, open and transparent way.

The other side of this is you can look at an agency’s data where it appears they are not using use of force disproportionately, but when you analyze their footage at this microsocial level, you identify they are vastly quicker to deploy force with certain groups.

You can also show an officer is using force in a way counter to how they have been trained. If we can intervene in that and say to a department, “This officer is incorrectly applying an LVNR and is using a dangerous technique,” it offers opportunities for training interventions.

We are currently finalizing a series of studies associated with use of force. We published the results of the first study earlier this year in the Journal of Research in Crime and Delinquency. The second explores intensity states and use of force. The third examines situational, environmental and behavioral factors associated with police and suspect emotional states. The final study examines severity and timing of use of force.

What has surprised you most about your findings?

Using our intensive coding process, we analyzed over 5,000 hours of police interactions. From that analysis, we are starting to see certain police officers display qualities we want to learn more about.

In some situations, based on our data, everything would suggest that use of force would occur, but we have been able to identify officers who are effective de-escalators with remarkable interpersonal skills. If we have years’ worth of their footage analyzed, we can see whether we developed these skills during training programs, whether the skills come through experience or whether those police officers are just innately effective verbal communicators.

We code over 100 time permit variables. We look at how long the officer spoke, how long the suspect spoke, any community conversation and how often there were interruptions. We can look at the totality of the interaction, which opens up entirely new approaches for a risk management program. This is no different from what we have done for decades with an FTO program, where field training officers supervise new recruits.

You will be generating your own research footage via cadets enrolled in WSU’s Police Corps program this fall. Can you tell us about that initiative?

Policing is about protocols. We train officers and cadets to do very specific things every single time. When we train, we have key performance indicators for any given interaction. For example, there are five things that must occur on every high-risk traffic stop or three things you must do when you conduct a search and seizure. These things vary based on state law and how agencies interpret it, but all agencies have these KPIs.

We are developing KPIs associated with police training that we will field this fall in a police cadet training program. KPIs are dichotomies – they are
either the officer did this or they didn’t – so working with the cadet training officers, we can develop a series of classifiers that look for specific KPIs to show training progress.

Axon provided me with access to 60 body-worn cameras and storage to outfit the cadet program and generate footage. We use machine learning and artificial intelligence to teach computers how to look for things in video. One of the problems you run into when you develop a classifier is you need a massive amount of data as you need iteration upon iteration of different objects and viewpoints.

Working with agencies, use of force in the field is rare, so trying to develop a classifier around use of force to detect it in body-worn camera footage can be challenging, as you do not have enough data to teach the computer.

With the cadet program, they go through use-of-force training and have mock exercises and drills that allow us to generate footage from multiple perspectives with different camera settings, viewpoints and mounting options. This allows us to speed up the development of tools agencies can use to automate analysis of the footage.

What we hope to do is deploy these KPIs at the agency level. From a risk management perspective, you would be able to automate the analysis of, for example, high-risk traffic stops, and then see how often officers are meeting the KPIs for these stops. The cadet program will allow us to automate analysis of body-worn camera footage so it becomes actionable data from a risk management perspective.

When I ask police chiefs if they would want to know that 40 percent of the time during high-risk traffic stops their officers are making mistakes that put themselves and others at risk, they all nod their heads. Our research is about creating a baseline so we know how an agency is performing by its own benchmarks. If we know certain interactions can escalate into situations where use of force is required, we can develop training that enables police officers to handle these calls. Right now if you look at the research in policing, we do not know if this is the case. We assume all our training works, but if it doesn’t change behavior in the field, then why are we doing it? If it is “check-the-box” training, we are wasting money and time and police officers will view training as just perfunctory. At the end of the day, training has to impart new skills and, with this research, we can validate if training is working.

How can police departments implement the findings of your research?

It is one thing to have video footage; it is something entirely different to help agencies automate the analysis. Even something as basic as answering the question of, “What type of videos should I look at?” would be extremely valuable to a patrol sergeant. Being able to automate the analysis so at the end of the week a sergeant receives a notification that there are 20 videos to review instead of 400 is how we will move policing into the 21st century.

For more information, contact Dr. Makin at dmakin@wsu.edu.
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Policing in the Video Age
Few forces are impacting law enforcement like video, which is shaping training, policy, community relations, and creating major technology challenges even as it solves problems.

Coptics: The optics of policing in the digital age
Police departments should integrate digital tools like video clips, digital marketing and social media to build their brand.

How to ensure proper chain of custody with digital video evidence
Agencies must ensure that video evidence – particularly video that was not collected by the on-officer camera – has not been doctored or edited.

How police agencies are handling policy and training in the video age
We asked our audience to weigh in on topics like body-worn camera training and policy for the release of video to the public.

BODY CAMERA PRODUCT ORIGINALS

When body-worn cameras become a matter of the courts
While the use of BWCs by police is still relatively new, there have already been a number of legal cases tied to complex issues surrounding the tech.

How to make body cameras a reality for a small police department
Software-defined storage allowed the Orchard Park Police Department to deploy body-worn cameras.

To record or not to record: When should cops turn on their body cameras?
One of the most critical components of any policy is determining when an officer should activate the camera and audio.

How to build a successful BWC program for your agency
Get insider tips from Boulder County on how to plan a BWC program to make sure you don’t miss a step.

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