

El Dorado County Sheriff's Office

Body Worn Camera Evaluation

April 2021

The matter of video evidence for law enforcement agencies has never been more topical than it is today. Body worn cameras (BWC) and other audio/video field recording technologies have proven to increase transparency and credibility as well as reduce false citizen complaints and liability.

The El Dorado County Sheriff's Office (EDSO) is evaluating BWCs for patrol deputies and some specialty units. However, BWCs have significant costs associated with implementation, data storage, and maintenance. Pursuant to new legal requirements, there are also additional labor costs required for the manual redaction of audio and video media.

BWC History

A BWC is a small, battery powered camera typically worn on the deputy's uniform at chest level. The camera would capture incidents from the deputy's point of view with high definition video and sound. There are several methods of activation and each camera can store several hours of data. The data would be uploaded anytime the device is connected to EDSO WiFi. The data is automatically transferred to a server that is housed at EDSO.

There are many recent examples of strong public reactions to law enforcement incidents across the country. The public often lacks the basic facts and the context of the circumstances of these incidents necessary to make reasoned opinions. BWCs do not provide the totality of the facts and circumstances of any incident, however they frequently help provide a clearer picture of a certain event. The result is a more informed and involved community which will ultimately strengthen the trust between EDSO and the citizens of El Dorado County.

Current Research

The increasing use of body-worn cameras by law enforcement agencies has significantly outpaced the body of research examining the relationship between the technology and law enforcement outcomes. As detailed below, although early evaluations of this technology had limitations, some notable recent research has helped advance our knowledge of the impact of body-worn cameras.

In a 2014 study funded by the Office of Justice Programs Diagnostic Center, researcher Michael White noted that earlier evaluations of body-worn cameras found a number of beneficial outcomes for law enforcement agencies. The earliest studies conducted in the United Kingdom indicated that body-worn cameras resulted in positive interactions between officers and citizens and made people feel safer. Reductions in citizen complaints were noted, as were similar reductions in crime. The studies found that the use of body-worn cameras led to increases in arrests, prosecutions, and guilty pleas. From an efficiency standpoint, the use of the technology reportedly enabled officers to resolve criminal cases faster and spend less time preparing paperwork, and it resulted in fewer people choosing to go to trial.

Studies that followed in the United States also provided support for body-worn cameras; however, several of them were plagued with dubious approaches that called the findings into question. According to White, the few studies that were conducted between 2007 and 2013 had methodological limitations or were conducted in a manner that raised concerns about research independence. For example, several studies included small sample sizes or lacked proper control groups to compare officers wearing body-worn cameras with officers not wearing them. Some studies were conducted by the participating law enforcement agency and lacked an independent evaluator. Finally, a number of the studies focused narrowly on officer or citizen perceptions of body-worn cameras instead of other critical outcomes, such as citizen compliance and officer or citizen behavior in instances involving use of force.

Over time, scientific rigor improved, and studies conducted in U.S. law enforcement agencies produced findings that indicated promising support for body-worn cameras. For example, in 2014, researchers at Arizona State University (funded through the Bureau of Justice Assistance's Smart Policing Initiative) found that officers with body-worn cameras were more productive in terms of making arrests, had fewer complaints lodged against them relative to officers without body-worn cameras, and had higher numbers of citizen complaints resolved in their favor. Another study conducted with the Rialto (California) Police Department noted similar decreases in citizen complaints lodged against officers wearing body-worn cameras as well as decreases in use-of-force incidents by the police. In addition, Justin Ready and Jacob Young from Arizona State University found that officers with body-worn cameras were more cautious in their actions and sensitive to possible scrutiny of video footage by their superiors. Also, contrary to initial concerns, officers who wore cameras were found to have higher numbers of self-initiated contacts with community residents than officers who did not wear cameras.

Recent randomized controlled trials, which are considered the scientific gold standard for evaluating programs, have also been conducted on body-worn cameras. Of the various scientific methods available, these trials have the greatest likelihood of producing sound evidence because random assignment is able to isolate a specific treatment of interest from all of the other factors that influence any given outcome. In a 2016 global, multisite randomized controlled trial, Barak Ariel and colleagues found that use-of-force incidents may be related to the discretion given to officers regarding when body-worn cameras are activated during officer-citizen encounters. The researchers found decreases in use-of-force incidents when officers activated their cameras upon arrival at the scene. Alternatively, use-of-force incidents by officers with body-worn cameras increased when the officers had the discretion to determine when to activate their cameras during citizen interactions.

In 2017, with NIJ (National Institute of Justice) support, researchers from CNA conducted a randomized controlled trial on 400 police officers in the Las Vegas Metropolitan Police Department. The research team found that officers with body-worn cameras generated fewer use-of-force reports and complaints from citizens compared to officers without body-worn cameras. Additionally, officers with body-worn cameras issued higher numbers of arrests and citations compared to officers without body-worn cameras. (Chapman, 2018)

Agency Evaluations

- **Palo Alto Police**

The Palo Alto Police Department is currently using a Watchguard ICV (In Car Video) system equivalent to the ones being used by EDSO. Palo Alto is using an older version of the Watchguard BWC called Vista and is currently planning a move to the Watchguard V300s. The disadvantages of their current BWC's include batteries that do not last an entire shift and the lack of WiFi downloading. The move to Watchguard V300 would solve both of their problems. Palo Alto has 60 Vista BWC in operation which is enough to outfit each police officer who is on shift. Once the shift is over, each police officer turns the camera in to a charging kiosk. As a new shift comes on, they will check out a BWC from the kiosk. This has been problematic because the batteries never get fully charged and accountability for damaged equipment is not as good as it could be.

Palo Alto has one non-sworn FTE assigned to handle maintenance, video storage, and redactions for the agency. Although once a redaction is complete, it is passed along to a second employee for review and confirmation. (Furtado, 2020)

- **Elk Grove Police Department**

EGPD uses the Watchguard BWC system and recommend that EDSO retrofit and upgrade to the V300 system for ease of transition, cost savings, and proven quality. As an agency, EGPD is satisfied with the product and are on their third iteration of upgrading with this company. However, EGPD is not satisfied with the redaction software produced by Watchguard

and are looking for alternatives. EGPD has issued 165 BWC to all sworn staff and have recently been issuing BWC to non-sworn staff in the field.

EGPD have found they received a similar number of BWC requests as they had for ICV requests. EGPD indicated that more requests are happening now due to a change in the political climate. They have been happy with their implementation and discovered storage costs have been less expensive than anticipated. EGPD uses seven IT personnel to handle all the redactions associated with BWC's. These FTE's were not added as a result of the BWC program. (Corcoran, 2020)

- **South Lake Tahoe PD**

SLTPD has recently been approved to implement a BWC program. Included in their approval, SLTPD has added 1 FTE for an IT employee. The goal is to have this FTE split time between redaction and other IT jobs including BWC maintenance. SLTPD ordered Axon brand BWC for all 42 sworn employees with an initial startup cost for equipment and installation at approximately \$170,000. SLTPD has estimated annual costs of \$188,775 which includes BWC maintenance and 1 FTE IT employee. (Laney, 2020)

- **Bakersfield Police Department**

Every sworn officer for Bakersfield PD (BPD) including the Chief of Police is issued an Axon brand body worn camera. They have issued approximately 430 in total. BPD says that they are inundated with PRA requests on BWC's and are evaluating how many FTEs they will need to employ to meet this new need. At present, BPD has two police records specialists and one supervisor assigned to PRA requests. The police records specialists handle the technical work and the redactions. The supervisor ensures that each video is redacted properly before release. BPD estimates that it takes approximately six hours of work for each one hour of BWC video.

As an added incentive of their BWC program, BPD releases "Community Review Videos" on major incidents within 10 days. This video is made to narrate the totality of the facts to better communicate with the public. They have found that when the media/community knows a review video is imminent, PRA requests remain manageable. Once it is released, they receive fewer requests for the entire video.

BPD issues two cameras/batteries to each officer. Because officers go in service from home, they would prefer them to leave one camera at the end of shift to charge/download and have another one ready to go for the next shift. This would not be a problem for EDSO if Watchguard BWC's were used. The proposed Watchguard V300 BWC's have a battery that will last a full 12-hour shift and will download video to servers without a docking station. This is the same process EDSO employs with the current ICV. (Pacheco, 2020)

- **Red Bluff Police Department**

RBPD implemented a BWC program nearly seven years ago which includes issuing a BWC to all 25 sworn allocations. Prior to moving to Viewu brand BWC, RBPD was solely using ICV like EDSO. RBPD decided to move away from ICV and only use BWC, mostly for cost saving

reasons. RBPB is on a limited budget and felt they could have more coverage if officers had BWC at all times vs. having the ICV. RBPB agreed that having both systems would be ideal, but with limitations on staffing and overall funds, it is not possible.

RBPB has one FTE police technician who is responsible for PRA requests that involve video redactions. After the video is redacted by the technician, it is reviewed by a supervisor for release. RBPB is using Veritone redaction software and have been very happy with the product. RBPB believes the comprehensiveness of Veritone is saving them substantial time and money. (Hansen, 2020)

Potential Benefits

Proponents of body-worn cameras point to several potential benefits.

- **Better Transparency**

First, body-worn cameras may result in better transparency and accountability and thus may improve law enforcement legitimacy. In many communities, there is a lack of trust and confidence in law enforcement. This lack of confidence is exacerbated by questions about encounters between officers and community members that often involve the use of deadly or less-lethal force. Video footage captured during these officer-community interactions might provide better documentation to help confirm the nature of events and support accounts articulated by officers and community residents.

- **Increased civility**

Body-worn cameras may also result in higher rates of citizen compliance to officer commands during encounters and fewer complaints lodged against law enforcement. Citizens often change their behavior toward officers when they are informed that the encounter is being recorded. This “civilizing effect” may prevent certain situations from escalating to levels requiring the use of force and also improve interactions between officers and citizens.

- **Quicker resolution**

Body-worn cameras may lead to a faster resolution of citizen complaints and lawsuits that allege excessive use of force and other forms of officer misconduct. Investigations of cases that involve inconsistent accounts of the encounter from officers and citizens are often found to be “not sustained” and are subsequently closed when there is no video footage nor independent or corroborating witnesses. This, in turn, can decrease the public’s trust and confidence in law enforcement and increase perceptions that claims of abuse brought against officers will not be properly addressed. Video captured by body-worn cameras may help corroborate the facts of the encounter and result in a quicker resolution. (Chapman, 2018)

- **Corroborating evidence**

Footage captured may also be used as evidence in arrests or prosecutions. Proponents have suggested that video captured by body-worn cameras may help document the occurrence and nature of various types of crime, reduce the overall amount of time required for officers to complete paperwork for case files, corroborate evidence presented by prosecutors, and lead to higher numbers of guilty pleas in court proceedings. (Chapman, 2018)

- **Training opportunities**

The use of body-worn cameras also offers potential opportunities to advance policing through training. Law enforcement trainers and executives can assess officer activities and behavior captured by body-worn cameras — either through self-initiated investigations or those that result from calls for service — to advance professionalism among officers and new recruits. Finally, video footage can provide law enforcement executives with opportunities to implement new strategies and assess the extent to which officers carry out their duties in a manner that is consistent with the assigned initiatives. (Chapman, 2018)

Effectiveness

In November 2018, the Bureau of Justice Statistics (BJS) published a report on the use of body-worn cameras by law enforcement agencies in the United States in 2016. This report showed that:

- 47% of general-purpose law enforcement agencies had acquired body-worn cameras; for large police departments, that number is 80%.
- Among agencies that had acquired body-worn cameras, 60% of local police departments and 49% of sheriffs' offices had fully deployed their body-worn cameras.
- Overall, in agencies that had acquired body-worn cameras there were 29 body-worn cameras in service per 100 full time officers (expected to increase to 50/100 by late 2017).
- About 86% of general-purpose law enforcement agencies that had acquired body-worn cameras had a formal body-worn camera policy.
- Agencies not using body-worn cameras stated cost (hardware acquisition, video storage, system maintenance) to be the primary disincentive.

According to the BJS report, the main reasons (about 80% each) that local police and sheriffs' offices had acquired body-worn cameras were to improve officer safety, increase evidence quality, reduce civilian complaints, and reduce agency liability. (NIJ, 2017)

Research does not necessarily support the effectiveness of body-worn cameras in achieving those desired outcomes. A comprehensive review of 70 studies of body-worn cameras use found that the larger body of research on body-worn cameras showed no consistent or no statistically significant effects.

These mixed findings are further reflected in findings from evaluations of five body-worn camera programs that have met the stringent criteria for inclusion in NIJ's CrimeSolutions. Across these evaluations, researchers looked at a range of outcomes, including use of force, citizen complaints, arrests, and assaults on officers. (NIJ, 2017)

Three of the body-worn cameras programs were rated Promising —

- In Birmingham, UK, evaluators found that deploying body-worn cameras resulted in a statistically significant reduction in citizen injury, but no statistically significant reduction in officer use of force or injury.
- In Rialto, CA, evaluators found a statistically significant reduction in police use-of-force but no significant difference in citizen complaints.
- In Las Vegas, Nevada, an evaluation of the Metropolitan Police Department's use of body-worn cameras revealed that the use of body-worn cameras resulted in a statistically significant reduction in both complaints and use of force.

Two of the body-worn camera programs evaluated were found to have no effect or even negative effects —

- In Washington, DC, evaluators found no statistically significant differences in police use-of-force, nor the number of citizen complaints.
- A multi-site evaluation of eight departments in the US and the UK found, overall, no statistically significant differences in police use of force, number of citizen complaints, or number of arrests for disorderly conduct for police officers who wore body-worn cameras, compared with officers who did not wear them.

Based on these reviews and the existing research on the impact of body-worn cameras use, it is clear that further research is essential to determine the value of body-worn cameras use and potentially the more effective ways body-worn cameras could be deployed. Given the growing use of body-worn cameras, it would be best to build in rigorous evaluations as law enforcement agencies expand their use of this technology. (NIJ, 2017)

Challenges

Redaction of BWC Footage

Technology is an important part of law enforcement. Our criminal and administrative investigations include evidence such as videos, images, and audio recordings created by EDSO and by the public. With the introduction of in-car cameras, the amount of digital media evidence has increased significantly. Should EDSO choose to add BWCs, this would further increase the percentage of media-based evidence. Redactions of footage have hidden costs for both software and labor.

Transparency laws such as The California Public Records Act (GC § 6250) have resulted in the release of all "writings" which include documents, audio, video, and images maintained by EDSO. Digital video media, as defined in EDSO Records Procedure 16-03, is a "record" that is owned, used, or maintained by the Sheriff's Office in the conduct of its official business. Videos maintained by the office (with several exceptions listed in 6254 GC and within the penal code related to victim/witness protection) must be released upon request. Therefore, EDSO is obligated to deliver these media files.

The Public Records Act allows agencies to charge only for the "direct costs of duplication, or a statutory fee if applicable." That means that agencies can charge for the costs of paper and ink, or for the disks or drives on which they provide data but cannot charge for the time their staff spends finding records, making copies, or even redacting documents.

On May 28, 2020, the California Supreme Court in *National Lawyers Guild v. City of Hayward* (a case brought by the ACLU of Northern California) rejected this argument and held that the Public Records Act does not allow police departments to charge requestors of police body camera footage for the staff time required to locate that footage and edit it to redact audio & video to remove private information. Essentially, EDSO would not be able to recover costs associated with CPRA requests and BWC redactions.

The United States Constitution does not explicitly mention privacy. The right emanates from other constitutional protections, namely the Fourth Amendment's protection against unreasonable searches and seizures. The Fourth Amendment provides, in relevant part, that "[t]he right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated" except where there is a search warrant based on probable cause. Accordingly, the Fourth Amendment only prohibits "unreasonable" searches and seizures. Under the Fourth Amendment, a search occurs when a government employee or agent violates an individual's reasonable expectation of privacy. This is a two-pronged test: 1) the person subject to search expects privacy in the thing searched, and 2) that expectation is reasonable.

In the landmark case *Katz v. United States*, the Supreme Court held that the Fourth Amendment protects against government searches when an individual has a "reasonable expectation of privacy." Numerous subsequent Supreme Court rulings recognize a constitutionally protected privacy right, particularly with regard to the protection of personal information from unwarranted government access and disclosure, and decisions individuals make about their personal conduct. As of the date this report is completed, there have not been any legal challenges raised to body worn cameras under Fourth Amendment rights. However, courts have adopted the general rule that camera recordings do not implicate the Fourth Amendment. In *United States v. Mancari*, the court ruled "visual images of a scene by means of photography do not amount to a seizure because it does not 'meaningfully interfere' with any possessory interest." Likewise, it has been found that officers who take photographs of items "that were visible [in plain view] during the scope of the initial welfare search" were

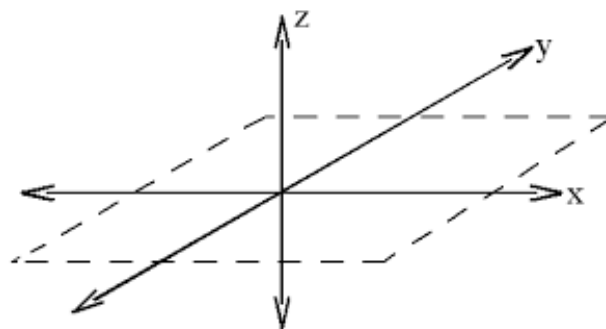
legally seized. Furthermore, the U.S. Supreme Court has ruled that law enforcement officers may generally record footage that they can lawfully see and hear without violating the Fourth Amendment.

Generally, video surveillance cameras are authorized in the United States as long as they do not intrude upon a person's Fourth Amendment right to privacy. Because the United States Supreme Court has decided in a long line of cases that there is no expectation of privacy in a public place, it follows that a person in public places cannot have a reasonable expectation of privacy from video surveillance cameras. Since the ruling of the Katz case, almost all federal courts have held that federal law does not prohibit silent video surveillance. (Vivian Hung, 2016)

With the implementation of the recent 2018 Senate Bill 1421, public access has significantly increased over the past three years. This law is expected to expand further as additional transparency laws have been introduced. However, the law enables law enforcement to redact sensitive items from media files including but not limited to:

1. Peace officer/custodial officer personal address, phone, email, familial information, and medical information.
2. Victim names, addresses, likeness or identifiers, contact information, familial information, and medical information, any juveniles, and any whistleblowers.
3. Protected and confidential information including financial or medically protected information.
4. Information regarding peace officer tactics or facility security that may compromise officer safety.

EDSO's current and primary source of video evidence is the in-car MAV system consisting of three cameras and one audio track. These cameras are affixed to the vehicles and only change in point-of-view when the vehicle is moved. Another main source of stable video evidence comes from surveillance cameras. They typically point in one direction making movements easy to track. Footage from a stable position (MAV and surveillance) includes footage in which only the person is moving within the same or predictable XYZ plane. (Engelbrektsen, 2020)



In contrast, some video evidence comes from unstable platforms. Although less common, video from unstable sources like handheld cameras and helicopters can be found in EDSO records. Footage from unstable sources have two points of movement. Both the camera and the object being filmed are in motion resulting in constant movement along the XYZ planes. Because the camera and the object are both in motion, the movements are unpredictable and harder to track. Body worn cameras are an example of an unstable video source because the deputy and the person are both in constant motion.

Redacting stable footage is relatively simple as the minor changes along the XYZ plane are predictable and subtle requiring fewer redactions per minute. Contrarily, unstable footage dramatically increases the number of redactions per minute. For example, a one-minute, wall-mounted, stable security video containing 60 frames per second may result in 50 redactions. The same view from a body worn camera on the chest of a moving deputy could result in 300-500 redactions depending on the severity of movements.

EDSO's current method of redacting video is with a \$60 piece of consumer level video editing software. It is not sophisticated although the result is acceptable. It is a manual program with no automation. In other words, the redactor must go frame-by-frame and move the "blur" to properly conceal the protected information. It is very time consuming, however it is reasonable considering the low percentage of unstable footage currently requiring redaction. There are several automated programs that auto-detect and track commonly redacted items like faces and license plates. These programs, while saving in labor costs and time spent redacting, come at a steep price.

The introduction of body worn cameras as standard practice will inevitably result in a higher percentage of unstable footage and therefore, a larger impact on redaction time. The introduction of automated video detection software would be mandatory given the increased time required to manually redact an unstable video.

Veritone is a company that specializes in Artificial Intelligence and markets Criminal Justice Information Services (CJIS) secured, cloud-based detection software that automatically detects faces, license plates, and computer screens. The software provides users with the flexibility of customizing those items requiring redactions and those that cannot. In several demonstrations involving body worn cameras, the software automatically tracked faces despite the unstable footage. In a sample vehicle stop video, Veritone detected all faces, all plates, and all screens. It also transcribed all audio and allowed the user to search keywords and mute them all. The three-minute video clip required only ten minutes of adjusting. It is estimated the same clip would take an hour to redact manually. Veritone charges by the number of video hours uploaded. Their most popular law enforcement package includes 250 hours of uploaded/redacted footage a year for the price of \$22,500 annually.

Equipment and Staffing

The Sheriff's Office recognizes BWC technology is rapidly evolving. The high costs of a BWC system includes but is not limited to integrating the system with the current working environment, office space for equipment, additional staff, software and hardware, technology infrastructure, digital storage, staff training, and managing resources. Additional staff will need new office space and equipment that will support BWC system redaction software. A third-party installer will be required to add BWC charging ports, wireless upload cradle, and related equipment to each of the patrol vehicles. It is anticipated it will take five hours of labor to retrofit one patrol vehicle.

The industry standard and expectation of EDSO is that each BWC unit has a life expectancy of five years so the initial BWC system will be maintained and in-service for at least five years. EDSO desires a BWC product that also includes:

- A system compatible with the current in car video (ICV) systems (Watchguard).
- A battery that lasts the deputies shift of at least 12 hours.
- Integration with Active Directory and (Computer Aided Dispatch/ Records Management System) CAD/RMS systems.
- An after-the-fact recording option permitting users to capture video from events days after the event happened regardless of camera activation.
- A system able to secure evidentiary data with the FBI's Criminal Justice Information Services (CJIS) compliant storage and encryption.
- A BWC that can potentially save millions of dollars in litigations costs.

Network Infrastructure

The BWC system will utilize the department's WiFi network infrastructure located in the main building and parking lot. Uploading and storing the videos will require additional Wireless Local Area Network (WLAN) access points, network switches, and disk storage array. An auxiliary upload base station at the frequented areas in the South Lake Tahoe Office and the Jail is another efficient method of uploading BWC videos when the WLAN is not readily available. These systems will be required for the operation of BWC's.

Digital Evidence Management System

A Digital Evidence Management System is a software system that manages and stores digital videos. Adding the high-definition BWC to the current in car camera system will add gigabytes or terabytes to each video activation. A single BWC activated periodically throughout a 12-hour shift results in a massive amount of data that requires considerable processing and storage. The sheer volume of data could hamper the ease of retrieval if the current storage systems are not upgraded. EDSO will need to expand the existing on-premises servers. EDSO's in car video system is in its 6th year and will require a storage expansion and software update to accommodate the storage and management of the BWC videos.

Workstations and Office Space

In addition to storage costs, maintaining and sharing video data requires hiring additional staff to review and redact footage, categorize incidents appropriately, and to fulfill public information requests by legal professionals, media organizations, and members of the public.

Rendering audio and video are one of the most tasking operations a computer can perform. As a result, EDSO will be required to add desktops for the support staff with capability to accommodate the BWC functionality. At minimum, desktop computers with faster processors, better graphic cards, and increased memory will be required for the staff assigned to redact the BWC video.

Software Maintenance

In conjunction with the vendor support and maintenance agreement, EDSO's Information Technology Staff will manage, support, and maintain the EDSO's Digital Evidence Management System.

Vehicle Hardware

A third-party installer will perform the hardware installation and maintenance of the BWC hardware components within the vehicles including the charging and upload base, antennae, and interconnection to the current Cradlepoint system.

Redaction Software

The public's privacy and safety are maintained by protecting his or her Personally Identifiable Information (PII). Redaction is used to protect an individual's information when a video incident is produced for a PRA or to aid in an investigation. Based on the preliminary review of available redaction software, EDSO staff have recommended the use of Veritone. This software would accommodate a team license and appears to fulfill all requirements including CJIS compliance.

In 2019 EDSO received 1397 PRA requests and anticipates this number to increase significantly with the addition of BWC's. The implementation of redaction software will dramatically reduce the time spent by staff working on redactions.

The Axon Body 3 Solution.

The Axon Body 3 is a rugged body worn camera that features LTE connection that enables the officer to upload the video wirelessly. Axon provides a cloud storage solution that is convenient, but the annual subscription is costly. The Axon Body 3 features hands-free activation and alerts. It also features on-device encryption. The battery lasts for the 12-hour shift and has a one-minute pre-event buffer. It can store 64 GB of recorded storage. The Body 3's design using built-in LTE uploads the videos to the cloud and does not require any equipment installed in the vehicle.

Watchguard V300 Body Camera

Since 2016, EDSO has been using the WatchGuard ICV which does not include BWC's. These cameras are activated manually by the deputy or automatically when a collision is detected, the speed threshold is exceeded, or the emergency lights are activated. The video is always recording but only marked for retention by these activations. A unique feature of WatchGuard is the ability to "go back in time" for up to 28 hours to re-capture a video incident that may be of evidentiary value but was not marked for retention. This feature has proven extremely useful in criminal and administrative investigations. The Watchguard V300 BWC has the "go back in time" ability unlike many of the other BWC brand on the market.

The WatchGuard V300 body-worn cameras work seamlessly with EDSO's WatchGuard 4RE in car video system, capturing video of a single incident from multiple vantage points and automatically synchronizing it for playback and sharing. One or more V300 body cameras and a WatchGuard 4RE in car system can work seamlessly as a single system. This allows the recording of two BWC units at the same time from one vehicle, for example a field training officer and a trainee. In our current ICV system, only one audio microphone can be synced at a time.

EDSO FTE Requirements

Creating and adding new, trained positions will be unavoidable with the move to a BWC program. EDSO has estimated four FTE positions will be needed to accommodate all the tasks and challenges associated with a BWC program and all these positions will require specialized training in the area of PRA, video processing and redaction and the law regarding PRA. The FTE breakdown is as follows:

- One full time sworn Sheriff's Sergeant with the primary task of reviewing for lawful release and completing redactions and overseeing PRA requests associated with audio and video evidence. Yearly cost: \$294,484
- One full time Sheriff's Technician to review PRA requests, review and redact audio and video evidence. Yearly cost: \$118,099
- One full time Sheriff's Technician to primarily work on PRA requests, evidence tracking, equipment upkeep and ordering associated with BWC. Yearly cost: \$118,099
- One full time Department Systems Analyst (IT) with the primary task of system maintenance and upkeep. Yearly cost: \$158,385
- Two trainings each, operation/practices and legal and annual updates for each. Yearly cost: \$32,000

Cost Breakdown

The provided cost breakdown is to outfit 175 deputy and sergeant allocations and 80 vehicles with the Watchguard V300 Body Cameras or the Axon Body 3 Cameras, upgrade network and storage systems, initial redaction software and additional personnel to effectively operate a BWC program.

	Watchguard v300	Axon Body 3
Network and Storage	\$ 32,000.00	\$ 1,028,196.00
Evidence System (ICV)	\$ 56,030.00	\$ 270,720.00
Body Camera	\$ 400,000.00	\$ 106,301.00
Vehicle Installation	\$ 88,000.00	\$ 0
Redaction(annually)	\$ 22,500.00	\$ 22,500.00
FTE (annually)	\$ 689,067.00	\$ 689,067.00
Staff Training	\$ 32,000	\$ 32,000
Total	\$ 1,319,597.00	\$ 2,148,784.00

Total Budget

Initial Budget:

Watchguard v300 \$ 1,319,597

Axon Body 3 \$ 2,148,784

Ongoing/Yearly Budget estimate:

\$ 750,000

Conclusion

With recent publicity about interactions between police officers and citizens, popularity for employing body worn cameras are proliferating exponentially. There is no indication that these BWC systems will stop advancing. Vendors are currently developing and fine-tuning next generation BWC features such as facial recognition and weapons detection. Technology should be implemented based upon agency objectives along with careful considerations of policy and legal implications. Privacy laws and constitutional doctrines related to BWC systems are evolving and these issues are unclear until they are tested in court. In addition to policy and legal implication, the BWC systems come with major cost considerations. Infrastructure, management, storage, and maintenance will all need to be factored into the decision-making process.

Each of the agencies contacted within this study have experienced differing levels of success with their BWC systems. Research would indicate that when paired with EDSO's ICV system, a BWC system has great potential to be successful. It is important to reiterate that implementing a BWC program is not as simple as choosing the best feature a law enforcement agency can afford. Implementing a BWC program touches upon many financial obligations, policy concerns, and legal implications. With proper planning, training, and implementation, a BWC program could greatly enhance the relationship between EDSO and the citizens of El Dorado County.

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