

# VIDEO SYSTEMS FOR LAW ENFORCEMENT:

How to Choose the Best Solution for Your Agency

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## Introduction

The importance of video evidence for law enforcement agencies has never been more significant than it is today. Departments equipped with video cameras experienced a significant reduction in citizen complaints, according to the U.S. Department of Justice.<sup>1</sup> Video evidence not only asserts an agency's credibility and reduces financial risks, but also increases productivity – because officers spend more time on the street and less time in court. In selecting the right solutions for your department's video needs, there are four key questions that should be addressed:

1. What video systems do you need?
2. What features are essential and what should you avoid?
3. How do you handle the big picture – video management?
4. Beyond the office – is a cloud solution right for you?

## What video systems do you need?

In-car video systems, body-worn cameras, and interview room video systems are essential to today's policing. While each system has its own specific uses, all three can - and should - work hand-in-hand to provide a complete "picture" of an incident and the department's response.

### In-Car Video System

The in-car video system is an essential tool in collecting video evidence in a patrol vehicle environment. It is irreplaceable in recording video evidence before each traffic stop is made and in clearing concerns like racial profiling. It is also critical for incidences such as Chase in Progress. Also, the credibility of in-car video is like a non-biased witness, relating not just the officer's view but the complete scenario of what exactly happened.

### Body-Worn Cameras

Body-worn cameras are specifically designed to record officer interactions in the field. A small camera, typically attached to an officer's uniform, can provide a visual and audio record of officer interaction with a subject or witness, as well as a view of the incident scene itself.

### Body-Worn Cameras vs. In-car Video Systems

The unit cost of body-worn cameras on the market ranges from several hundred dollars to \$1000 or more, with accessories. The cost is significantly less than the unit cost of an in-car video system. For departments whose officers are typically based in cars, this may raise the question of whether these less expensive devices can replace an in-car video system.

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<sup>1</sup> In a DOJ study of in-car video, law enforcement respondents to a national survey indicated that "more than half" of complaints were withdrawn when the complainant was informed that there was video of the incident: Daniel N. Rosenblatt, et.al., *The Impact of Video Evidence in Modern Policing* (Washington, DC, Office of Community Oriented Policing, 2004) p. 15. A recent DOJ-sponsored survey of body-worn cameras cites the results of several recent implementations, including Rialto, CA, which reported an 88% decrease in citizen complaints. Michael D. White, *Police Officer Body Worn Cameras: Assessing the Evidence* (Washington, DC: Office of Community Oriented Policing Services, 2014) p. 20.

Body-worn cameras do have the advantage of mobility; when conducting daily police business, there will be areas in-car video won't cover, such as activity inside of a building or outside of an in-car camera's view. However, body-worn cameras are not a replacement for in-car video, and using only body-worn cameras carries some risks and limitations you may want to consider:

1. **Coverage:** the majority of videos captured by body-worn cameras are within a few feet of the subject, making it difficult to achieve proper coverage of both the subject and surroundings. In-car camera systems, on the other hand, are designed to capture the surrounding area with stable view.
2. **Field of view:** Some body-worn cameras use a wide-angle lens to compensate for limited coverage. While a wide-angle lens expands the coverage, a fish-eye effect is inevitable; it also makes the subject appear further away from the camera.
3. **Point of view:** Body-worn cameras record the actions of the person in contact but not the officer's actions, which weakens the credibility of the evidence.
4. **Multiple perspectives:** Body-worn cameras do not record backseat activities in the car.
5. **Pre-event recording:** In-car video systems use pre-event recording to capture activities leading up to traffic stops. Body-worn cameras cannot provide such support. Although some body-worn cameras offer pre-event recording functions, limited battery life usually restricts or eliminates this feature altogether.
6. **Automatic triggers:** Triggers are one of the most valuable features of in-car video systems. Triggers initiate camera recording based on a pre-set event, such as activating the car's lightbar or exceeding a specific speed threshold. Without triggers, officers must manually turn on the camera each time, which is not just inconvenient but also dangerous in an emergency situation. This is perhaps the most important reason that body-worn cameras should never replace in-car video systems.
7. **Low-light conditions:** Nighttime video quality of a body-worn camera is usually less than satisfactory, especially when used in the car. Unless the environment is well lit, even body-worn cameras with built-in IR light only have an effective distance of a few feet.
8. **Fragility:** Unlike in-car video systems, which are fix-mounted in the vehicle and are usually securely locked, body-worn cameras are easily lost in the field.

### Interview Room Video System

Interview room video adds significant detail to any important case that might be presented in court. It is routine for law enforcement investigators to interview subjects immediately following an incident when memories are clear. Recording interviews ensures the specifics of an initial statement remain intact, as details often change or fade from memory during in-court testimony. An interview room video system is a valuable tool for your department when interviewing witnesses and potential suspects.

### What features are essential and what should you avoid?

The specific functionality required for any law enforcement video application will be driven primarily by the policies and procedures that govern how, when, and where video is captured and used. But, for each of the three video solutions, there is a set of key features that should be considered for your product evaluation and selection checklist.

## **In-car Video System**

### **Operation**

1. The camera and controls should be easy to operate. Touch screen-based systems should be considered and you should avoid systems that rely on small, hard-wired buttons.
2. If your department is in a cold weather climate, the touch screen needs to be glove-friendly. Not all touch screens support this.
3. The system should offer a data collection function. You should only consider systems that allow officers to tag videos under different events and collect essential data, such as the offender's name, driver's license, and incident number.
4. It should not rely on connecting to an in-car computer to support all the functions.
5. It should be easily mounted in the car without affecting the officer's view.
6. It should provide a wireless upload option.
7. It should provide an UPS battery to keep the voltage stable. The system should not be interrupted when the officer starts the car. An UPS battery can also keep the system running for a period of time even when the main power from the car battery is cut off in an accident.

### **Video and cameras**

1. It should provide both pre-event and post-event recording. Post-event recording is used to prove the officers left the scene after a citizen contact and can sometimes be critical.
2. Video quality should be determined by department policy. HD video provides excellent details at the cost of longer upload times and larger storage requirements. No matter what the policy dictates, you should avoid mixed resolution recordings as well as placing the responsibility of video quality selection on officers.
3. Nighttime videos should match the quality of daytime videos as much as possible, providing details needed as evidence.
4. The system should have a snapshot function. When the snapshot function is combined with pre-defined automatic zoom, license plate images can be captured, even under low-light conditions, and kept as part of the evidence. A mug-shot taken in the field can be transferred to the back office for identity verification using technologies like facial recognition.
5. The system should provide a "black-box" feature that keeps recording in the background and stores video in internal storage, even when recording is not triggered by the officer. When recording is triggered, a second copy of the incident is written to the removable media. This feature has proven to be very helpful in situations when officers didn't have a chance to react to unexpected events.

### **Audio and microphones**

1. The system should support two wireless microphones and an in-car microphone. Even if your department does not ride double, the ability to record audio from a second wireless microphone for FTOs is useful.
2. Audio selection should be flexible. If your department's policy does not allow muting the microphones, or requires all microphones be muted until the nature of the contact is identified, you should be able to configure the system accordingly.

3. In addition to starting the video and audio recording remotely, wireless microphones should offer additional functions, such as triggering the snapshot feature remotely.
4. The wireless microphone should allow an operation range of at least 1000 feet line-of-sight.

### **Body-worn cameras**

1. Ease of operation in the field is definitely the number one feature you should consider. Cameras with small, hard-to-reach record buttons should be avoided.
2. Video should not be easily stopped unintentionally, especially when there is close contact with the suspect.
3. The camera should be mounted securely, but the mounting should not restrain the officer's field activities or endanger officer safety. Good design should provide multiple mounting options.
4. The camera should visually indicate its recording mode, e.g. video and audio, video-only.
5. The camera should be compact.
6. The camera should provide a battery that matches your operation needs.
7. The camera should have a backend solution to allow easy video upload.
8. The vendor should provide a video management solution that not only manages the videos, but also tracks each camera. Camera management should be flexible enough to support either individually-assigned cameras or a shared pool of units, depending on department policy. With the latter, a tracking function should allow the department to identify which officer has a specific camera at any given time. Also, reassigning cameras should be easily done without the administrator's involvement.
9. Some non-essential body-worn camera considerations might be policy/cost driven:
  - a. Security: does your department want secured or non-secured body-worn cameras? A secured body-worn camera "locks" the recorded video and requires a special procedure to unlock it to maintain "chain of custody."
  - b. Durability: Does your operational environment allow consumer grade equipment or do you require law enforcement robust; this has a big impact on the cost.
  - c. Video Quality: Do you need HD video quality and can you afford the storage requirements?<sup>2</sup>

### **Interview Room Video System**

1. The system should support at least two cameras in a room; one camera provides an overview of the room, while the other camera zooms in on interviewees.
2. IP based cameras should be considered over traditional analog systems. IP based cameras store a backup copy of the interview on internal storage and send another copy to the network for long-term storage.
3. The system should support wall-mount buttons to start and stop the video. A record indicator light should be used to provide status of the cameras.

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<sup>2</sup> Additional functional criteria can be found in: *Primer on Body-Worn Cameras for Law Enforcement* (Washington, DC: National Institute of Justice, 2012) p. 6.

4. The system should provide a software interface for users to view or control the interview process.
5. It should provide the ability to predefine bookmarks for use during the interview by pressing function keys on a control computer.

## **How do you handle the big picture – video management?**

Selecting camera systems is just the starting point of building a video solution for your department. Choosing the right backend management system is equally, if not more, important. You should choose a vendor that is able to provide a backend software solution that: a) is capable of handling videos from all sources (in-car, body-worn, and interview room) using the same set of management rules, b) applies the same storage architecture, and c) interlinks the videos seamlessly for the end users. Dealing with different solutions for each application would be a tremendous burden in terms of support, user training and cost.

In addition, you should only consider systems that are able to import all external evidence files (e.g., video, audio, documents) and associate them with in-car, body-worn, and interview videos. Evidence associated with the same case number should have consistent storage and retention criteria; purging of evidence should be based on department policies and not require human intervention.

If your department has multiple physical locations, a system that supports inter-location data query and access is a must. Based on available infrastructure, the system should provide options for what data/media are available at central and local levels.

## **Beyond the office – is a cloud solution right for you?**

Technology advances in the past few years make “cloud solutions” feasible, even at the most data intensive level. The term “cloud solution” refers to anything that involves delivering services over the Internet. Services may include licensed software or outsourced equipment used to support operations, including a server, storage, and networking infrastructure. With a cloud solution, you can select the appropriate services provided by your video system vendor. For example, you can allow the vendor to host the video server while storing some or all of your videos locally. Or, you can host your own video server, but use cloud storage for videos.

To decide if a cloud solution is best for you, consider the following:

1. If your department does not have the personnel, budget, or interest to handle a video server, a cloud-based server solution might fit your department.<sup>3</sup>
2. If your department does not have video storage and does not plan to invest in it, a cloud-based storage solution can help you eliminate the need to maintain your own storage equipment.

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<sup>3</sup> The DOJ study on body-worn cameras (White, op.cit., p. 32) describes how a hosted approach can also reduce police department non-IT costs, by providing prosecutors with direct access to stored video rather than dedicating department personnel to copying, packaging and forwarding that information.

3. If your department has local video storage but also wants to back up some or all of your videos off-site, a cloud-based storage solution would be the ideal choice.
4. If your department wants to leverage cloud storage as a way to export videos to third parties, you should consider the concept called “Cloud DVD.” Cloud DVD allows users to export videos to third party requesters by uploading the video to a cloud storage, then email the requester a link to download the requested video. The link can have an expiration date and/or a download count limit to avoid being abused.

If a cloud solution (server, storage, or both) is suitable for your department, you should discuss your options with your video solution vendor. In general, here are a few things you should be aware of:

1. Make sure the solution is scalable. The vendor you choose should be able to offer any combination of the services mentioned above, as your department’s needs might change in the future.
2. Make sure the solution is secure. The backbone infrastructure of the vendor should meet CJIS government security requirements.
3. Make sure your department has enough internet bandwidth to support the services you select. This is particularly true if you plan to store a large amount of videos in cloud storage. You should work with both your video solution vendor and internet service provider to determine if you have enough internet bandwidth to support daily tasks.
4. Most importantly, make sure you understand the cost structure. Look beyond just the initial purchase cost; a three to five year total cost analysis should be in place. Determine the hidden and under-estimated costs. For example, if a cloud storage solution is what you have in mind, make sure the storage estimation is as accurate as possible to avoid any surprises after the project begins.

## **Summary**

For most departments, body-worn cameras, in-car video, and interview room systems are all essential to getting the complete picture of what happens in the field and in the station. In addition to defining the key features of each of the solutions, the department should consider the full life cycle costs of video. For example, a video management system that supports all video sources can reduce ongoing administrative costs, as well as provide faster access to video evidence. And, available cloud services may help control IT expenses related to storage and retrieval of video.