

What to Consider Before Equipping Your Fleet with

Video Surveillance



REI's playback software includes a calendar with the recorded days highlighted in order to easily find incident footage.

While technological advances are happening at a faster rate, when looking for a video system that fits your needs, considering the basics such as video quality, user-friendliness and video storage are still key.

>BY THI DAO, Assistant Editor

EQUIPPING FLEETS WITH MOBILE video surveillance systems has become an essential part of the transportation industry. The presence of cameras onboard buses can deter fights, vandalism, robberies and assaults. If an event occurs, surveillance video usually reveals the cause of the problem, decreasing the amount of time it takes to gather information.

In addition to helping deter negative behavior onboard, video documentation of events plays a crucial role in settling disputes that may arise. Video surveillance acts as an "objective observer" and can reduce a bus system's liability by helping to disprove in-

idents such as false injury claims. According to **Guy Jukes**, vice president of marketing for Omaha, Neb.-based REI (Radio Engineering Industries Inc.), a surveillance system "eliminates the he-said, she-said."

Customer service and bus safety can also be greatly improved through driver monitoring via video surveillance. "They can see how drivers are interacting with customers, ensure that the buses aren't being abused, that the drivers aren't stealing the fares, as well as monitor activity around the vehicle," Jukes says. In addition, cameras with exterior views can be used to see whether a driv-

er is making complete stops and appropriate turns.

ASPECTS TO CONSIDER

While advances in video technology have led to a decrease in the price, purchasing a surveillance system is still costly, and careful consideration should be taken to choose the one that best fits the operation's needs.

► **1. Test drive.** Transit properties should arrange for a two- to four-week demo from several manufacturers to see which system best fits the agency's specifications, advises **Richie Howard**, president of Newton, Ala.-based **AngelTrax**. "They're looking to



Dome cameras, such as this REI model, are prevalent in vehicles because they are tamper resistant.

spend a lot of money," he says. "You want great quality video, and you want an easy way to play it back." A test drive is the easiest way to ensure that agencies are happy with their purchase.

► **2. Video quality.** Great video quality is essential to a successful surveillance system. In case of an incident, "can you identify the person without a doubt so that you can use that in court, or are you still giving a defense attorney a loophole out?" asks Jukes.

"We always recommend that customers view actual video clip recordings to ensure they are satisfied with the end product they are purchasing," says April Johnson, sales operations manager for Woodinville, Wash.-based Apollo Video Technology. "The same compression technology and resolution will not necessarily deliver the same quality of video." While the compression method and resolution specs should always be taken into consideration, the quality is subjective, therefore viewing actual video is the best way to determine how it will serve its purpose, she adds.

In addition, if something happens on the street, even if it does not involve the vehicle directly, good video quality assures "you'd be able to zoom in after the fact and at least get a good observa-

tion of what happened," says Jack Cabasso, managing director of Hauppauge, N.Y.-based Aventura.

► **3. User friendliness.** Ease of video playback is another factor to consider. While footage is not viewed often, when an incident occurs, it becomes essential. According to Jukes, many people may have to review footage, from drivers to dispatchers, who may not be familiar with the technology. He suggests looking for easy-to-use software that doesn't require excessive training to learn.

► **4. Data storage.** DVR (digital video recorder) size determines how much footage can be kept and saved before it is looped and recorded over. Many fleet operators choose a larger hard drive, holding 500 GB of data or more, or about 30 days of footage, depending on video quality and the number of cameras installed on the bus.

► **5. Reliability.** Don Nelson, transit division manager of Seon Design Inc., in Coquitlam, British Columbia, recommends that transit agencies consider the reliability of the equipment as well as the system provider, by researching the number of years the company has been in business and how many units it has in the field.

► **6. Number of cameras.** The number

of cameras a transit agency chooses to install per bus depends on factors that include budget and bus size. John Major, account executive for Safety Vision, headquartered in Houston, Texas, says, on average, there are four to 10 cameras per bus. Although there is no set maximum number of cameras, Major suggests at least three cameras.

► **7. Camera location.** REI's Jukes says typical locations for camera installation on vehicles are: mounted on the front with a view of the back of the bus; mounted above the driver with a view of the entrance and fare box; mounted mid-way in the bus with a view of the back; one dedicated to a lift; one with a view of a second exit if available; one getting a driver's view through the windshield; an exterior camera near the entry with a view toward the rear; and, occasionally, cameras are placed on rear exterior of the bus facing the back.

► **8. Number of channels.** Another factor in choosing the right surveillance system is channels. Manufacturers can offer systems with different numbers of channels, which refers to the total number of cameras that can be installed into the system. AngelTrax's hybrid system, which comes in four or eight channels, is easily swappable should an agency choose to purchase more cameras. "You can change that system from a four channel to an eight channel by swapping the board in five seconds," says Howard. Safety Vision's Major recommends a scalable system that allows an operation to add cameras as it grows and is able to purchase more.

► **9. Future upgrades.** Future upgradeability is another key aspect to consider, according to Johnson. "Transit agencies typically don't outfit the entire fleet at one time," she says. "It's important to have compatibility with previous and future systems."

► **10. Installation.** Video surveillance systems can be installed by the manufacturer, a subcontractor, or a local installer. REI works with a national installation company, or will provide



Seon's eight-camera video surveillance system can hold up to 2 TB of memory, allowing for months of storage on the DVR itself.

training for operations that want to install their own equipment. According to Jukes, installers should make sure the DVR and cameras are placed on secure locations so that devices don't become unplugged as the bus drives down a bumpy road.

According to Howard, a majority of the technical calls received by AngelTrax are related to installation issues rather than a problem with product. He stresses the importance of the correct installation process and has a field engineering team traveling around the country installing products. Safety Vision, too, has its own installers, and Major estimates it takes three to eight hours of installation time per vehicle.

MAINTENANCE, WARRANTIES

Minimal maintenance is required for surveillance systems. According to Cabasso, lenses should be kept clean and free from dust, and "because [cameras] are in environments where there is a lot of shock and vibration, you want to check your connections." Nelson recommends periodic checks of the systems and adds that "periodic cleaning of the DVR fan filter is required." Johnson adds that video should be reviewed periodically as well, "to ensure cameras are positioned properly." In addition, Howard suggests a pre-trip inspection each time a bus is in use — a simple visual check to make sure the camera is on and recording.

In case there is a problem with a system, many manufacturers offer a 24/7 call-in technical service hotline. Warranties usu-



The Safety Vision SV-640 exterior wedge camera, placed on the side of a transit bus, can be used to monitor exits or to view surrounding traffic.

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The AngelTrax TR2100, with built-in vandal-proof cast housing, is pointed toward the front of the bus and films the driver and entry well.

ally range between three to five years, and it is important to ask whether the entire system is covered, or just the cameras or DVR.

BUYER MISPERCEPTIONS

While technology has advanced considerably in the last few decades, many people are still expecting too much out of mobile security. "Many buyers typically would like to be able to view live video onboard their buses from their computers, without understanding the infrastructure, bandwidth and data costs required to accomplish this task," says Seon's Nelson. The technology is there, but currently, expense will often exceed the benefits of utilizing it.

Apollo Video's Johnson agrees, stating that those with little video surveillance experience often expect a system to perform "like they have seen on television, with high-range zooming capabilities or HD quality." On the other extreme, users of older systems have

very low expectations of the system capability and reliability. "These customers are usually very surprised by how much technology has improved over a short period of time," she says.

OPTIONS FOR A SMALL BUDGET

Costs for a basic four-camera system average around \$3,000-plus, but add in more cameras and all the bells and whistles, and the price goes up. For some bus systems, especially in this economic climate, it may be a challenge to cover the costs. Many agencies, especially those that handle small fleets, are unable to find the funding to install surveillance and have a harder time getting grants. Still, Howard suggests investing in grant writers to get the funding that is now being invested in security. If grants aren't available, oftentimes, the agency will end up funding surveillance systems through their capital expenditures for the year.

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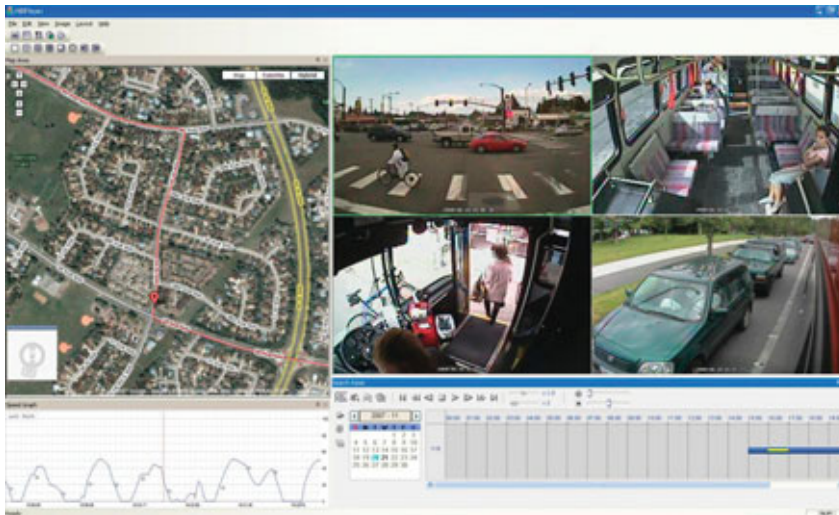
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While compression method and resolution specs should always be taken into consideration, viewing actual video is the best way to determine how it will serve its purposes, according to Apollo Video Technology's April Johnson. The company's RoadRunner DVR system is shown.

get to surveillance each year, agencies can start slow and build up to the system they want. Agencies can start with a system with a few cameras and have that running only on those lines that have a higher rate of incidents. "They'll start with three or

four cameras, but they'll have an eight-channel system still, and expand as money becomes available," Jukes says. He adds that those with small systems should consider a wide angle lens in order to cover more area on the bus.

In addition, a tight budget means buyers should pay more attention to the features of the system. Nelson says, "Small transit agencies should consider the depth and modularity of the solution; are they paying more for features that they may not use immediately?" He suggests purchasing a basic system and expanding so as to not pay for unused features.

For agencies that don't want to go the scaling route, financing is another option. Buyers can set up a finance option with AngelTrax, or through a leasing company, and, as an example: a half-million dollar purchase can be broken down into a five-year payment plan. This functions as long as the agency is sure it can budget that \$100,000 over the next five years. However, Howard admits the drawback is that many agencies can't plan budgets that far in advance, and budget cut worries are another consideration. **■**



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