

Top 10 School Bus Camera Considerations

Over the last 30 years in the Fleet Risk Management / Pupil Transportation industries, customers have asked many questions to try to determine what is the best value in a mobile digital video/data recording system for their specific application. Many of their questions are similar and highlight the concerns they need to have addressed before they can purchase with confidence, knowing they are not squandering district budget funds.

The following information is distilled from those questions to help address common concerns and leads them down the path to student transportation video observation enlightenment.

1 - How Long Do You Want Your Pupil Transit Surveillance System To Last?

The obvious response should be "As Long as the Bus Lasts."

The problem is most school bus video systems are made with fragile "hard drive" based DVRs, and buses work in a very harsh mobile environment where the common hard drives are not well suited to survive.

Think to yourself of every time you have heard of a hard drive problem, a hard drive crash from a friend or business colleague. Chances are, those hard drive problems or hard drive crashes occurred while they were working on the PCs in a business office environment. Some systems may have been sitting still on a desktop or sitting safely under a desk and simply wore out or failed due to non-environmental effects.

School bus video systems are mechanical devices that we trust to defend our school districts when in the worst possible scenarios events occur that require their use as expert witnesses, often in court.

When you are purchasing a video system to protect your district from liability and act as an expert witness in the worst-case scenarios, it seems a wise idea to make sure the one you invest district budget dollars into will not fail you when you need it most. This is the type of decision that separates those of vision and career advancement from those who might look back in hindsight after losing the lawsuit due to a failed 4, 8 or 16-camera fragile hard drive-based system that was damaged in the crash that they recommended the district invest in.

The marketing allure of an 8-16 camera system in a bus combined with high-pressure commission sales efforts can lead a potential buyer to overlook the basic realities of the real world; mechanical mechanisms that have moving parts can easily break in a mobile environment where the ride can be harsh, the environment can be dusty and hot.

While some may derive their personal self-esteem from having their fleet equipped with the most complex, over-priced, complicated multi-camera system in the state, the reality is; that the more that can go wrong, the greater the risk it will fail. It is doubtful that anyone mentioned the installation nightmare of installing a camera system with twice as many cameras as an octopus

has tentacles, the damage that can be done to the vehicle, or the ridiculous costs involved that could be better invested in higher pay for those involved with education.

It might be worth mentioning, that prisoner transport buses that routinely transport convicted murders, serial killers, drug cartel gang members, rapists, basically some of the most dangerous people in society, have a camera system monitoring them with 2 - 4 cameras in the vehicle transporting them.

Yet we have companies marketing 16 camera systems for a school bus of children, extolling the need for more supervision than they provide to the most dangerous murders and criminals in society. This begs the question "Are they serious?", or do they just want to profit off of the waste or public taxpayer funding on their fragile Hard Drive based systems?

When you purchase camera systems above 4 cameras per vehicle you are likely forced into a Hard Drive Based solution due to memory storage considerations. Just compare what you are giving up when you purchase a system with more than 4 cameras on the bus:

Hard drive based DVRs

- *Have the highest failure rates and are poorly suited for mobile school bus applications due to their fragile design. About 560,000 hard drives crash every month (*Mozy.com).*
- *"Disk drive failures 15 times what vendors say: study says, drive vendors declined to be interviewed" (Computerworld.)*
- *The Carnegie Mellon study found hard drive failure "up to 13% observed on some systems" -- again this is in office conditions, not in a bus.*

100% Solid State SD based DVRs.

- *Offer the highest reliability, longest life, operate in extreme: heat, cold, vibration, shock and impact.*
- *The future is unwritten; circumstance and misfortune can combine without warning creating unanticipated problems in the best-laid plans.*

Most of us have several forms of solid state drive devices we use every day, in different locations we travel, in every environment and under conditions that would damage the average hard drive in about a week. That would be our cell phones, our MP3 players or iPads / Windows tablets, GPS NAV systems, beepers or Blackberries. With all the abuse we provide them the recording mechanism has no moving parts to wear out or break, so they are well suited for the mobile environment.

With children's lives in your care and million dollar lawsuits on the line when something goes wrong, can you really afford to have anything less than 100% solid-state drive?

A solution some customers are now incorporating is a 100% Solid State SD card based system inside the bus for child safety liability documentation.

When they wish to add a Stop Arm Camera solution, they add a second 4-camera 100% Solid State SD card based system for outside cameras, Front facing HD Stop Arm Camera, Rear facing HD Stop Arm Camera, forward facing Road View Accident camera and a Door side exterior camera to document what happens in loading children or potential issues on the right side of the bus.

2 - Propriety Connector Hostage or Open Sourcing Freedom?

True Capitalism is predicated upon; Free exchange of value from two parties without deceit, deception, or the initiation of force.

A widespread perversion of Capitalism, some label as “predatory”, the business model of marketing products with propriety connectors that will require only parts or accessories from that same supplier in the future, without disclosure of the future implications to the customer.

As a way to hold past customers hostage in future purchases of their product, this propriety connector scheme can be viewed as a mechanism employed by a company that may believe their only assurance of future sales from past customers will be a result of depriving that same customer of their freedom to choose in a free market.

Propriety Hard Drive" Connectors

Disclosure of propriety connectors on hard drives should be listed on specifications sheets to remove any intentional deceit and or deceptive aspects through customer ignorance of those connectors and how selecting a product that employs those proprietary connections will require the school district to pay several times more in the future for replacement parts, additional cameras and anything else that the customer wishes to add to that system.

Future support/parts accessibility may also be a concern, as should the manufacturer go out of business, as most have in my time in this market, the district is stuck with systems that cannot integrate any other products into their operation due to the connectors required.

To illustrate the abuse now being inflicted upon customers; a standard hard drive may cost \$30 from online sources, but place a propriety connector on it making it very difficult to source, and now a predatory manufacturer can charge \$450 for the same drive.

Requiring a non-propriety 100% Solid State SDXC card DVR-based system will insure your district will never be held hostage by a predatory manufacturer pushing propriety hard drive connectors in order to insure future cash cows from high-priced hard drive replacements that customers are forced to purchase from them.

"Propriety Camera" Connectors

Disclosure of propriety connectors on cameras should be listed on specifications sheets to remove any intentional deceit and or deceptive aspects through ignorance of those connectors and how selecting a product that employs those proprietary connections will require the school district to limit choices in the future for additional cameras and anything else added to that system.

American school districts who have had enough of this raw deal should start exercising their freedom of choice by choosing to spec a system that will not force them to pay up to 10 times more for additional or replacement hard drives & cameras from what some may label as “predatory” manufacturers in the future should they require them.

3 - DVR Technology Upgrade Program

How can the product you purchase today save your district hundreds in the future long after the warranty is expired? By investing in a product that qualifies in a “DVR Technology Upgrade Program.”

It has been my observation over the last 30 years in this market; that DVR manufacturers seem to change DVR models and platforms every 3-5 years. This may be due to technology, required features integration, or simply a desire to resell products to the same customers who purchased

in the past. Either way, the end result is customers will often be required to purchase completely new systems at full cost as outdated equipment is of no value to the new product manufacturers.

American Bus Video Inc. is the only mobile video solutions provider, I am aware of, at the time of this writing who actually rewards past customers with up to a 50% trade-in allowance on past purchased DVRs as a reward for customer loyalty under their "DVR Technology Upgrade Program."

In effect, this provides customers with up to a 50% reduction in cost on new DVR technology when their previous ABV purchased DVR is traded in for replacement for the latest 100% Solid State ABV solutions.

When out-of-warranty DVRs fail, you can now upgrade to the latest technology mobile DVRs from ABV at a small fraction of the cost of the new DVR. Mobile DVRs sold over the last 10 years are eligible for this "DVR Technology Upgrade Program."

4 – Protect Children's Identities via Mosaic Zone Blurring

This feature permits the user to select areas on the quad view or full-screen display view to select for "blurring". Once the area is selected the persons in those selected areas will be provided a level of privacy should the video be presented to others for viewing. This is especially important when school bus video is shared with others as video evidence of children should be protected from non-authorized review. Proper incorporation of this feature along with a third-party movie screen capture program can provide a permanently "blurred" video clip if needed.

5 – Protect School District From Dangerous Driving Behaviors

This feature provides sequential impartial documentation of potential dangerous school bus driver behaviors that can adversely affect your transported children, school bus fleet equipment investment or drivers' safety and help provide a driver risk management safety tool that can be used to highlight and document Dangerous Driving Behaviors so that corrections may be made prior to an accident.

- Hard Braking is recorded on the Sensor charting, as distracted drivers potentially violate DOT Safe Driving Mandate and could not only endanger the lives of the children transported but will also incur unnecessary liability for the district.
- Dangerous Hi-Speed Turns increase driver safety risks, increase liability, and risk company assets, by greatly increasing the risk of accidents.
- Crash & Impacts recorded for review in case of liability lawsuit whether driver reports them or not.

6 - "AHD" DVRs offer a Backward Compatible Sustainable Green Choice

Once a district has purchased their system, a few years down the road when the DVR wears out or crashes after the warranty expires, they are routinely expected to purchase a different model DVR that now requires different cameras, different camera extension cables because that is the current business model. This is a waste of district budgets due to poor planning or a predatory business model in use by the system supplier, who may desire to sell their latest and greatest new system to the same customers every 3-5 years.

There is no reason the new technology 720P and 1080P High Definition mobile DVRs cannot use existing CCTV cameras and CCTV camera extension cables if the manufacturer honestly wants to help their customers save almost half of the cost of the new system, and not pollute the country by filling up landfills with obsolete equipment due to their lack of vision.

Not only can the new tech “AHD” (Analog High Definition) DVRs use older Analog CCTV cameras, but it can use them at the same time the DVR is using 720P-AHD or 1080P-AHD High Definition Megapixel cameras.

This saves the district from the need to constantly uninstall and replace the older cameras, and uninstall and replace the older camera extension cables and that is where almost all of the installation time and effort in installing a system is consumed. When you are simply replacing a DVR in a vehicle when it no longer works you are looking at a 10-minute replacement versus 4 hours to completely replace all of the cameras and cables in a typical 4-camera system. When you have a fleet of hundreds of busses, the savings are substantial freeing district funds for more important considerations.

An ancillary aspect of backward compatible “AHD” DVRs is they are a sustainable “Green” choice as they do not require the unnecessary filling of a landfill with obsolete older CCTV technology cameras and cables every few years, offering a more sustainable bus camera solution.

7 - Lifetime Memory & 10-Year Camera Warranty

The best memory warranty we know of is the Limited Lifetime Warranty.

All of our flash memory cards include a limited lifetime warranty provided. We provide this extended warranty to you at *no charge*. Your memory cards are warranted for life, to be free from defects, and will be replaced if returned in good condition, without signs of damage, tampering, or abuse if found defective for as long as the memory manufacturer continues to provide this product and ABV is actively selling them in this market.

The best Camera warranty we know of is ABV’s 10-Year Camera Warranty.

All of our High Definition Cameras 720P-AHD & 1080P-AHD now come with a 10-Year Warranty.

8- False Specifications & Fraud

Unique esoteric features or specifications that salesmen insist are “must-have items” are sometimes either of questionable value, misrepresentations, or simply false.

So many games are being played with product specifications regarding “G” ratings of fragile Hard Drives, temperature rating, resolution, and shock or vibration buffering that it might be possible those selling those products may be unaware they are misrepresenting their own products to your district.

While some may not be aware of their deceit, under the law “Ignorance is no excuse”, some OEM dealers have been informed by ABV and still choose not to correct their false specifications or bogus claims, so be warned.

Search for claims in their literature (PDF), website or directly from a sales representative such as:

- ✓ They are the actual manufacturer of the DVR and cameras
- ✓ They write the GUI Software/DVR Firmware & their programmers customize it
- ✓ Hard drive rated to survive more than 3 “Gs” impact or harmonic vibration
- ✓ Hard drive operating temperature below freezing without a heater
- ✓ Their cameras are waterproof
- ✓ Their cameras are vandal proof

The above claims are my first clue that at best I may not be getting accurate or factual information on the product, and at worst I am being played for a fool by a deceptive salesperson or company only interested in separating my school district from their budget funds.

When I believe I am being deceived about those basic aspects of the products, I can only imagine how many other areas I may not be getting full disclosure or being provided accurate information in good faith.

True Capitalism demands an honest exchange of value, without deceit, deception, or the initiation of force, anything less is a fraud, at best simply immoral, at worst possibly criminal.

Should you suspect or realize that you are not being provided accurate and factual information in good faith, "Run don't walk" to the next product vendor in the hope of an honest description of the product's capabilities.

9- Installation of Pupil Transit Surveillance Systems

Contrary to popular opinion these systems are simple to install for professional school bus trained service technicians. I have almost no reported incidence of them destroying their own district buses or our equipment as about 95% of customers have their shop technicians install the products to save the thousands in labor and high cost of travel from those who manufacture and sell these systems.

By requesting installations you eliminate those best trained to work on your district buses...your own professional service technicians.

While at the same time opening the door for an installer with no proven track record of 10+ years of bus video installations, to abuse, damage, and violate the integrity of your buses and possibly damage and or render the warranty on the equipment they are installing unserviceable through their improper installations.

Just because a manufacturer authorizes a dealer to sell and service a product, that does not mean that dealer has a sufficient level of skill or experience to insure they do the job right the first time. Some manufacturers' only qualification for dealer setup and authorization is they can fill out the form correctly and pass a credit check. The wrong time to find this out is after they have butchered your bus video installation.

10- Do You Want To Use This Video In Case of Bad Accidents?

This is not a rhetorical question, but an intellectual reality that the choice of DVR memory storage device will be the primary determinant of the reliability & integrity of the stored video files.

Imagine a hard disk platter spinning at 7,000 RPMs with a read/write head hovering 5/1,000,000 of an inch over the surface (millionths of an inch), when the vehicle impacts another object at high speed. Then imagine this fragile mechanism bouncing on the steel springs that support the bus as it runs over speed bumps, storm drains, curbs, potholes, and gravel roads.

A conventional hard drive can survive about 3 "G"s, which explains why so many of them have crashed the hard drive when the bus hit a large bump, big pothole, storm curb, or another object even at slow speeds.

When you are purchasing a video system to protect your district from liability and act as an expert witness in the worst-case scenarios, it seems a wise idea to make sure the one you invest district

budget dollars into, will not fail you when you need it most, such as in the case of a bad accident.

This is the type of decision that separates those with vision and career advancement from those who might look back in hindsight after losing the lawsuit due to a failed hard drive system that was damaged in the crash. ABV recommends daily LED DVR status and weekly video recording system check, to insure all systems are recording properly, so when you need them most in an incident, you do not learn the DVR blew a 10-cent fuse 7 years ago (actual case) and has not worked a day since.

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10-Year Camera Warranty Standard

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30+ Years of Mobile Digital Sales & Service Experience