



THE CONNECTED PATROL VEHICLE

**SOLUTIONS FOR AN EVER-EVOLVING
TECHNOLOGY ENVIRONMENT**

BAYCOM

A Lifeline in the Moments that Matter

GUIDE BOOK | EVOLUTION OF THE CONNECTED PATROL VEHICLE



MOTOROLA SOLUTIONS

TODAY, VIDEO IS EVERYWHERE.

Our phones are seconds away, ready to snap photos and shoot videos at a moment's notice. This widespread, everyday use of mobile video has elevated community expectations around documenting interactions between law enforcement and the public.

That's one reason why in-car video and other law enforcement video systems, such as body-worn cameras, are on the rise. These technologies sit at the intersection of accountability and safety, for both officers and citizens. They remain one of the most critical tools for documenting interactions, while the transparent, accurate evidence they provide helps build a foundation of meaningful trust between agencies and their communities.

The 2021 [Motorola Solutions Law Enforcement Survey](#) found that in-car video systems lead the way in video technologies used by agencies across North America, with over 80% of survey respondents stating their agency has already implemented in-car camera systems. Even with that high adoption rate, the survey also found that in-car camera usage grew 7% year-over-year, the most of any video technology utilized across law enforcement agencies.

LAW ENFORCEMENT AGENCIES ARE STRIVING FOR SAFER CITIES, BUILT ON A FOUNDATION OF JUSTICE AND CEMENTED THROUGH STRONGER ALLIANCES WITH THE COMMUNITIES THEY SERVE.

In-car video systems have come a long way from the early VHS camcorders placed on a tripod in the front seat of a patrol car. Now, in-car video is undergoing yet another drastic change: transforming from passive video collection to proactive intelligence augmented by AI and video analytics.



From limited documentation of events when an officer remembered to hit record to automatic, searchable, and secure cloud-based evidence collection. From a standalone camera to a seamless ecosystem of intelligent law enforcement technology tools that not only keep officers safer but makes their job more efficient, so they can spend more time in the community, not in the station.

Law enforcement agencies are striving for safer cities, built on a foundation of justice and cemented through stronger alliances with the communities they serve. Technology, when properly applied, can strengthen community bonds of trust through a shared commitment to safety and routine, positive interactions. Today, in-car video systems are an important and powerful tool to get there.

THE JOURNEY TO THE PINNACLE OF IN-CAR VIDEO

As the world's leading provider of in-car video systems, Motorola Solutions has been at the cutting edge in law enforcement and in-car camera technology for decades. Now, we're bringing the in-car video system into a new era of intelligence and seamless connectivity.



In-car cameras for public safety have evolved significantly. Today, these systems are an integral part of the modern, intelligent, and connected police vehicle. But to understand where in-car technology is headed, it's important to understand how far in-vehicle technologies, from radios to Automatic License Plate Recognition (ALPR) have come in less than a century.

M500: THE PINNACLE OF IN-CAR VIDEO TECHNOLOGY

1930 1933 1939 1960 1981 1988 1990 1990 1991 1990s 2002 2005 2007 2021

Galvin Manufacturing Corporation introduces the Motorola radio, one of the first commercially successful car radios, and begins selling them to police departments and municipalities in Illinois.

The first two-way radio is used in Bayonne, NJ, to connect the police department to nine of their patrol vehicles.

Popular Science features a California police officer with a camera on his dashboard.

First handheld radios are launched to keep officers connected once they step outside of their police car.

The first arrest through detection of a stolen car using ALPR is made.

Ohio Police Officer Bob Surgenor builds a mount out of an old child's seat and records a high-speed police chase, believed to be the first footage of its kind.

Mothers Against Drunk Driving (MADD) begins a campaign to provide funding to police departments to purchase and install in-car cameras.

Computers began to be installed in police vehicles.

A Texas Constable's deadly ambush is caught on an in-car camera, believed to be the first case of a law enforcement officer's death recorded on such a device. The footage led to the arrest of the perpetrators.

A growing emphasis on combatting racial profiling during traffic stops spurs greater adoption of in-car cameras.

A study from the IACP finds that the overwhelming majority of officers who have used in-car video systems do not want to police without them.

WatchGuard develops the first in-car camera system that records directly to DVD-Video.

According to the DoJ, 61% of local police departments have in-car cameras.

Motorola Solutions launches the M500 In-car camera system, the pinnacle of in-car video system technology.

In 1930, Galvin Manufacturing Corporation introduced the Motorola radio, one of the first commercially successful car radios. The company's founder Paul V. Galvin created the brand name "Motorola" for the car radio, linking "motor" (for motorcar) with "ola" (which implied sound). Soon after, Galvin Manufacturing Corporation (later renamed Motorola) began selling Motorola car radios to police departments and municipalities in Illinois.

In 1933, the first two-way radio was used in Bayonne, NJ to connect the police department to nine of their patrol vehicles. It wasn't until 1939 that a camera was seen in these vehicles when the magazine *Popular Science* featured a California police officer with a massive still camera on his dashboard.

By 1960, the first handheld radios launched to keep officers connected once they stepped outside of their police car. By the early 1980s, another new technology, Automatic License Plate Recognition (ALPR), was used to find a stolen vehicle for the first time, although it would not be in wide use for another decade.

Meanwhile, the 1980s saw an explosion of handheld VHS video recorders. It was these common video recorders that sparked a great idea for Bob Surgenor, an Ohio police officer who built a mount out of an old child's seat, placed a VHS camcorder on top, and set the whole thing in the front passenger seat of his vehicle. He proceeded to record a high-speed vehicle chase, believed to be the first footage of its kind.

At the same time, the 1980s saw a growing fight to stop drunk driving, with Mothers Against Drunk Driving (MADD) ramping up efforts to combat these tragic accidents. The group saw the promise of newly miniaturized and powerful video recorders for police vehicles and, by 1990, began a campaign to provide funding to police departments for the purchase and installation of in-car cameras. Computers were also beginning to be installed in law enforcement vehicles, transforming police cars into mobile workstations.

Then, in 1991, a Texas Constable's deadly ambush was caught on a camera installed in his vehicle. It's believed to be the first case of a law enforcement officer's death recorded on a camera of that type. When the footage led to the arrest of the perpetrators, it became clear just how important these cameras could be for safety, security, and transparency.

The 1990s saw another major societal shift, as a growing concern around combatting racial profiling during traffic stops spurred even greater adoption of in-car cameras for law enforcement. By the year 2000, in-car video systems were in wide use. In 2002, a study from the International Association of Chiefs of Police (IACP) found that the overwhelming majority of officers who used an in-car video system said they did not want to police without them. The same study found 58% of prosecutors reported a reduction in time spent in court and officers were exonerated from a crime 93% of the time in cases in which video evidence was available.

As the decade progressed, in-car video systems continued to evolve. For instance, in 2005, WatchGuard (acquired by Motorola Solutions in 2019) developed the first in-car camera system that recorded directly onto DVD-Video, making it far easier to record and capture evidence than it had been in the past.

By 2007, in-vehicle video systems were widespread in the US, with 61% of local police departments having in-car cameras, according to a DoJ report. That number has since grown to over 80% of departments today.

With the launch of the new Motorola Solutions M500 in-car video system, in-car cameras take another leap forward. The M500 is the pinnacle of in-car technology, incorporating the advances of the past decades into a seamless ecosystem of tools that completely redefines what a vehicle-based video system can help officers accomplish.

It's a quantum leap forward in awareness, a new way to stay safer, and a powerful tool to enhance efficiency. It's another set of eyes in the field, but, more than that, it's a brain that analyzes its surroundings with groundbreaking AI-based video analytics and intelligence that alerts officers in real-time of possible threats and objectives. It seamlessly integrates with the Motorola Solutions unified technology ecosystem, a complete end-to-end set of mission-critical technology—from body cameras, to command center software, to evidence management.



RESPONSIBLE, NEXT-GENERATION AI

In-car video systems should be much more than simply video recorders. With the technological advancements of Artificial Intelligence (AI), agencies can now responsibly enable in-car video systems to provide enhanced levels of situational awareness to an officer on the scene, in real-time.

For instance, instead of merely recording footage of a vehicle pulled over for speeding, the in-car video system can now automatically recognize where the license plate is, what number is on it, run it through a database and proactively alert the officer of information they should know. Even better, it all takes place before the car has even pulled to the side of the road. Providing officers with this level of proactive information increases officer safety in the moment while noting possible suspects or witnesses that may otherwise go unnoticed.

The current set of features in Motorola Solutions' new in-car systems is just the start. The M500 is built as a platform that can easily add capabilities and features as needs dictate and technology evolves. As AI continues to mature, the M500 will be able to do far more to actively ensure the safety of people in real-time. For instance, the system will be able to detect unnoticed threats, instantly notifying an officer when it sees a weapon of any kind on the scene. In addition, it will soon be able to proactively monitor a patrol vehicle's surroundings, detecting and alerting an officer to someone outside the officer's vantage point aggressively approaching or a person who might be in need of assistance. AI can also be used to proactively safeguard the public in other ways. For example, when someone is placed into the back seat of a patrol

car, the in-car video system's AI can detect their presence and automatically initiate recording. The AI could also monitor their wellness and notify officers if it detects an anomaly.

Motorola Solutions is reimagining what an in-car video system can be with a platform for providing new AI-based assistive capabilities well into the future. Now, your in-car video system is an active partner, constantly monitoring the environment and alerting officers to potential threats.



THE CONNECTED PATROL VEHICLE: TECHNOLOGY FOR AN EVER-EVOLVING ENVIRONMENT

In public safety, critical decisions must be made with incomplete and uncertain information, often under extreme stress. By integrating AI directly into the patrol vehicle, the new M500 in-car video system provides officers with greatly improved situational awareness so they can stay safer, become more efficient, and eliminate distractions to focus on what matters most.

The M500 is just the start of the journey. With the Motorola Solutions line of AI-assisted cameras and its integrated ecosystem of products and services, agencies can present incident information in the heat of the moment, leverage that information in the cloud, then crosscheck and consult online databases to deliver increased, real-time actionable intelligence and situational awareness. As technology advances, so will the M500, adding new layers of proactive intelligence and AI-assisted capabilities.

This is the essence of the connected patrol vehicle. The M500 in-car video system will help law enforcement navigate an ever-evolving technology environment that increasingly requires more sophisticated tools to make faster, smarter, and safer decisions. With the M500, agencies can leverage cutting-edge public safety technology and move forward with confidence to meet tomorrow's challenges.



At Motorola Solutions, we develop responsible AI, driven by the ethical principles that put people first. While doing so, we hold ourselves to the highest standards in the application of AI, just as we do for our mission-critical communications. We are not displacing human judgment with AI; instead, our goal is to use AI to help public safety personnel make their best decisions in pressure-filled situations and ensure better outcomes.

M500



For more information on the new M500
in-car video system please visit:

www.motorolasolutions.com/M500

BAYCOM

A Lifeline in the Moments that Matter

info@baycominc.com
www.BAYCOMINC.com
800.726.5426



MOTOROLA SOLUTIONS

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. ©2021 Motorola Solutions, Inc. All rights reserved.