

# Automated License Plate Recognition: An Insider's Look

Rebecca Waters



## What are some of the newest, extensive uses of this technology and how can they be best utilized?

**A**utomated License Plate Recognition (ALPR) systems – made up of a camera or cameras, a processor and character recognition software – at their most basic are designed to capture license plate images, transform them into characters and compare the results to a database of license plates which are of interest to law enforcement. We asked six industry experts to fill us in on the state of the technology and what we can expect in the future.

“Five, or even ten, years ago, the common use in the US would undoubtedly be to recover stolen vehicles and ticket vehicles with expired license plate registrations. However, with advancements in the technology and more agencies adopting the technology, the uses of ALPR technology have grown wings... registrations and stolen vehicles are still common practice for ALPR, but so, too, are criminal investigations such as burglaries, kidnappings, homicides, and identification of trafficking patterns,” says Heather Fraser, Marketing Manager for NDI Recognition Systems.

“For law enforcement, ALPR can be broken into two categories: immediate vehicle detection and investigations,” says Peter Cray, US ALPR Operations Director for Neology’s PIPS Technology™. “ALPR is very appealing for immediate vehicle detection because it allows the officer to passively monitor for wanted vehicles while performing his or her normal duties.”

When it comes to investigations, ALPR technology provides law enforcement with “an ever-increasing toolbox of analytical tools to help determine who the criminals are and where [to] find them,” he says.

### Adoption

The 2013 Law Enforcement Management and Administrative Statistics survey found that an estimated 17% (about 2,000) of departments used automated license plate readers, including more than three quarters of the departments serving 100,000 or more residents. ALPR technology has continued to evolve and its uses have become better understood, leading to an increase in adoption.

Some barriers still exist, with cost presenting the biggest obstacle. “Law enforcement technology is growing almost faster than [agencies] budgets can afford. Body armor, body-worn cameras, dash cameras, fleet vehicles, operational costs...you name it and it’s vying for purchase from the same budget pool,” Fraser says.

“While the individual system cost has come down in the past five years, the solutions still remain expensive when considering the back office hardware (servers) and personnel to manage it,” says Nate Maloney, ELSAG’s VP of Marketing and Communications. “This can be overcome by participating in a regional data sharing program that either shares infrastructure costs with the participating agencies or covers all the costs of the infrastructure outright,” he adds.

“What we are seeing is a lack of understanding as to the full value of an ALPR system,” Cray adds. “When agencies have a narrow view of the value of ALPR, seeing it as a tool for just finding stolen vehicles, for example, they will find it hard to justify. But, when we are able to convey the investigative power to an agency, the value quickly becomes apparent.”

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Politics can also present an obstacle, as civilian misunderstanding of the technology has spurred some privacy concerns. "Some citizens think that the use of LPR is Big Brother watching them and tracking where they are going, but that is not true," says Patrick O. Fox, National Sales Director for LPR and law enforcement operations for SecureWatch 24.

"The truth is, license plates exist for law enforcement identification of vehicles and are required to be visible. There is no inherent or assumed privacy in a license plate, just as anyone can walk down the street and write down a license plate number. License plates do not reveal any personally identifiable information – it is merely alphanumeric characters. The only way to link an anonymous LPR data record to personally identifiable information, like a name, address or face, is to obtain access to a state's Department of Motor Vehicle database. Access is currently restricted to a handful of permissible purposes by a strong federal law,

ment," he adds.

"A city or police department must consider the solution's flexibility. If they already have cameras deployed, will the ALPR solution work with them, or will they need to 'rip and replace' some of what is already there? If they do not already have cameras, how expensive will the cameras be that they have to buy?" suggests Kelly Haines, Director of Marketing at PlateSmart Technologies. Agencies "should be looking at the best performing LPR camera and not always the price point," Fox says. "Camera performance options to consider are the yield rate (the number of plates read by the camera against the total number of plates which drove past the camera), the read accuracy, closing speed performance, and low light capabilities. Agencies also need to consider whether it is feasible to mount a camera in certain places. Fixed cameras need power, communication, and a good angle for reading plates. Mobile cameras

the Driver's Privacy Protection Act. This Act carries stiff fines and federal prison penalties for any violation," explains Tom Joyce, Vigilant Solutions' Vice President of Business Development, and retired Lieutenant Commander of Detectives at NYPD.

While public misperceptions can be difficult to overcome, education can go a long way. "I've seen some agencies reach out to their communities, showing them the technology and educating them on the benefit which ultimately is a safer community," says Fraser.

### Purchasing

There are many factors to consider before purchasing an ALPR system; most importantly, your agency's needs. "Purchasing an ALPR system without a purpose or understanding of the technology will likely lead to an underutilized system," warns Crary. "An agency's need for ALPR will drive the different options they may want to choose."

should not obstruct the patrol vehicle's lightbar, for safety reasons, or the cameras need to be installed on other vehicle surfaces like the trunk or in a covert setting. This is where engineers and sales team[s] can really benefit an agency in determining the best setup for the agency's needs. Agencies will want easy-to-use software which users will want to use and administrators find simple to maintain," says Crary. "Perhaps one of the most important [ALPR features] is the ability to easily share and receive real-time data," says Joyce. Plate searches, partial plate searches, year/make/model filtering, data security, and the ability to create hot-lists to send and receive real-time alerts are also features to consider. Finally, when purchasing an ALPR system, "ask for a demonstration. Ask for a T&E – make sure your team will be comfortable with the user interface. Find out if there is support both on-site and by phone," Fraser says. "The biggest misconception is that an agency is too small to have a system. These systems are meant to be a force multiplier," Maloney says. "If your human capital is limited, why not allow a technology to enhance their efforts?"

"There [also] needs to be buy-in from both the command level and the individual officer level. Too often, I've seen systems unused because either the command or the officers using the system did not understand, or did not want to use, the technology," Crary adds.

"Any agency considering purchasing an ALPR solution should consider the overall cost of the solution, not just the sales price," Maloney says. "There could be a several thousand dollar difference between vendors when you take into account annual fees and maintenance costs."

"Agencies should also review their in-house technical expertise to host and maintain the back office system. Not all agencies have the ITS support to operate and manage their own storage server. A shared regional server operated by a larger agency or a cloud-based system might be a better alternative. Finally, agencies should develop operational policies and procedures before deploy-

### Fixed Versus Mobile or Portable Cameras

One major consideration in purchasing an ALPR system is whether to invest in fixed, mobile or portable camera units or some combination thereof. All cameras operate in the same way. They capture the image of license plates and translate them into usable data. It ultimately comes down to how the agency wants to use the systems. One agency might conclude that mobile cameras are better for interdiction because the officer can immediately spot the subject vehicle and take action. Additionally, since they are mobile and easily mounted on vehicles, they can be moved across a jurisdiction. However, they require an officer to be operating the vehicle and it is unlikely they operate 24/7, so there is downtime associated with the mobile system. On the other hand, an agency might opt for fixed cameras because they can capture all the traffic which passes a certain point in a jurisdiction 24/7, especially if they can locate the camera at a choke point. The data collected from the fixed camera is reported to a command center where they can dispatch officers or it can be directly passed along to agents in the field working on an investigation. Fixed