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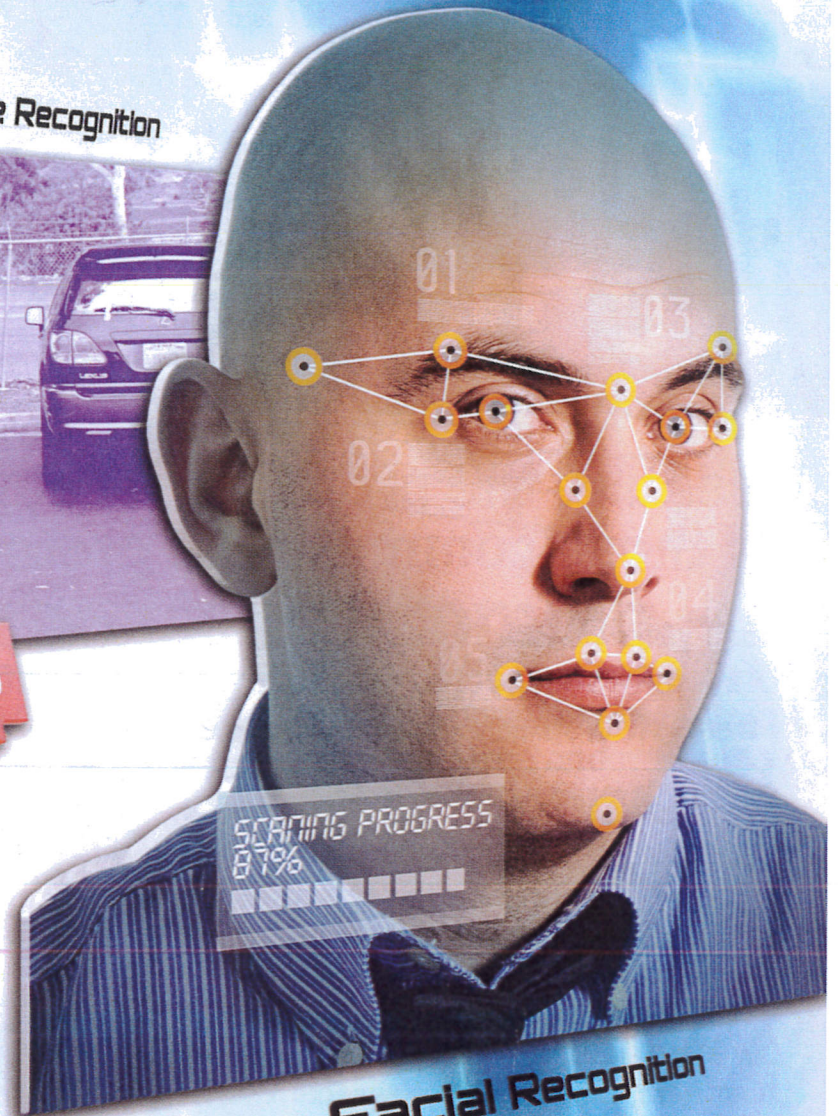


Speed Enforcement
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Automated License Plate Recognition



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License Plate Reader Technology Is a Hit with Law Enforcement

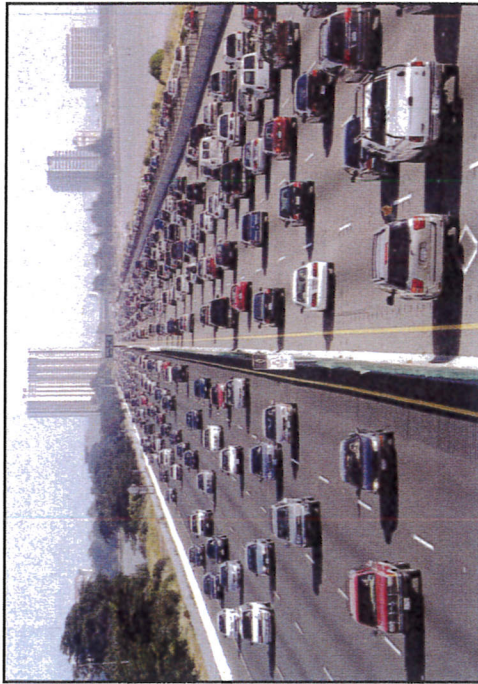
Rebecca Kanabie

More and more police agencies are turning to Automated License Plate Recognition (ALPR) technologies for help.

This summer, the West Virginia State Police used a license plate reader to capture a fugitive wanted in Pennsylvania on a homicide charge. In Arizona, license plate recognition data, in part, helped connect the killer of a Maricopa County deputy sheriff to a double homicide.

ALPR systems automatically capture an image of a vehicle's license plate; transform the image into alphanumeric characters; compare the plate number acquired to one or more databases of vehicles of interest; and alert an officer when a vehicle of interest has been observed. All that is done within a matter of seconds. ALPR systems are able to capture up to 1,800 plates per minute at speeds of up to 120-160 miles per hour, according to information retrieved from ELSAG North America, 3M Public Safety (formerly PIPS Technology) and Vigilant Solutions (formerly Vigilant Video) Web sites in 2012.

An International Association of Chiefs of Police project, supported by a National Institute of Justice grant, assessed ALPR implementation in order to provide operational and policy guidance to the field. The findings were published in 2012 in *Automated License Plate Recognition (ALPR)*



ALPR systems are capable of capturing up to 1,800 plates per minute at high speeds.

Systems: Policy and Operational Guidance for Law Enforcement, written by David J. Roberts and Meghann Casanova. (<http://tinyurl.com/p86u76m>)

In the executive summary, they conclude, "...realizing the core business values that ALPR promises...can only be achieved through proper planning, implementation, training, deployment,

use, and management of the technology and the information it provides. Like all tools and technologies available to law enforcement, ALPR must also be carefully managed..."

ALPR in Use

To identify emerging implementation practices and provide operational and policy guidance to the field, IACP researchers in 2009 surveyed a random sample of 444 local, state and tribal law enforcement agencies. Of those, 305 agencies responded to the initial survey (68.7%); 77% indicated that they were not using ALPR and 23% responded that they were using ALPR.

A longer, more detailed survey was then sent to the 70 agencies using ALPR and, of those agencies, 57.1% responded. Survey respondents had typically implemented mobile ALPR systems (95%) and were primarily using ALPR for auto theft (69%); vehicle and traffic enforcement (28%); and investigations (25%). Agencies reported increases in stolen vehicle recoveries (68%), arrests (55%), and productivity (50%).

The 2007 Law Enforcement Management and Administrative Statistics survey indicates that, as of September 30, 2007, nearly half (48%) of the



A survey conducted by IACP researchers indicated that the majority of agencies were using ALPR technology primarily for auto theft investigation.

largest law enforcement agencies (those with 1,001 or more sworn officers) were regularly using ALPR, as were nearly one third (32%) of agencies with 500-1,000 sworn officers. In contrast, none of the smallest agencies (those with fewer than 50 sworn officers) reported regularly using ALPR and only nine percent of agencies with 51-100 officers were using it.

More recently, a March 2011 Police Executive Research Forum (PERF) survey found 71% of

more than 70 responding agencies use ALPRs. Eighty-five percent of agencies plan on acquiring or increasing their use of ALPRs over the next five years and expect that, by that time, the devices will be deployed in 25% of cars (on average). PERF talks about ALPR in "How Are Innovations in Technology Transforming Policing?" – part of its Critical Issues in Policing Series (<http://tinyurl.com/cfrwy5n>).

ALPR Policies

How many agencies have ALPR technology policies? According to the IACP report, fewer than half (48%) have developed ALPR policies.

What should policies include? The IACP report offers these guidelines: policies should define the strategic objectives of an agency's program; training requirements; deployment options; operating procedures; hot list management; proper use and maintenance of the technology; and data collection, retention, sharing, and access.

Agency policies typically define the ALPR system and its data as "for official use only" (FOUO); restrict and audit queries of the ALPR dataset; and require that all operators of the equipment receive proper training before use.

With regard to data retention practices, agencies varied substantially:

- Sixteen (40%) retain ALPR data for six months or less;



Fewer than half of the agencies utilizing ALPR technology have developed policies for proper use.

- Five (13%) indicated they rely on the technology indefinitely; and
- Two indicated that retention of the data exceeds the storage capacity of the equipment.

ALPR Benefits

Law enforcement agencies report substantial business and public safety benefits from ALPR. PERF and the Motor Vehicle Department conducted a research project to assess the effectiveness of license plate readers. PERF Research Director Chr

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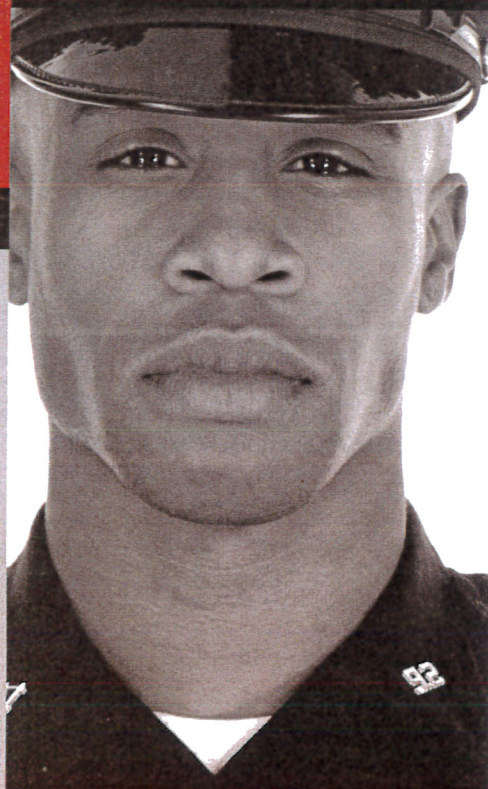
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Cameras in mobile ALPR systems are typically trunk mounted or integrated into a lightbar.

reports that ALPRs can help recover stolen vehicles and apprehend auto thieves and other wanted persons. They may also have benefits for officer safety because officers won't be distracted by entering license plate numbers into a computer while they're driving. ALPRs may also reduce concerns about racial profiling because they operate automatically to scan all vehicles within the range of the devices.

Evaluations of ALPR use have been quite limited, Koper said, and data suggests that police agencies will probably need a critical mass of ALPR use before they really start seeing crime reduction effects as a result of deterrence.

Most police agencies which have ALPRs have four of them, or fewer, he said. "I don't know what the threshold is, but I would urge departments to be realistic in their expectations if they are using a small number of the devices," Koper said. "We also recommend driving slowly when you're using the ALPR units around hot spots. This will optimize the number of plates read while deterring people by having a more visible presence in the area."

Looking at other agencies in its Critical Issues in Policing Series, PERF found:

- To increase its effectiveness, Cincinnati is helping to build a regional sharing system known as Southwest Ohio/Southeast Indiana/Northern Kentucky, or SOSINK (<http://www.sosink.net/>).

- Minneapolis had a domestic kidnapping case in which Metro Transit Police and the FBI were looking for a suspect vehicle and the only information they had was that it was a tan Suburban with "078" as part of the license plate. "We did a search on the license plate recognition database and came up with several vehicles. The closest match turned out to be the suspect vehicle," said Minneapolis Assistant Chief Janee Harteau.

- Chicago Commander Steven Caluris reported that Chicago has ALPR cameras in every patrol district and talked about investigative and intelligence benefits. "Consider the manpower hours used to canvass the scene of a homicide or an aggravated battery which is usually accomplished by assigning officers to collect license plates and information on nearby cars. Now, we can just send a car with ALPR up and down the block to capture it all."

Policies and Privacy Provisions

PERF says general considerations about ALPR use include maintenance issues, privacy consider-

can only photograph the rear of the vehicle and the tag only." The idea is that there will be no facial features in the photo.

In Waco, TX, Assistant Chief Ryan Holt said

investigation. Here are the digital video footage are held for 90 days.

Policies may vary, but

Visit	DateTime	Plates Scanned	Target Scanned
#16	08-20-12 10:55:42	7	NO
#17	08-20-12 15:46:54	4	NO
#18	08-27-12 10:30:52	1	NO
#19	08-24-12 10:37:15	93	NO
#20	07-26-12 14:11:04	46	NO
#21	07-26-12 10:58:22	531	NO
#22	07-21-12 21:55:01	1	NO
#23	07-06-12 19:28:32	227	NO
#24	07-03-12 07:38:00	1	NO
#25	08-21-12 15:07:59	12	NO
#26	08-20-12 13:37:38	5	NO
#27	08-18-12 14:37:09	12	NO
#28	05-14-12 13:34:22	193	NO
#29	05-13-12 22:44:28	1	NO
#30	05-08-12 14:11:51	1	NO
#31	04-30-12 11:57:03	7	NO

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Cameras in mobile ALPR systems are typically trunk mounted or integrated

ations associated with the use of the data, and community reaction to the program.

In Washington, DC, Assistant Chief Alfred Durham, said, "One of the privacy provisions that our city council put into the legislation for photo enforcement of traffic laws is a stipulation that you can only photograph the rear of the vehicle and the tag only." The idea is that there will be no facial features in the photo.

In Waco, TX, Assistant Chief Ryan Holt said

the city council required a privacy policy be put in place before ALPRs could be used in the field. Holt said the agency follows the suggested guidelines from the state of Texas which dictate that information from technology like ALPRs isn't saved for more than 30 days unless it is related to a criminal investigation. There are some exceptions, such as the digital video footage from squad cars, which are held for 90 days.

Policies may vary, but the IACP advises, "They



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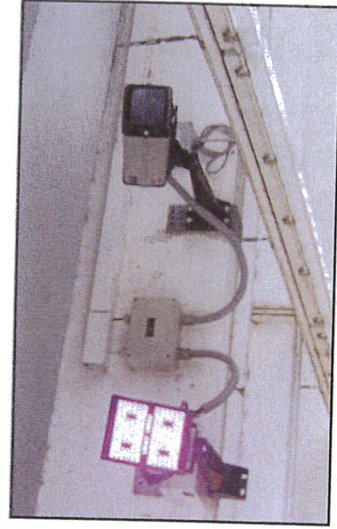
must be developed and strictly enforced to ensure the quality of the data, the security of the system, compliance with applicable laws and regulations, and the privacy of information gathered. Building robust auditing requirements into agency policies will help enforce proper use of the system and reassure the public that their privacy interests are recognized and respected.”

Mobile ALPR System Considerations

Cameras in mobile ALPR systems are vehicle

mounted and can be configured in a number of ways. Typically, the IACP report says, the processor is located in the vehicle trunk and data is processed locally. Cameras are hardwired or magnet mounted and can be integrated into the lightbar, mounted on the roof or trunk, or within covert housing.

Considerations for mobile systems include system portability, vehicle space availability, number of cameras, and data transfer.



Considerations for fixed ALPR systems include existing physical infrastructure and site location, among others.

Fixed and Portable

ACLU: Police Need “Meaningful” ALPR Rules

The increased use of license plate reader technology has drawn the attention of the ACLU.

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ACLU: Police Need “Meaningful” ALPR Rules

The increased use of license plate reader technology has drawn the attention of the American Civil Liberties Union (ACLU) which is concerned that few police departments have “meaningful rules” in place to protect drivers’ privacy rights.

Last summer, ACLU affiliates in 38 states and Washington, DC, filed nearly 600 Freedom of Information requests asking federal, state and local agencies how they use the readers. The 26,000 pages of documents produced by the agencies which responded – about half – include training materials, internal memos, and policy statements.

According to the ACLU, the documents paint a picture of a technology which is becoming a tool for mass routine location tracking and surveillance and is deployed with too few rules.

As the technology spreads, the ACLU calls for the adoption of legislation and law enforcement agency policies adhering to the following principles:

- License plate readers may be used by law enforcement agencies only to investigate hits and in other circumstances in which law enforcement agents reasonably believe that the plate data are relevant to an ongoing criminal investigation.
- The government must not store data about innocent people for any lengthy period. Unless plate data has been flagged, retention periods should be measured in days or weeks, not months or years.
- People should be able to find out if plate data of vehicles registered to them are contained in a law enforcement agency’s database.
- Law enforcement agencies should not share license plate reader data with third parties which do not follow proper retention and access principles. They should also be transparent regarding with whom they share license plate reader data.
- Any entity which uses license plate readers should be required to report its usage publicly on at least an annual basis.

The results, analysis and policy recommendations are detailed in *You Are Being Tracked: How License Plate Readers Are Being Used to Record Americans’ Movements*, an ACLU report (www.aclu.org/alpr) published in July.



Considerations for fixed ALPR systems include existing physical infrastructure and site location, among others.

Fixed and Portable ALPR System Considerations

Considerations for fixed systems include existing physical infrastructure, site location, available power, available network infrastructure, number of cameras, and dispatch requirement.

ALPR Performance

How well an ALPR system can perform is based on capture efficacy, read accuracy, matching effectiveness, and capture/read factors.

Police agencies in the United States must deal with license plates from other states and countries. That can pose difficulties.

Responding to this issue, in April 2011, the American Association of Motor Vehicle Administrators created the ALPR Working Group which published the *Best Practices Guide for Improving Automated License Plate Reader Effectiveness through Uniform License Plate Design and Manufacture* (www.aamva.org/ALPR-Working-Group/).

Looking at ALPR systems, the NIJ has started to develop a voluntary standard for ALPR systems used by U.S. law enforcement agencies. The NIJ reports that the standard is being written by a Special Technical Committee of local, state, and federal law enforcement practitioners who have experience in deployment and use of ALPR systems, plus technical experts who have experience in testing and certification (<http://tinyurl.com/oxr8ptn>).

Improvements to both license plates and ALPR systems will encourage even more law enforcement agencies to use this technology.

About the Author: Rebecca Kanable is a freelance writer specializing in law enforcement topics. She can be reached at kanable@charter.net.

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