



**HERTFORDSHIRE
POLICE AUTHORITY**

**Final report of the Topic Group on
Automatic Number Plate Recognition (ANPR) Technology use
within Hertfordshire Constabulary**

For presentation to Scrutiny Committee on 19 March 2010

1. Executive Summary

During the period between November 2009 and March 2010, a Topic Group comprised of three members scrutinised the Hertfordshire Constabulary Automatic Number Plate Recognition (ANPR) system and PDA technologies. Both were investigated in terms of usage, efficiency, effectiveness and cost. This particular report is concerned with ANPR.

Evidence was gathered by members from various sources including documentation supplied and a comprehensive presentation by the Head of Roads Policing and performance information supplied by OIDD.

In answer to the questions posed in the scoping document (Annex 1), the group concluded that :

1. Following a review by the Chief Constable in March 2009, significant improvements have led to increased effectiveness in Hertfordshire using ANPR.
2. The ANPR system is well regarded by officers within the constabulary as well accepted nationally.
3. ANPR is being used in innovative ways in Hertfordshire for real time intercepts as well as post-incident analysis and investigation.
4. However opposition from the Highways Agency, supported by the Information Commissioner, to allow ANPR cameras on motorways passing through the county is seen as a lost opportunity.
5. Civil Liberties concerns regarding data retention were raised by members.
6. The large initial set up costs of ANPR in Hertfordshire has led to a robust and now mature infrastructure that is a good system contributing to effective policing.

RECOMMENDATIONS

- That support for further national lobbying by ACPO and APA to the Highways Agency and Information Commissioner is undertaken by both the Police Authority and the Constabulary to try to overturn the opposition to sharing data from Highways Agency ANPR cameras on motorways.

- That the Constabulary's data retention/ protection policy regarding ANPR is scrutinised by the Police Authority's Audit Committee, in the light of revised national guidance agreed with the Information Commissioner in January 2010.
- Review in 6 months to look at progress regarding the development areas identified in the Chief Constable's review of ANPR (dated March 2009). Also review the cost effectiveness of ANPR and its performance nationally.

2. Background

During 2008-09, the Police Authority undertook one Topic Group, looking at the issue of Incivility Complaints. There was no systematic approach to this aspect of the Authority's work. The Authority was determined to develop Topic Groups, during 2009/10, as a mechanism to drill down further into significant performance issues, as part of its scrutiny role. A series of five Topic Groups were planned for the current year, ANPR being the second of these investigated.

ANPR has had a high cost investment, £1m, of central government funding and yearly running costs of £1.3m (which includes capital and staff costs) It is seen as playing an effective part in delivering several areas within the Policing Plan relating to;

- Bring more offences and serious offenders to justice – Policing Plan target 3
- Improve community confidence and user satisfaction in police services – Policing Plan target 4
- Report and review police enforcement and prevention activities related to improving road safety – Policing Plan target 5.3
- Deliver Force efficiency plans and realise business benefits from new investment – Policing Plan Target 7.1
- Actively pursue opportunities to develop further collaboration initiatives that provide measurable and sustainable benefits to Hertfordshire – Policing Plan target 7.4

3. Membership of the group

The group comprised

Members: Sally Newton (Chair), David Lloyd, Stuart Nagler

HPA Officers: Brian Pereira, Performance and Operations Manager
Andrew White, HPA Chief Executive:

Constabulary Expert: Donna Pierce/ Andy Piper, Head of Roads Policing

4. Key Questions

The key questions posed by the group were:

How does ANPR operate in Hertfordshire?

Why was it introduced?

What were the Constabulary's original expectations of the system?

Have these expectations been met?

What is the cost? Is the system cost-effective?

Is ANPR making a difference to detections/front line policing?

How effective is ANPR in detecting and reducing crime in Hertfordshire?

To what extent is Hertfordshire making best use of ANPR systems?

How does ANPR operate in Hertfordshire?

ANPR is a crime reduction and investigative tool which works by capturing registration marks from all types of vehicles passing an ANPR camera. This is then compared to hotlists from several databases including the Police National Computer (PNC), Force Hot list, Insurance & DVLA to seek a match. The ANPR system returns and records the result and transfers captures to a database for intelligence and analytical purposes.

Matches termed "Hits" can be actioned for real time interception or used for post incident investigation or predictive intelligence. Post incident investigation allows the movements of a particular vehicle to be mapped to compare with other evidence. Predictive intelligence can assist in showing where and at what time a wanted vehicle will be at a particular location. The systems are powered by Back Office Facility (BOF 2.2) that stores and translates all recorded data. In addition, BOF can be interrogated by iBase (an intelligence system tool). These systems are managed by a dedicated Force Control Room (FCR) ANPR focus desk.

The force has 60 static cameras deployed at 38 locations across the county. In addition, the force currently operates 7 redeployable cameras. A further 30 redeployable cameras will be introduced over the next 3 years. No cameras are deployed on the motorway network unless a redeployable camera is used on an overpassing road bridge for a temporary operation.

The force has trained intelligence analysts who prioritise and investigate the ANPR camera hits. The intelligence system used is iBase which directly links into the ANPR back office, crime systems, DVLA hot lists, Oasis, STOPS database. iBase is an effective intelligence tool for tasking and investigation.

An area of innovation has been the use of convoy analysis which utilises ANPR camera reads. This analysis highlights where two vehicles are operating in tandem passing cameras within seconds of each other. This modus operandi is used by a number of prolific car thieves.

ANPR is also used to build intelligence information on serious criminals to provide lifestyle information from their pattern of movements. Operations (also using real-time ANPR) can be planned to target them.

Each CSP in conjunction with a local Safer Neighbourhood Team undertake an ANPR operation every two weeks. These are found to be high profile / low cost operations which have increased police visibility, targeted and tasked police intervention, branded ANPR activity in Hertfordshire, signage of ANPR operations, proactive media strategy and produced good news stories.

ANPR operations with neighbouring forces have begun as well as involvement with Partnership agencies. One regional operations (Op Utah) has been well publicised and feature on a recent television programme. The operation itself involved 40 officers from six county forces. These included Norfolk, Suffolk, Essex, Cambridge, Bedfordshire and Hertfordshire. ANPR was used with police searched 131 vehicles and seized 22 of these.

The force use a joint approach to ANPR operations in order to protect Hertfordshire's borders e.g. Op Bumblebee; this was a Metropolitan Police anti-burglary Operation. Hertfordshire worked with the Met and to catch criminals who come cross the border into Hertfordshire to undertake criminal activity. E.g. in 2 days the force made 11 arrests for drugs, burglaries and thefts and 5 stolen vehicles were recovered.

Why was it introduced?

What were the Constabulary's original expectations of the system?

Have these expectations been met?

ANPR was introduced to meet the force's strategic priorities:

- Reduce crime and Terrorism
- Bring offenders to justice
 - Reduce levels of offending
 - Protect the public from harm
- Increase public confidence / reassurance
- Reduce Road Traffic casualties
- Targets criminals and not law abiding motorists
- More efficient use of Police resources

These priorities translate into the following in terms of motor vehicles of interest to the police:

- Used in crime e.g. theft of vehicle, transporting illegal goods or criminals, to facilitate crime
- Road Traffic Offending e.g. disqualified driving, uninsured driving
- Mainstream criminals are more likely to be also road traffic offenders
- Road Traffic Offenders more likely to be involved in road traffic collisions
- To protect the public, the police service must be able to deal effectively with offending vehicles / drivers.
- To deny criminals the free use of the road

There are over 40 million vehicles on the road and it estimated that between 1% and 3% of all vehicles are involved in criminality / road traffic offending.

ANPR allows the police to be more targeted in the stopping of vehicles of interest. Previous methods of stopping suspect vehicles had been much less effective and less discriminating. ANPR allows for only those a vehicle for which there is a legitimate interest to be stopped.

ANPR professionalises the targeting of offending vehicles/drivers. The use of real time intercept has the added advantage that the driver is captured in the vehicle often providing the best form of evidence.

What is the cost? Is the system cost-effective?

Original investment

The force's ANPR has received funding from Government (central funding of £1m to set up the force's system),

Running costs

The capital budget is currently £280k per year falling to £140k per year from 2011/12. The revenue budget (excluding staffing) - £220k

- **Staffing numbers**

- Intercept teams – 18 (re-deployed from RPU)
- FCR staff – 10 (re-deployed from existing staff)
- Support – 3 full time, 2 part time

Total cost of staff annually is £996K

Static cameras cost between £40k-60k to set up and redeployable cameras cost £7k plus £13 per SIM card and minimal power costs. The force currently has 60 of these static cameras.

The total annual cost is ANPR is £1.3m.

Further Funding

Partner funding some of which is used to purchase cameras but the force own the cameras. This means no issues legally with data ownership.

The force has put a bid to the Olympic body for £140k funding for more cameras in strategic areas for the up coming games.

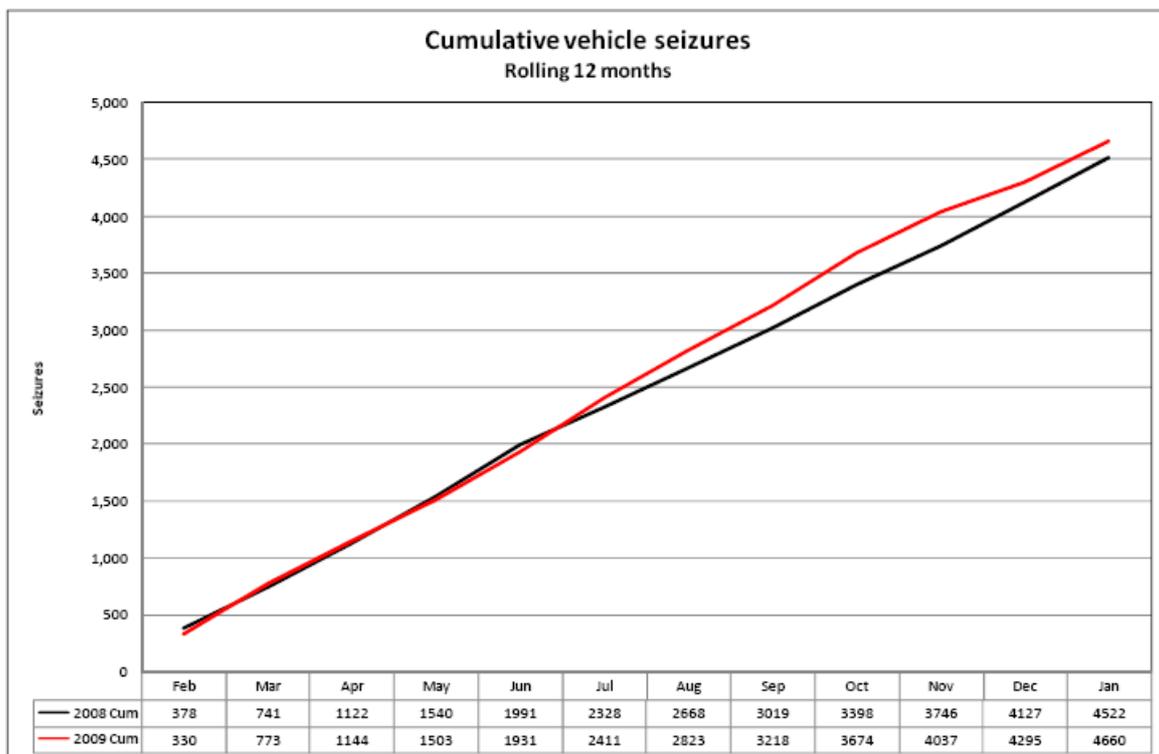
Performance

The primary data for demonstrating the effectiveness of ANPR intercept operations came from controlled national pilots over a 4 year period in the mid 2000's (Projects Laser 1-4, see Annex 2). These were evaluated on behalf of the Home Office by independent consultants and the results made public. They showed that ANPR Intercept Officers make 5 times the arrests of other front line Officers and bring 3 times as many offences to justice (OBTJs). The difference between these figures relates to arrests that are not OBTJs, such as disqualified driving, where ANPR intercept is particularly effective over traditional policing methods.

ANPR performance can also be measured in terms of vehicle seizures see chart below and arrests. Officers, other than Inceptors officers, do not always record arrests or seizures being attributed to ANPR, so the figures are probably showing less ANPR impact than what actually happens. Separate ANPR arrest figures are not maintained nationally. Figures are produced by some Forces but are not captured in a standardised way and caution is needed in making any comparisons.

Prior to 2007/08 the force recorded limited performance parameters for ANPR. Since the chief Constable's review (March 2009) the force are now developing their ANPR performance measures.

ANPR Seizure Data.



This chart shows that from July 2009, following the formation of the force's Interceptor team in the June, vehicle seizures increased compared to the 2008.

Vehicle seizures can be seen in a national comparative context, as statistics are maintained on this through the Motor Insurance Bureau (MIB). Based on these statistics, Hertfordshire is a leading performer nationally. In 2009 Hertfordshire seized 4,709 vehicles, out of 175,935 across the UK (includes Wales, Scotland and PSNI). Hertfordshire seized 2.67% of vehicles but accounts for just over 1% of the UK policing budget, suggesting Hertfordshire rank highly in productivity terms. (See Annex 3 for further statistics. However more clarity with Hertfordshire Constabulary ANPR performance is required)

In answer to the question is ANPR Cost Effective, the answer is inconclusive. The group would like to look at the relationship the force has with the DVLA, and contracted vehicle recovery firms in order to determine the returns of ANPR.

Additionally the group would like to look at what making savings ANPR is making and the performance generated with the investment.

5. Group activity

Topic group members were given a comprehensive presentation by Andy Piper - ANPR manager on 3 February 2010. This included a question and answer session for members.

The areas covered by Andy's presentation included a background, what ANPR is, its strategic priorities, why it is used, result/effectiveness, case studies, future plans (3G live updates), costs, and public profile.

Stuart Nagler has recently visited the Motor Insurance Bureau (MIB). He listened in on MIB phone operators dealing with police officer (national) queries and also heard a Hertfordshire officer phone in a query. This service is well used by officers nationally and within Hertfordshire.

Additionally Stuart was impressed with the close work the MIB have undertaken with the Hertfordshire Constabulary. One of Hertfordshire Constabulary's analysts was allowed access to the MIB data. They were able to show that data accuracy decays with time. Their recommendations are have been implemented with the MIB. Hertfordshire data is now being trialed and sent weekly rather than fortnightly. Thus improving data quality in ANPR use.

6. Key findings

The Chief Constable's Review of ANPR

The group also studied the Chief Constable's review "The Summary of Findings - Review of ANPR use within the Hertfordshire" by the Chief Constable in March 2009 (See Annex 4)

This review identified many positive points:

- Significant improvements in the force control room (FCR) to support ANPR. Including a dedicated Airwave channel.
- The back office facility (BOF) technology was working to acceptable standards e.g. matches appearing on alarm stacks with 5 to 15 seconds of a camera read.
- Extensive static camera infrastructure in the county.
- There is a sizeable mobile ANPR fleet in the force.
- Hertfordshire led national improvement to insurance database (MIDAS)
- The Motor Insurance Bureau (MIB) helpline was well known to officers and felt to be very successful.
 - Rapid developments were occurring in the force to testing new semi-permanent cameras.
 - There is a good structure to support ANPR within the force, including a Steering Group, Tactical Group and a number of dedicated ANPR support posts.

- The force has an ANPR development plan with many of the actions completed over the year.
- The force has been an early adopter of i2 iBase and ANPR plug-in intelligence analytical tools

Development areas identified from the review are listed below along with force actions (in italics) that were put in place to tackle these posts April 2009:

- Gaps in some of the main road arterial routes in and out of the country in terms of fixed camera sites.
- Also some ANPR camera sites were poorly placed, which has led to poor intercept results.
 - *The force have tackled these two items by piloting the use of wireless, semi-permanent cameras, which are cheaper than fixed sites and can be moved to new locations at relatively limited cost.*
- Limited knowledge of and work with surrounding forces in regards to their static camera networks. This limits cross border coverage and use of data analysis.
 - *The force now has maps of surrounding Forces' ANPR camera sites and have taken part in cross border operations such as Op Bumblebee and OP Utah.*
- Confusion around intelligence inputting led to fewer useable items for ANPR intercept.
 - *The force now utilise iBase as an intelligence tool.*
- Information regarding disqualified drivers needed better quality control before being entered on the ANPR system.
 - *The force have made progress with the MIB and are looking to work with the DVLA.*
- Low public profile/ branding of the force's ANPR. This is in contrast to the high profile ANPR use in Essex. This is substantiated by debrief information from offenders on the C2 programme, where it was noted the aggressive marketing of Essex's ANPR has had a significant deterrent affect.
 - *The force have branded the "Interceptor" concept to their 2 dedicated patrol teams. Additionally the force have used signage of ANPR Operations, and used a proactive media strategy to boost ANPR profile.*

Member Conclusions

Members concluded that ANPR made a significant contribution to reducing crime within the county of Hertfordshire. The technology is mature although some concerns were raised about the ability to be able to process ever increasing amounts of data.

Members noted that all officers seen that used the system gave it high praise.

ANPR has become part of mainstream policing. Officers are investigating crime and asking what ANPR can do for them. The technology is well established and the force has invested in developing the system for example to improve speed in the cycle of reads–log–return information. Additionally the use of iBase for intelligence analysis is leading to innovative methods in arresting criminals. The annual running cost of ANPR (£1.3m) is seen as a good investment in producing a good system that is contributing to effective policing. However the group are uncertain of how the Constabulary is currently performing, with its ANPR, and how nationally they compared in performance to Project Laser.

Members were concerned that there are no ANPR cameras on Hertfordshire's motorways. The group was informed that this was because the Highways Agency who run the country's motorway network would not allow cameras to be sited. Whilst the force had some concerns about their ability to be able to process the additional data that the introduction of such cameras would cause, members believed that their absence was a strategic gap in Hertfordshire's defences.

Members raised concerns regarding ANPR data retention and whether this infringed on civil liberties. This issue has recently been fully debated with the Information Commissioner's Office and revised guidelines agreed for national adoption. This has led to reduced retention periods for most ANPR data and more restrictions on its access and use as time elapsed increases.

Currently number plate pictures are held for 2 years. Car pictures are held for 90 days. "Hits" information on text and number pictures are held for 5 years and car pictures are held for 2 years.

See proposals document to ICO (July 2009) and ICO response (January 2010) for full details of retention and access. (Annex 5 and 6 respectively)

Members discussed whether the recording and retention of the movements of majority of law abiding citizens around the county was fully justified. The force has a robust data retention and access policy and process. Members accepted that data was not held for excessive periods of time but wished to have more reassurance about the controls in place for accessing this type of information. The Authority will scrutinise the data protection policy and procedures through its Audit Committee.

At this time, the cost effectiveness of ANPR is inconclusive. The group would like to see the returns of ANPR in terms of the relationship with the DVLA, and the contract with the recovery vehicle firms. Additionally the group would like to see the how ANPR is making non-cashable savings and how it is performing nationally.

7. Recommendations

The Topic Group members recommend:

- That support for further national lobbying by ACPO and APA to the Highways Agency and Information Commissioner is undertaken by both the Police Authority and the Constabulary to try to overturn the opposition to sharing data from Highways Agency ANPR cameras on motorways. FW – update –

this is being pursued by the ACPO national lead (Herts Chief Constable) and Hannah Sharpe (APA policy officer) through the national ANPR Programme Board. However, with a new Government, who have higher levels of concern about civil liberties, this needs to be approached very sensitively, working with NPIA and Home office policy leads. Herts Constabulary are assisting this process by helping the Chief Constable to gather further data on the effectiveness of ANPR tactics. There is nothing further in practical terms that Herts Constabulary or Police Authority can do to further assist at this stage.

- That the Authority's Audit Committee scrutinise the Constabulary's ANPR data access and retention policy. FW – Andy Piper – can you confirm we have an ANPR data access and retention policy that meets the national standards in place? If so, are we able to fully comply with this or are we still limited by the lack of automatic weeding facilities on BOF 2.2 etc?
- Review in 6 months to look at progress with the development areas identified in the Chief Constable's review of ANPR (dated March 2009). FW – Paul Ealham – can you provide a quick update here – i.e. as of June 2010, how many actions were in the plan and what is the status of these in numerical terms (i.e. how many still open, how many discharged etc)?
- Also review the cost effectiveness of ANPR and its performance nationally. FW – this is a separate item to the Force development areas. If what is being asked for is beyond the national research already published and made available to the Topic Group (e.g. Project Laser evaluation reports), then this is a huge undertaking and is way beyond the remit and resources of a local Force to do. Work continues under the National ANPR programme Board to research aspects of ANPR performance, but this is a moving feast as new developments (e.g. iBase, Cleartone BOF etc) are constantly coming on line. I would suggest the Authority limits itself to being updated on national work of this sort on a periodic basis. Examples of this work include:
 - work in Herts on behalf of the National User Group to look at the usefulness of ACT and REACT reports on PNC and the usefulness of putting OCG nominals on the "Herts hotlist". There is going to be an information gathering exercise in July – October 2010 re this.
 - Work in Herts on behalf of the National User Group to test the impact of changing the lag period on the MID and DVLA ANPR databases on the effectiveness of ANPR intercepts 9Summer / autumn 2010)

8. Acknowledgements

The Topic Group wishes to thank Donna Pierce and Andy Piper for their invaluable expert contribution to our work, including the quality and responses to our requests for information and clarification. Finally the we would like to thank Mike Rhead from OIDD for supplying performance information.