

Police Standards Unit

Thematic review of the use of
automatic number plate recognition
within police forces

December 2006



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Foreword



Automatic Number Plate Recognition (ANPR) is an established technology that allows vehicle registration marks to be 'read' by cameras using pattern recognition software. In October 2002, the Home Office Police Standards Unit (PSU) and the Association of Chief Police Officers (ACPO) helped introduce dedicated intercept teams using ANPR in nine police forces – 'Project Laser'. This was evaluated and showed that ANPR brought many more offences to justice than conventional methods of policing per officer hour.

Building on the success of this pilot, the PSU has provided over £32 million of capital investment to develop the use of ANPR at the national, regional and local level. ACPO are using part of this funding to progress the development of a national infrastructure, specifically the National ANPR Data Centre (NADC) and a Back Office Facility (BOF) system providing ANPR data storage and analysis tools for all forces in England and Wales. This national infrastructure, which will be delivered 2007, will enable police forces to use ANPR in a more comprehensive manner to address terrorism, serious, organised and volume crime. Individual Forces have also used PSU funding to develop their local infrastructure, including the installation of ANPR cameras at key strategic sites.

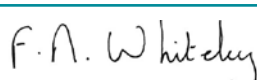
Since 2002 ANPR has been adopted by Forces as an intercept tool and has had a demonstrable contribution to the Government's aim to bring more offences to justice. Acknowledging that the current programme of ANPR development is work-in-progress, the challenge for the police is to ensure that the full benefits from the ANPR funding are realised and that the use of ANPR is embedded into mainstream policing, including support to investigations and as a means of developing intelligence.

This review was commissioned in order to assess the current use of ANPR as a policing tool and to identify ways in which it could be made more effective. It was undertaken against a backdrop of on-going development in ANPR infrastructure and use. As such, some of the issues raised will be addressed by workstreams that are already planned, however overall more could be done to exploit the undoubted benefits of ANPR.

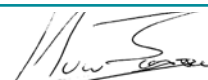
The findings, conclusions and recommendations set out in this report are endorsed by the Home Office, Her Majesty's Inspectorate of Constabulary and ACPO.



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Chair of the ACPO ANPR
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1

Executive summary



1.1 Context

The police have only begun to exploit Automatic Number Plate Recognition (ANPR), as a tool to detect and disrupt criminality, in recent years. Since the first Project Laser trials in 2002, the exploitation of ANPR has grown significantly from limited, ad-hoc usage by a few forces to the current situation where all forces in England and Wales have ANPR capability backed up by central support from the ACPO ANPR Coordination Team (AACT) and the PSU. To date ANPR intercept teams have made 45,000 arrests¹ and have done so with considerable efficiency.²

ACPO remain committed to help embed ANPR as a core policing tool and to maximise the potential of ANPR across all forces. To support this objective, PA Consulting Group (PA) was commissioned to undertake a thematic review of the use of ANPR. This would provide an understanding of the current use by Forces of ANPR and establish a framework for the inclusion of ANPR in future HMIC Baseline Assessments.

This report presents the findings, conclusions and recommendations of the review. In particular it looks at the current use of ANPR as a policing

tool across six key themes, namely compliance with the National Intelligence Model (NIM), use of technology, resource allocation, investigating crime, leadership, performance measurement and compliance with vehicle seizure legislation. In addition, the authors were also asked to review how SR2004 Home Office funds had been invested to make an assessment as to what the crime-fighting benefits have been.

It is important to note that the use of ANPR by the police is not yet fully mature, indeed there are many on-going developments, for example:

- Many forces are currently installing fixed ANPR infrastructure on strategic routes. This will significantly enhance their intelligence gathering capability in the medium term
- Training of police staff in the use of ANPR, both as an intercept tool and as an intelligence source, is being gradually rolled out
- Two key national projects (the NADC and the enhanced BOF2) are set to deliver in 2007. This will provide access to other Forces ANPR data and a range of investigative tools, supported by ACPO good practice guidance (for example Investigators Guide for ANPR).

¹ 3,071 arrests as part of Laser 1, 13,499 arrests as part of Laser 2, 18,643 arrests as part of Laser 3 and 10,958 arrests as part of Laser 4 up to end of September 2006

² See *Driving crime down: Denying criminals the use of the road*, PA Consulting Group, October 2004

This review, therefore, looks at ANPR use within forces as a 'work-in-progress'. Many of the issues identified below are being or should be addressed by planned ACPO workstreams. Nevertheless, this report provides a valuable snap-shot view of the current situation and an overview of progress.

1.2 Conclusions

This review concludes that, within a relatively short time period, forces have successfully adopted ANPR as an intercept tool that (in the majority of cases) is tasked through the TTCG process. Intercept teams using ANPR continue to make a significant number of arrests and deny criminals the use of the road (for example through exploiting the new vehicle seizure powers). This clearly demonstrates that ANPR makes a direct contribution to both national and force objectives and is used on a daily basis to engage criminals. In comparison to a number of other technology-enabled projects in the criminal justice area, its success has been remarkable.

The review identified a number of sub-conclusions:

- C1 At Force level ANPR is not seen as a relatively high priority policing tool. As a result, ANPR is not being adequately resourced and, unless this is addressed, the full potential of ANPR for Forces is unlikely to be achieved.
- C2 When delivering ANPR projects, Forces typically focused on outputs (getting infrastructure in place) rather than benefits realisation (delivering more arrests). As a result, ambitions around the use of ANPR to deliver policing objectives are not being set and infrastructure installed is not being fully exploited.
- C3 Funding and delivery of joint ANPR projects and operations (for example involving local authorities and private sector) has generated benefits for the police. This partnership approach, which has been promoted by the AACT, is to be applauded.
- C4 Sub-optimal communications within and between Forces, their contractors and partner agencies has meant that the implementation of ANPR projects (in particular the delivery of roadside infrastructure) has been less efficient. There have been a number of lessons learned in this area that will usefully inform future implementations.
- C5 There has been little coordination in the procurement of ANPR equipment between Forces. This has arisen largely out of individual Forces' desire to manage the procurement process to suit their own particular needs.
- C6 The focus of ANPR activity to date has been primarily as an intercept tool. While some forces recognise the wider policing benefits (for example for providing intelligence and surveillance), the exploitation of ANPR in these areas has been limited. The delivery of NADC and BOF2 should significantly enhance the potential benefits.
- C7 In spite of the overall success of intercept operations, poor quality/lack of vehicle intelligence and lack of analytical tools continues to be an issue. Forces are aware of these data issues, in particular relating to their own vehicle intelligence and are seeking to address this where they can. Analytical tools will be provided to forces as part of BOF2 roll-out in 2007, however few Forces have planned for additional analytical resources to exploit this.
- C8 The number of vehicle hits far exceeds the resources available to respond to them. As a result, high priority vehicles are not always being intercepted. With more ANPR infrastructure coming on line, this problem will increase. There is a risk with repeated failure to respond to specific vehicle hits that these vehicles could be subsequently involved in significant crime/road traffic collisions.

- C9 Vehicle seizure has become an extremely useful tool for ANPR intercept teams. It has directly contributed to denying criminals the use of the road. While the process generally works well, there is a loophole regarding vehicle reclamation. There is variation between Forces about how this is handled.

Overall this report concludes that ANPR has made considerable contributions to fighting crime, although Forces could do more with the current infrastructure if ANPR was given appropriate Force priority. Further, with the delivery of the national projects and more roadside infrastructure in 2007, it is vital that Forces seek to exploit the increased potential of ANPR to deny criminals use of the road.

1.3 Recommendations

Given the continued success of ANPR and the potential offered by forthcoming national projects, the key recommendation is that the Home Office and ACPO must continue to support Forces' use of ANPR and ensure that Forces seek to exploit the potential of the national projects. The current situation is that the responsibility for the operational delivery of ANPR lies with ACPO, through the ACPO ANPR Coordination Team (AACT). It is likely that this team will be subsumed into the National Policing Improvement Agency (NPIA) in the near future and any recommendations on ACPO may, therefore, have to be taken forward by the NPIA in conjunction with ACPO.

It is vital that the significant benefits that ANPR offers to the police service are communicated effectively. In addition the delivery of NADC and BOF2 in 2007 means that there is an even more urgent need to revisit the current communications strategy to encompass the wider capabilities of ANPR as an intercept, intelligence and investigative tool. This strategy must then be delivered at both the national and the force level

– this will be a challenge given the limitations highlighted in the review of limited internal Force communications regarding ANPR. To help with this we recommend that other parties seek to exert their influence, in particular the NPIA (when established), HMIC (for example in the inclusion of ANPR within the baseline reviews) and Centrex (for example in the inclusion of ANPR in a wider range of training).

The core recommendations of this thematic review for the future development of ANPR nationally are as follows:

- The increasing prevalence of ANPR integrated with fixed site and CCTV infrastructure will greatly increase the number of ANPR hits on vehicles linked to crime. Forces have not yet begun to address the policy or resourcing implications of these developments. It is therefore recommended that ACPO produce a policy that advises forces on a response strategy that takes into account prioritisation of hits, health and safety, the implications of not responding in live time and any follow up actions required to deal with the intelligence gained from these identifications.
- In light of the development of the NADC, forces need to consider how ANPR will be used as an investigative tool in crime investigations, particularly where a vehicle is linked to the crime or a suspect. ACPO has recently provided guidance to forces on this issue.
- Force performance targets should be influencing the intelligence databases on which ANPR relies so that ANPR activity reflects the overarching priorities. Forces must consider how they ensure that quality intelligence is provided to their ANPR systems and that this intelligence is linked to their policing priorities.

Further specific recommendations are as follows:

- R1 For Forces to exploit the full benefits of ANPR, those involved in business planning and high level resource allocation processes need to understand the full benefits (both as an intercept tool and an intelligence tool) of ANPR. While it is recognised that some of these benefits are not yet fully realisable (specifically as NADC and BOF2 have not yet been delivered), there needs to be greater understanding of the current and future potential of ANPR within Forces. We therefore recommend that ACPO enhance their communications activities to educate the police community as to the benefits of ANPR, both current and future.
- R2 When making an investment in ANPR infrastructure, forces must make explicit reference to the outcomes that the proposed infrastructure (and deployment of intercept teams using this infrastructure) will make. To support this we recommend that Forces set in place appropriate monitoring arrangements of outcomes from ANPR investment related to clear outcome-related objectives. When reviewing the appropriateness of infrastructure investment, HMIC should review whether forces have actively sought to realise these benefits.
- R3 As part of the updated communications programme, ACPO should circulate their good practice guides on:
 - planning/delivering ANPR infrastructure. This could be updated to reflect Forces' most recent experiences in installing fixed infrastructure
 - engaging with external parties. Some partnerships may be best developed and coordinated at a national level (for example with the Highways Agency) and we therefore recommend that ACPO should take the lead on these.
- R4 Given that many Forces have now been through procurement processes, it is not considered necessary to specifically develop procurement frameworks at a national or regional level. However, we recommend that ACPO continue to provide a central repository of ANPR framework contracts to allow other forces in future to collaborate if appropriate. Forces should also consider the creation of longer term or open-ended frameworks to allow for the future procurement of ANPR equipment.
- R6 We recommend that ACPO develop a benefits realisation plan template for forces to use as the basis for exploiting ANPR. This will highlight an approach to exploiting the benefits of ANPR as an intercept tool, for gathering intelligence and for supporting investigation.
- R7 In order to improve and promote the analysis of ANPR data, we recommend that the ACPO team seek to:
 - communicate with Forces the exploratory/development work being done on software development, for example on integration of ANPR data with other police data sources to support analysis (for example The Distillery and i2 products)
 - continue the ANPR analysis input on courses run by the accredited National Intelligence Analysis Training centres
 - provide a repository of experiences of analysis products used with ANPR data, in particular how these have been useful and what their impact has been.

- R8 We recommend that ACPO should develop a national policy through the National User Group regarding the level of response to ANPR hits at fixed sites. This must be sufficiently flexible to reflect different Force resourcing levels, but must be robust to ensure that vehicle hits are responded to appropriately.
- R9 In the absence of enabling legislation, we recommend that ACPO continue their work with the motor insurance industry (MIIB) and the ACPO Vehicle Recovery Group to address vehicle reclaiming loopholes in a practical way. Forces should also consider adopting a more robust approach regarding the documents required to reclaim a vehicle. It would be useful if ACPO, as an organisation, agreed a consistent national, and robust, approach to counter this problem.
- R10 We recommend that the ACPO team should continue to work with the ACPO Vehicle Recovery Group to share best practice in vehicle recovery contracts, in particular the vehicle seizure aspect. This should involve specific support to forces who are not yet seizing vehicles.
- R11 We recommend that the Home Office should discuss with DfT whether the current fees for vehicle removal (set under The Removal, Storage and Disposal of Vehicles (Prescribed Sums and Charges etc) Regulation 1993) can be updated to reflect current costs. Such a discussion should also consider the transfer of responsibility for fees from the Home Office to the DfT.
- R12 This review has identified a number of areas that would benefit from further research in order to inform future decisions on the use of ANPR. It is therefore recommended that the NPIA carry out a programme of research and evaluation in the following areas:
 - the relative effectiveness of different tasking and deployment methods for intercept teams (eg fixed or mobile, TTCG or self tasked deployments)
 - a cost benefit analysis of ANPR teams
 - the effectiveness of ANPR capability at level 2
 - an assessment of the intelligence benefits of ANPR.
- R13 We recommend that HMIC should include the role of ANPR in delivering targets within the baseline reviews they undertake and consider the significant impact that ANPR will continue to have on protective services so that this can be reflected in the inspection process.

2

Introduction



2.1 Background

Automatic Number Plate Recognition (ANPR) is not a new technology, but has only relatively recently been used as a tool to tackle criminality. In 2002 a number of Forces took part in the Laser 1 trials. This involved the evaluation of ANPR use by dedicated intercept teams to target criminals using the road network. In 2003-2006, this was followed by Laser 2 and Laser 3 evaluations as all Forces in England and Wales developed a dedicated intercept team capability.

Whilst ANPR has been developing as an intercept tool, there have been national projects, funded by the PSU and managed by the BOF2 and NADC Project Boards, to develop an ANPR IT infrastructure which will provide Forces with access to ANPR read data in support of intelligence gathering and investigations. As this report will detail, the development of this IT infrastructure has been delayed and has meant that some of the tools have not been in place to fully exploit the potential of ANPR. It is hoped that this IT infrastructure will be delivered in 2007.

2.2 Aim

The aim of this report is to present the findings, conclusions and recommendations from the Thematic Review of the police use of ANPR. The report is also informed by the findings of the Capital Project Review.

The purpose of the Thematic Review of the police use of ANPR is to assess the use of ANPR as a policing tool and to provide a framework for the inclusion of ANPR in future HMIC Baseline Assessments.

The Capital Project Review was carried out to identify any problems or particular successes in relation to the implementation of the ANPR infrastructure project and to attempt to quantify any benefits the projects have realised. This review will inform ACPO guidance and the development of business cases for future ANPR projects.



2.3 Terms of reference

The Thematic Review was designed to focus on six areas related to ANPR. These were:

- *National Intelligence Model (NIM)*

This theme concerned the use of ANPR as an enforcement, intelligence and crime prevention tool within the context of the NIM. It focused on the use of ANPR by Tactical Tasking and Coordination Groups (TTCG) at both Level 1 and 2, the collection and analysis of intelligence generated by ANPR and partnership working. The theme also explored issues surrounding the accuracy of information used within ANPR databases with a focus on weeding policies, the impact of data inaccuracy and the prioritisation of data on specific crime types.

- *Technology*

This theme explored the ANPR technology that a Force is using, what information sources it has been connected to, and the strategic level support and planning which the Force gives to ANPR technology. It also focused on the types of ANPR installations that a Force has invested in, the source of funding for the investments and National ACPO ANPR Standards (NAAS) compliance, as well as the use of technology to make ANPR information available to all relevant officers.

Future developments in technology and their impact on ANPR have also been assessed.

- *Resources*

This theme identified the resources that a Force uses to respond to ANPR hits. In addition to discussing the use of dedicated ANPR teams, the theme explored the aims and objectives of such teams within forces. The use of general resources throughout the Force to respond to ANPR hits and the processes used to support this was also assessed.

- *Investigating Crime*

This involved the identification of major incidents, which have used ANPR information, including those where it has been used as evidence in prosecutions. The use of ANPR in the investigation of volume crime was also assessed focusing on officer awareness of ANPR and their access to relevant ANPR information. Issues surrounding the use of ANPR information in prosecutions by criminal justice partners were also discussed.

- *Leadership and Performance*

This theme focused on a Force's internal monitoring and review of the performance of ANPR resources in addition to the monthly reporting provided to PSU by PA Consulting Group.



- *Vehicle Seizure Legislation*

The use of vehicle seizure legislation in conjunction with ANPR and throughout general policing functions was addressed. The focus here was on issues surrounding the process of vehicle seizure and with the effectiveness of the legislation.

The Capital Project Review focused on issues relating to ANPR infrastructure projects funded by the SR2004 Home Office funds provided for spend in 2005/06. The review specifically assessed the following areas:

- The project proposals and business case, including objectives of projects.
- The issues surrounding the project management and implementation of the project.
- The use of the infrastructure delivered by the project in the context of the Thematic Review framework (see above).
- Benefits realised from the new ANPR infrastructure.

2.4 Method

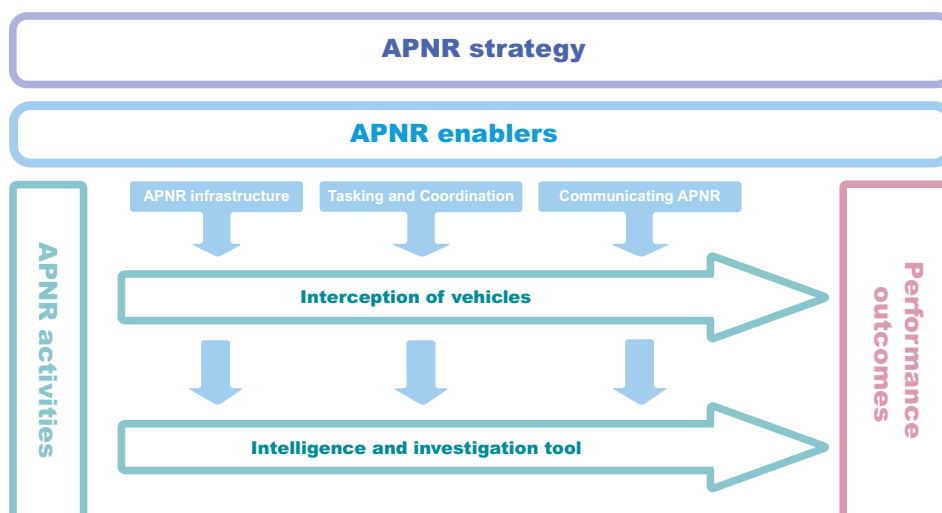
A sample of Forces was chosen by the PSU to take part in the thematic and capital reviews.

Thematic review forces	Capital project review forces
Derbyshire	Avon and Somerset
Hertfordshire	BTP
Kent*	Durham
Lancashire*	Essex
MPS	Hampshire
North Wales	Merseyside
Sussex	West Midlands
West Yorkshire*	CMPG

The Thematic Review of ANPR was conducted by consultants from PA over three days within each Force. Key posts were identified for interview due to their involvement in one or more of the six areas identified in the thematic review framework. These interviews were based on a structured discussion guide that provided a series of open questions in each of the six areas. A focus group was also held consisting of police constables from an ANPR team and police constables from a territorial BCU who are involved in a patrol function. In addition to (or sometimes instead of) the focus group, the review team observed ANPR intercept teams during operations.

* These Forces were also subject to the Capital Project Review

Figure 1: Diagram showing framework for how ANPR is used



The Capital Project Review followed a similar method conducting one-to-one or group interviews with key individuals involved in infrastructure projects. As with the Thematic Review, these interviews were based on a structured discussion guide, which provided a series of open questions. In addition, to the interviews, proposals for funding were analysed from all Forces in receipt of SR2004 funds.

It is important to note that the findings from the thematic and capital interviews were based on what individuals had told the review team. Where there were contradictory findings from interviewees within the same Force both sets of opinions were represented in the analysis.

In addition to the findings from the Force visits, anecdotal evidence was taken from other police Forces in England and Wales in relation to their use of ANPR. Interviews were also conducted with the Serious and Organised Crime Agency (SOCA). Finally, ANPR suppliers were interviewed in order to obtain their views on the use of ANPR by Forces.

An analysis of all data from the interviews was conducted in order to identify benchmarks of practice within the Forces (see Appendix A for list of benchmarks). Force findings were then assessed against these benchmarks in order to produce key findings at a national level. These key findings were then analysed to produce the report conclusions and subsequent recommendations.

2.5 Report structure

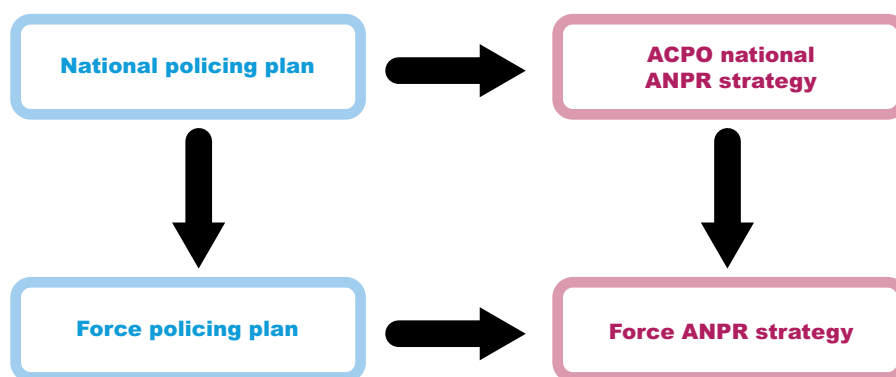
This report is structured on a model of how ANPR can be used within Police Forces. The sections of the report are based on three ANPR enablers (infrastructure, tasking and coordination and communications) followed by sections on the primary ANPR activities of vehicle interception and intelligence. Prior to the enablers and activities sections the report assesses ANPR strategy which sets the framework for how ANPR is used.

3

ANPR strategy



Figure 2: Diagram showing links between national and force policing plans, and ANPR strategies



3.1 Force strategy

F1 Forces recognised ANPR as a strategic priority, although typically this is not backed by significant financial investment or reallocation of intercept officers/intelligence analyst resources to exploit current ANPR capabilities.

Since the publication of the ACPO national ANPR Strategy, most Forces have developed their own ANPR strategy often with the assistance of the AACT. However, links between a Force's ANPR strategy and its policing plan are not always clearly articulated. The MPS are one of the few Forces that did include elements of their ANPR strategy within their policing plan.³ The expansion of ANPR capability and capacity in support of Safer Neighbourhoods, CT, Security and Protection, and Criminal Networks was identified by the MPS as an activity within the Capital City Policing section of their Corporate Priorities.

Whilst not specifically identifying ANPR in policing plans, at least two other Forces have included it as a key priority within strategic initiatives which will inform their future policing plans.

For example, North Wales Police identify the creation of additional ANPR intercept teams to focus on Level 2/3 criminality as a priority in improving the provision of Protective Services in North Wales.⁴ This demonstrates the significant potential that an ANPR capability could provide in addressing the Protective Services gap.

Despite Forces identifying ANPR as a strategic priority, ANPR struggles to compete with other Force priorities and is rarely backed up by any substantial investment of Force's own finances in ANPR in the face of demands for investment in other priorities. In many cases this prioritisation of resources is undertaken without a cost-benefit analysis of the relative merits of investment in ANPR against other (seemingly higher) priorities. Hertfordshire Constabulary are one of a few exceptions, and have earmarked £1.4m for investment in ANPR over three years.

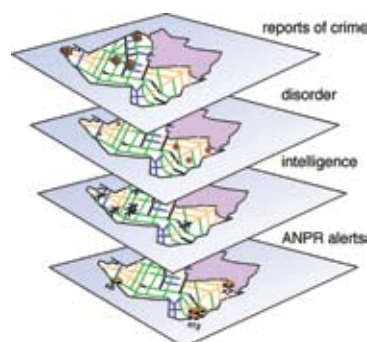
At a national level, Chief Officers have recognised the importance of investment into ANPR. This is demonstrated by the Chief Constable's Council approving future funding of BOF2 and NADC through a rise in the force PNC subscriptions in 2007/08.

³ http://www.met.police.uk/about/documents/Police_Plan_2006.pdf

⁴ http://www.north-wales.police.uk/nwp/public/admin/_global_images/uploaded/NWP-PROTECTIVESERVICES-FINALVERSION.doc

Kent ANPR Intelligence Strategy – Fixed Site ANPR: adding to the asset base.

Kent Police are developing a fixed site ANPR infrastructure throughout the county. A strategy has been produced to ensure that the intelligence from these sites is combined with other data sources linked to entities such as people, events and locations. This will provide a comprehensive source of data for analysts and officers using ANPR information to enrich the intelligence picture.



3.2 Leadership

F2 Force ANPR strategies do not fully acknowledge the intelligence role of ANPR. Rather ANPR is primarily seen as an intercept tool. This position was reinforced by previous HMIC Baseline Assessments which included ANPR only within Roads Policing.

All Forces reviewed have an ACPO rank officer designated to lead on ANPR development within Force. This role usually involves chairing ANPR development boards or acting as the project executive for ANPR projects. For the majority of Forces, strategic leadership has been focused on the use of ANPR as an intercept tool following its successful evaluation in this role on the Laser 1 and 2 trials.

The primary use of ANPR as an intercept tool has been reinforced with the day-to-day management of ANPR usually assigned to road policing business area. This has resulted in other business areas viewing ANPR as a 'traffic' tool rather than a tool, which can bring benefits to all aspects of policing. Force strategies will usually identify the intelligence value of ANPR although few provide detail of how this will be developed into the delivery of benefits. Within the majority of Forces there is limited evidence of a strategic lead from

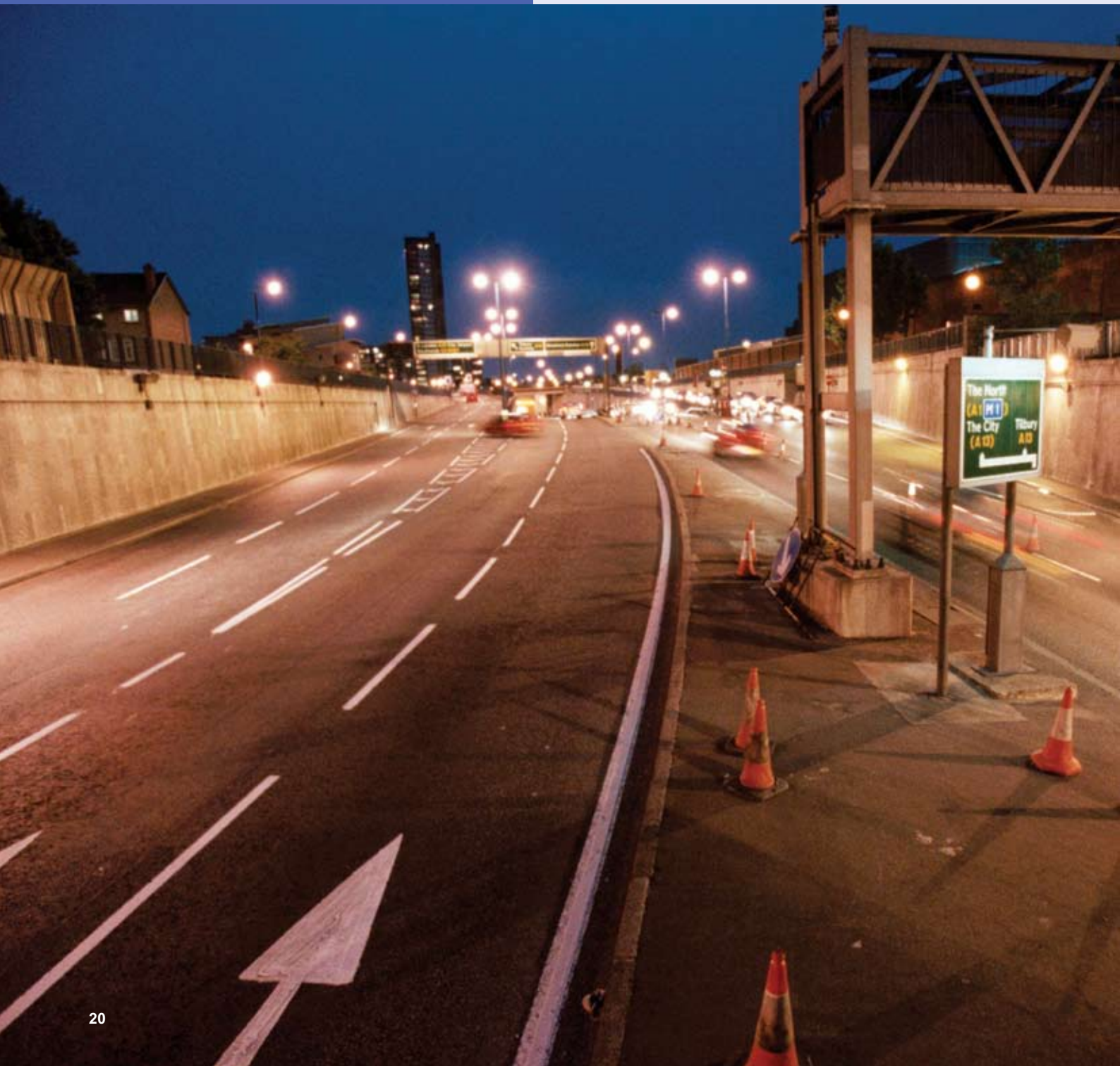
within the intelligence department or from chief officers involved in the development of ANPR for intelligence purposes. This situation has been complicated by delays in the delivery of BOF2 and NADC and lack of understanding amongst some Forces of the exact analysis capability it will offer. As a result, Forces are cautious about the promotion and development of ANPR for intelligence without the existence and consistent performance of a back office facility (BOF) which will be key to the delivery of these benefits (see section on infrastructure below).

One exception to this is in Kent Police, where the ACPO lead on ANPR has ensured that their ANPR strategy focuses on the benefits of using ANPR as an intelligence tool. This is backed up with a plan for integrating ANPR data with other Force data systems in order to fully exploit the use of ANPR in the NIM process.

HMIC Baseline Assessments have included the use of ANPR within roads policing. This has reinforced the perception of ANPR as solely an intercept tool and meant that intelligence and investigation business areas have not been formally assessed on their use of ANPR. HMIC intend to include ANPR within the crime areas of future Baseline Assessments which will help to promote the wider use of ANPR.

4

ANPR infrastructure



Hampshire Constabulary – expected benefits from ANPR development

Hampshire Constabulary has produced a business case for the development of their ANPR capability within Programme Mercury. This business case identifies the following quantifiable expected benefits for their ANPR project:

- Major Investigations – 10% reduction in the duration of investigations.
- Road Collision Investigation – reduction in the duration of witness enquiries and increase in speed of early witness identification resulting in 30% reduction in investigation effort.
- Reduction of Fatal RTC – through targeting of high risk drivers

(for example, no insurance, no tax) the size of this vulnerable group of road users will be reduced by 2%.

- Surveillance – reduced demand for mobile surveillance teams of 30% due to use of ANPR to track vehicles and to trigger/pick up targets for surveillance teams.
- Targeting the right suspects – total reduction of the time spent by RPU on unproductive stop checks.

Whilst these quantified benefits are estimates, they do provide Hampshire with a benchmark to inform post implementation evaluation.

4.1 Infrastructure decisions

F3 The benefits arising from current ANPR infrastructure investment have not yet been evaluated by Forces. Accepting that this infrastructure is a work in progress and there is anecdotal evidence that this infrastructure has been helpful, there is little quantitative evidence to support this. Without this evidence, it is difficult to justify the higher prioritisation of ANPR by Forces.

Application forms for capital funding from the PSU included a section titled 'Project Description' which requests Forces to highlight the perceived benefits of the proposed ANPR capital project. Whilst all Forces do highlight some expected benefits in this section they are usually in general terms such as 'to reduce crime', 'to deny criminals the use of the road' and to 'improve intelligence'. Very few Forces provide a framework of expected benefits which could be quantified and subject a post project evaluation. Further, not all Forces provide a clear link between their ANPR strategy and their project proposal.

Of the twelve capital projects assessed, all highlighted benefits of the proposed ANPR project in general terms. Three provided sufficient detail

on the expected benefits, which could be used in a post implementation evaluation. Seven out of the 12 capital project applications articulated a link between the Force ANPR strategy, the proposed project and the expected benefits. Limited links between long term strategy and infrastructure projects are compounded by the uncertainty over future Home Office funding and short time scales in which to spend any funds. This has resulted in forces having to implement projects in short time scales and inhibits longer term planning.

The absence of a clear link between ANPR strategy, proposed projects and expected benefits is further highlighted with an absence of clear user requirements when making procurement decisions at both Force and national level. Kent has been one of the few Forces to identify user requirements in relation to procurement of software to analyse ANPR data.

No Force had fully evaluated the benefits of their ANPR infrastructure projects. One reason for this was that at the time of evaluation, six out of the twelve Forces subject to a Capital Project Review were experiencing problems with their existing back office facility or had experienced delays in the delivery of a back office facility. This resulted in



these Forces not having the desired connectivity between their ANPR cameras and a back office facility which would allow for the dispatch of ANPR hits by control rooms and the analysis of ANPR data for intelligence purposes. However, those Forces that did have an effective BOF in operation linked to their new infrastructure had not attempted to evaluate the benefits.

Despite the absence of any full evaluation, Forces were able to provide anecdotal examples of how the ANPR infrastructure purchased with SR2004 funding had resulted in an identified benefit.

For example:

- Durham Constabulary claimed that since the installation of ANPR cameras at an airport car park vehicle crime had significantly decreased, due to the deterrent effect of the cameras.
- Essex Police used their new ANPR infrastructure and back office to track the movements of a vehicle linked to a suspect for large numbers of thefts of petrol from petrol stations throughout the county. The use of ANPR data along with other intelligence sources led to the identification of the home address of the suspect resulting in his arrest.

- Merseyside identified how their surveillance teams had used ANPR information from the new infrastructure to locate targets and that the Major Incident Teams were regular users of ANPR data to support investigations.

It is likely that fixed site infrastructure, funded by the PSU, will be fully implemented in 2007. Along with BOF2 and the NADC, this infrastructure will provide the basis for forces to realise the greater benefits from ANPR as both an intercept and intelligence tool.

In addition to the operational benefits of ANPR infrastructure, it was also important to evaluate the technical performance of the equipment that is purchased. Hertfordshire have conducted a technical evaluation of their mobile ANPR cameras, which was informed by a survey of users. The results of this evaluation will be used to inform future infrastructure decisions leading to the procurement of ANPR equipment. This type of feedback is important in helping to understand the effectiveness of current systems and how they could be improved.



F4 Forces have developed innovative approaches, with support from the AACT, in working with other organisations to the development and deployment of ANPR infrastructure. This has realised value above that which would otherwise be expected.

In developing ANPR infrastructure, Forces have made extensive use of existing CCTV systems in partnership with local authorities. Whilst this is a cost effective method of developing ANPR coverage, it has resulted in examples of cameras not being positioned in the best possible location for their intended role. In one Force, there were examples of ANPR cameras sited on existing CCTV infrastructure in locations, which did not cover some of the key routes in and out of a town. Whilst any partnership to develop ANPR infrastructure is valuable, it is important that coverage on routes linked to high crime areas are prioritised.

The complexity involved in planning ANPR infrastructure also means that Forces are naturally attracted to the most willing partners in terms of funding and planning permissions when choosing locations. This has resulted in an often incremental

development of fixed site ANPR typically based in town centres, but not always informed by an analysis of the most suitable locations for ANPR based on the intended purpose of the camera. There are examples of Forces working with willing local authorities to build up ANPR infrastructure in low crime areas whilst crime hotspots are neglected due to less willingness from the relevant local authority or the likely expense.

Despite this, there are some examples of the use of analysis to inform the location of camera sites. In West Midlands Police, data was analysed on traffic volumes and on the previous hit/read ratio of ANPR cameras used on and near to the potential locations when selecting new ANPR sites. However, there was no evidence of Forces analysing data on criminal hubs and flows within and between Forces in order to inform the location of ANPR cameras.⁵

In addition to the focus on town centre ANPR infrastructure, there has been development of fixed site ANPR on strategic roads and plans to develop this further with the current regional bids for funding to the PSU and in conjunction with county councils and the Highways Agency.

⁵ The analysis of criminal movement, crime hotspots and traffic volumes forms part of the PSU Project to assess the use of HA cameras for ANPR on the strategic road network which is being undertaken by PA Consulting Group.

Kent and Essex are liaising with their respective county councils to identify ways of linking their ANPR infrastructure to the council's network of traffic management cameras. North Wales Police are also developing similar links with the network of traffic management cameras owned by Traffic Wales.

Over the last two years ACPO has been in discussions with Department for Transport and the Highways Agency and work has also been commissioned by the PSU, to scope the feasibility of integrating police ANPR with the existing HA camera infrastructure. This infrastructure provides a framework for implementing a strategic roads interception capability based on a similar model to CMPG. The use of existing HA infrastructure will clearly be a cost effective way of increasing ANPR coverage although data protection issues need to be resolved with the DfT. The development of ANPR infrastructure on strategic roads supported by dedicated intercept teams will provide a resource to tackle level 2 criminality and help to address some of the gaps identified in the protective services review.⁶

Kent Police are working with the relevant local authorities in order to use Local Education Authority transmission networks for ANPR data. It is estimated that by using these existing networks instead of paying for new lines or line rental, Forces could save approximately one third of the costs associated with ANPR infrastructure development.

In addition to work with local authorities Forces have engaged in a variety of initiatives with the private sector to further the development of ANPR infrastructure:

- Kent Police works with the relevant planning authorities to ensure that new housing and industrial developments include the installation of ANPR infrastructure. In most cases developers

have been positive towards this initiative as it is viewed as a selling point to perspective buyers

- Seven out of the eight Forces subject to a Thematic Review have been involved in the development of links with ANPR owned by petrol stations, supermarkets and shopping centres. This liaison has been at a local level aimed at proving the concept to the private organisation at one or two sites. This is in addition to the AACT work on developing links with petrol stations with ANPR.

The use of public and private sector partnerships to develop ANPR infrastructure has provided the police with increased ANPR coverage in a cost effective way. However, it has raised questions as to the increased resource demands and the responsibility of the police in responding to ANPR alerts from this new infrastructure. Forces need to carefully consider the resource implications and level of service expected when developing links with the private sector.

4.2 Project management

F5 ANPR Project Managers have, for the most part delivered, roadside infrastructure on budget. The complexity of delivery, in particular in providing communications and power to roadside infrastructure, has meant that the process has often taken longer than planned.

In addition to the project managers provided by suppliers, 13 out of 16 Forces assessed in the Thematic and Capital Reviews had appointed their own dedicated project manager responsible for the delivery of the ANPR projects. The background of the project manager and composition of project teams varied between Forces. North Wales, Durham, West Midlands and West Yorkshire all used officers who were previously (and in some cases still were) responsible for the management of the ANPR intercept teams or part of the ANPR

⁶ D. O'Conner, Closing the Gap – A review of the fitness for purpose of the current structure of policing in England and Wales, September 2005.

back office staff. Other Forces, such as Hampshire, set up a new dedicated project team with a project manager. Alternatively, Forces, such as Kent and MPS, used an IT/IS project manager to lead on the delivery of the ANPR projects.

Six out of twelve Forces subject to a review of ANPR capital projects, experienced a delay in the delivery of their infrastructure project. These delays were the result of a variety of reasons:

- *Procurement*

At least two Forces experienced delays of up to six months whilst they went through a procurement process. This is in contrast to Forces which used existing framework agreements to purchase ANPR equipment relatively quickly. Delays in procurement were due to the time scales required to run open tender competitions as well as delays with Forces' contracts departments in authorising procurement.

- *Planning*

The implementation of ANPR projects is usually dependent on the use of other organisation's infrastructure for which the police have no control. Poor communications from these organisations resulted in the requirement for rework, loss of power to cameras and delays with camera installation due to future planned work on gantries and bridges. BTP also had the additional complication of having to obtain permission from Network Rail for all installations as well as facing restrictions on the times that contractors could work.

- *Contractors*

The complex nature of ANPR projects requires work to be carried out by different suppliers and contractors, particularly around the installation of cameras and transmission infrastructure for data. Delays were regularly experienced by all Forces in the implementation of work on transmission infrastructure by contractors.

The requirement for different areas of expertise and relative immaturity of suppliers meant that elements of work on ANPR infrastructure have to be sub-contracted. This would sometimes add to communications problems around the specific details of work required in the project.

Despite the delays experienced with ANPR infrastructure projects, only two Forces out of twelve who were subject to a capital review overspent on their projects. This overspend was not more than £40,000 in each case and was absorbed into the Force's budget. The causes of this overspend were due to the requirement to conduct rework and the cost of transmission links which had initially been overlooked.

4.3 Procurement

F6 While there has been some use of existing procurement frameworks to purchase ANPR infrastructure, the procurement process has typically been time-consuming with limited sharing of information between Forces. Further, the limited time scales to spend funding from the Home Office and uncertainty over future funding sources has meant that infrastructure projects are not always closely linked to a long-term ANPR strategy.

Seven out of the twelve Forces assessed during the capital review ran their own procurement processes and then set up agreements with suppliers in relation to the SR2004 funding. Some Forces, such as Durham and BTP, did use frameworks between suppliers and other Forces in order to save time during the procurement process. The use of separate procurement processes at similar times, for similar equipment and from a relatively small group of suppliers is claimed to be inefficient and does not maximise the potential negotiating power of all Forces combined. It has also been noted that some procurement frameworks are short term and will need to be renewed for future ANPR projects.

Whilst, there is one example of a Force sharing its ANPR framework agreement with other Forces, procurement experiences and decisions are not routinely shared in order for lessons to be learnt in future procurement rounds. As a result, procurement of ANPR infrastructure and services has taken longer than anticipated. The AACT have tried to collate information on framework agreements that can be used by forces.

However, to date there appear to be very few frameworks set up which is believed to be due to the short time scales imposed on forces to procure ANPR equipment.

4.4 Systems and support

F7 Some IS/IT departments are starting to support ANPR as a normal business process. However, contrary to advice from the AACT, most are still reliant on the expertise within project delivery teams.

The delivery of ANPR IT support is provided in the majority of Forces from within the ANPR project delivery team. This is largely due to the fact that to many Forces ANPR is still a relatively new technology with technical expertise initially being built up with the IT representative on the Force's project team. This also demonstrates the way in which ANPR is still viewed as a specialist project rather than part of mainstream policing. The IT/IS department in Kent view ANPR technical support as an end-to-end responsibility and have set up an ANPR technical development team to provide the required level of support to infrastructure projects.

However, as Forces become more familiar with ANPR technology there is evidence that they are starting to build their IT/IS support for it into their normal business processes.

- The MPS already provide technical support for ANPR as part of normal business processes within the Operational Technical Support Unit.

- Hertfordshire Constabulary are developing protocols and product specifications with the aim of treating ANPR development and support as a normal function of their IT/IS department rather than an issue which requires dedicated resources
- North Wales have had over eight years experience of technical issues related to ANPR with the early installation of ANPR at Holyhead Port during the 1990s. Their IT/IS department will provide technical support to ANPR as part of a normal business process rather than dedicating specific resources to work on a development team.

Forces have also received significant technical support from the AACT during the planning and implementation stage of ANPR infrastructure projects.

4.5 Funding

F8 Forces have relied upon PSU funding, sources from the public and private sector and the income from hypothecation (discontinued in March 2006) for the development of ANPR rather than prioritising and investing their own funds.

In 2005/06, the Home Office initially made available £15 million for ANPR capital development. £12 million of this was shared between the 44 police Forces via funding bids to the PSU. The remaining £3 million was used for the development of BOF2 and the NADC. Later in 2005/06, a further £10 million was made available to Forces in order to develop ANPR capability nationally.

In 2006/07, the Home Office has continued to provide capital funding for ANPR with £7.5 million made available for ANPR development. £3 million has been allocated to the development of BOF2 and NADC with £4.5 million allocated to Forces for regional and national ANPR projects.



With the exception of Hertfordshire, Forces have not matched this level of capital funding for ANPR development. Hertfordshire has invested £1.4 million into ANPR capital development and set aside £50,000 pa for further ANPR development.

Two Forces reviewed do have plans to commit large sums of capital to ANPR development although these plans have not yet been authorised and compete with other strategic priorities for funding. Despite urging from the AACT during force visits, Chief Officers in these Forces require further evidence of the positive impact of ANPR on policing objectives before prioritising funding or creating a separate budget for its further development. A similar situation exists at BCU level with divisional commanders not willing to invest their delegated budgets into ANPR without evidence of benefits which would make it of greater importance to other priorities.

Despite an overall reluctance for committing Force funds to ANPR, all Forces have used a range of alternative capital and revenue funding for ANPR from both the private and public sector. Crime and Disorder Reduction Partnerships (CDRP) and Local Authorities have provided funding for town centre ANPR development as well as the purchase of ANPR vans. Once

they have been convinced of the benefits such a development will bring them, private sector businesses such as petrol stations, supermarkets and shopping centres have also funded ANPR development in conjunction with the police.

The loss of income from hypothecation of FPNs did cause financial planning problems for a number of forces who were relying on this income although it is noted that the actual size of any income would not have been large enough on its own to significantly develop ANPR capability. However, Forces have started to explore alternative methods of raising revenue from ANPR activity. This has included:

- Funding from CIFAS in return for a hotlist of vehicles linked to credit defaulters being put on the port ANPR systems. It is also noted that the AACT have been working with CIFAS in order to feed their data into national databases. Such an initiative introduces the potential for similar funding arrangements with other enforcement organisations that would benefit from the use of ANPR information (For example, FACT, DWP and Trading Standards).
- Large shopping centres paying for intercept teams to spend time responding to hits from the shopping centre ANPR.

If vehicle intelligence can be improved to provide accurate hotlists on active level 1 and 2 criminals then ANPR teams are likely to encounter increasing opportunities to seize cash and assets from criminals under POCA. There are already examples of ANPR intercept teams seizing cash following stop checks, such as in North Wales where 33,000 euros was seized and in Sussex where £30,000 has been seized. Some forces have reported problems with seized finances which are returned to the Force not being put back into ANPR development. At least one force considers that the absence of financial investigators within roads policing departments means opportunities to seize assets of individuals following an ANPR arrest are not being maximised.

F9 Forces are concerned about revenue costs for on-going maintenance of and support for ANPR equipment. Currently these costs are being met within existing budgets.

All Forces raised concerns about the funding of revenue costs associated with the maintenance of ANPR infrastructure. These costs include the maintenance of cameras at fixed sites as well as the reinstallation of cameras installed in

vehicles which get upgraded. Despite these concerns, all Forces have identified methods of funding these costs over the next few years. Two Forces have absorbed maintenance costs into the IS Department's budget. Other Forces have negotiated maintenance agreements from the suppliers during the initial purchase of the ANPR equipment.

In addition to these arrangements, when using existing CCTV infrastructure, local authorities have usually agreed to meet the revenue costs for future maintenance of the infrastructure. However, it is noted that the maintenance costs are likely to rise in the future as more ANPR equipment is purchased and manufacturer's warranties expire.

The AACT is developing a national maintenance and support agreement that can be used by all Forces. This will be a menu based agreement so that Forces can use the elements relevant to them.

5

Tasking and coordination of ANPR



MPS – ANPR intercept teams integrate with Neighbourhood Policing Teams

ANPR intercept teams from the MPS Traffic OCU, will regularly deploy alongside a neighbourhood policing team (NPT) within a BCU. This will involve intercept officers, BCU police officers and community support officers deploying at a roadside ANPR check point. The key benefits of using resources in this way are:

- Larger number of resources so more hits can be responded to and more vehicles stopped
- Deployment is better linked to the needs of the community through the involvement of the NPT
- The roadside deployment creates a large visible presence of officers which can reassure the public
- The sharing of expert knowledge from intercept team with the BCU officers raises awareness and skills in using ANPR.

5.1 ANPR intercept teams

F10 All Forces have ANPR intercept teams. There are examples of their use within all levels of policing, although typically they are used to address volume crime and have yet to be acknowledged as a mainstream policing tool.

All Forces reviewed had at least one ANPR intercept team available for deployment. The size of each of these teams ranged from seven to twelve officers. Six of the eight Forces reviewed had centralised ANPR intercept teams which were usually situated within a Roads Policing or Operational Support Division. Where there was more than one intercept team within a Force, they were assigned a territorial area of responsibility, usually a BCU, in which to operate. In addition to the centralised ANPR intercept teams, there are examples of BCUs setting up their own intercept team in accordance with the ACPO strategy.

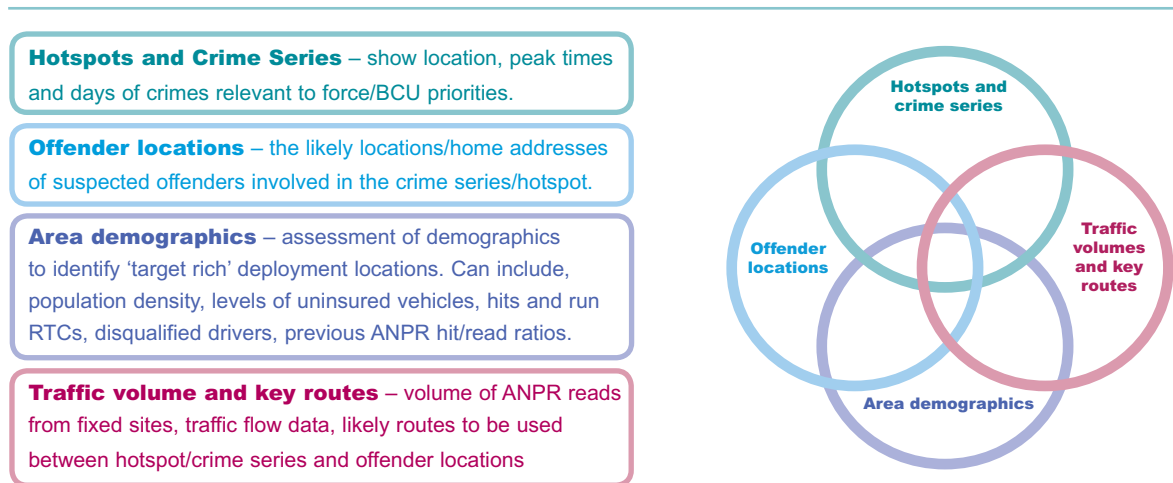
BCUs are also implementing pre-planned ANPR operations using their own resources to respond to hits from fixed sites. In addition to this, there are plans by at least one Force to provide access

to ANPR hits via mobile data to all patrol officers in order to allow them to respond. However, only one BCU reviewed were using their mainstream policing resources to routinely respond to ANPR hits from their fixed sites (see level of policing below).

There are examples of ANPR intercept teams working in conjunction with neighbourhood policing resources, although in four out of the eight Forces reviewed intercept teams were working in isolation from other policing resources. Examples of joint working with ANPR teams have included PCSO and local community officers deploying at roadside check points with an ANPR team and regular attachments of student officers to the team.

Whilst ANPR intercept teams can be tasked to support operations by level 2 policing, there has been recognition by two Forces of the need to create a dedicated ANPR intercept resource to specifically target this area of policing. Merseyside Police have provided a large mobile ANPR capability within their Matrix Team (level 2 policing) whilst North Wales Police have plans to create two additional armed ANPR intercept teams focused on level 2 policing.

Figure 3: Analysis for effective ANPR deployments



5.2 Tasking and coordination processes

F11 ANPR intercept resources are typically deployed as part of the T&C process.

However, products and understanding to enable an effective tasking are limited and could be further developed by Forces to exploit the full potential of existing intercept teams.

The deployment of ANPR intercept teams is managed by Tactical Tasking and Coordination Groups (TTCG) at various levels within Forces. Those Forces which have a central ANPR team usually have a resource bidding process which goes via the Level 2 or the Corporate TTCG. ANPR intercept teams within BCUs are tasked via the relevant BCU TTCG. There are examples of Regional TTCGs authorising regional deployments of ANPR intercept teams although this is not a frequent occurrence. There is also an element of self tasking with ANPR intercept teams where they will initiate their own deployment to areas that they consider will be productive in terms of ANPR hits.

Tasking for ANPR teams are on the whole based on problem or target profiles which recommend the use of an ANPR intercept team. However, there

is rarely any consideration within these products of factors that would enable an effective ANPR tasking. Forces gave examples of ANPR intercept teams being deployed primarily to provide a high visibility police presence in crime hotspots rather than because the use of ANPR would be an appropriate tool to combat crime in this area. There are also examples of ANPR intercept teams being deployed to target a single vehicle in areas of low traffic volume where a single officer without an ANPR capability may be more appropriate.

There is evidence that understanding of effective ANPR tasking is improving in TTCGs. In Hertfordshire, ANPR tasking is starting to take into account traffic volumes, crime hotspots and the likely routes used by suspects in order to ensure an effective ANPR deployment relevant to current crime problems. West Yorkshire Police intend to provide analysis based on hotspots, criminal locations, key routes and ANPR hit information in order to provide products for effective ANPR tasking. Intercept teams have also raised the issue of the impact of area demographics on the likely number of ANPR hits. However, there are currently no examples of these types of products being produced.



There were no examples of results analysis being conducted on ANPR deployments authorised by TTCGs. Forces do routinely collect quantitative data on the outputs of their ANPR intercept team but have not commissioned any detailed analysis on the impact of deployments against identified crime problems. There have been anecdotal claims on the impact of such deployments with one Force identifying overall crime reductions in areas on the day of an ANPR deployment.

5.3 Intelligence to enable effective tasking

F12 The quality and volume of vehicle intelligence for ANPR is varied. To address this some Forces are implementing new systems for the collation this data.

In order to be effective, ANPR relies on accurate vehicle related intelligence. The first stage of this process is the tasking of officers to collect intelligence on vehicles linked to crime and criminals. In at least two Forces, patrol and community officers stated that they were not clear of the benefit in collecting vehicle intelligence relating to their local criminals for ANPR, demonstrating the need for greater awareness in all sectors of policing.

The collection of vehicle intelligence could be automated with devices such as those used on Project Roman. These involve hand held ANPR devices which can be used by officers on foot to capture VRMs which are then automatically uploaded onto force systems. As officers increasingly have access to mobile data terminals there are significant opportunities for the direct input of vehicle intelligence from the roadside. The exploitation of this opportunity is essential in improving the volume and accuracy of vehicle intelligence which can be used by ANPR.

Once collected, the vehicle intelligence needs to be placed on a hotlist which is loaded into the Force BOF. The methods for achieving this varied between Forces and are summarised in the table opposite.



Method	Description	Advantages	Disadvantages
Automatic download of vehicles from Force intelligence database	Once collected, vehicle intelligence is submitted to intelligence units in the same way as other intelligence reports, sanitised and input onto the Force intelligence database. Vehicles from the intelligence database are then regularly downloaded and placed on a hotlist for ANPR.	<ul style="list-style-type: none"> - Can be a quick process that is not reliant on officers specifically requesting a vehicle to be put on a hotlist. - Can be filtered to only download vehicle details linked to specific priorities. - Can create large volume hotlists for ANPR intercept teams. - Can include rules for automated weeding. 	<ul style="list-style-type: none"> - Automated downloads can remove quality assurance of reasons for placing individual vehicles on a hotlist. This can result in inaccurate, out of date or unsuitable vehicles producing ANPR hits. - Relies on the capacity of the intelligence unit to quickly process intelligence and release onto the intelligence database.
Specific ANPR submission process	Officers who want to place a vehicle onto ANPR will submit a specific form requesting this.	<ul style="list-style-type: none"> - This process is usually completed on an electronic database which allows for the automatic creation of hotlists based on data in the database. - The submissions are usually based on high quality vehicle intelligence which is being submitted to ANPR for a specific purpose. - Can include rules for automated weeding. 	<ul style="list-style-type: none"> - Process can duplicate standard intelligence submission process. - Relies on officers having awareness of ANPR and specifically deciding to submit a vehicle for inclusion on a hotlist.
Manual hotlists	ANPR back office staff receive direct notification of vehicles for inclusion on ANPR and manually create hotlists.	<ul style="list-style-type: none"> - Hotlists usually include vehicles that officers want to specifically target. - Allows back office staff to quality assure vehicle intelligence to be included on the hotlist. 	<ul style="list-style-type: none"> - Not very time efficient. - Relies on officers making specific request for vehicle to be included on ANPR. - Requires manual weeding.
PNC	PNC information markers are placed on vehicles. This is then loaded onto back office within the national PNC extract.	<ul style="list-style-type: none"> - National database. - Automated weeding. - Element of quality assurance. 	<ul style="list-style-type: none"> - Requires officers to make specific request for PNC information maker.

The method of ensuring vehicle intelligence is placed on ANPR hotlists will influence both the volume and quality of ANPR hits. Forces which use automated processes to download vehicle intelligence from intelligence databases report high volumes of vehicles on their Force ANPR hotlist although these do not necessarily result in high quality ANPR hits. Forces which use more deliberate methods for linking vehicle intelligence to ANPR hotlists, such as the manual submission of vehicles to back office staff, tend to report fewer vehicles on their hotlists, but hits which are of higher quality. Clearly there is a balance that needs to be achieved here.

F13 With the exception of out of date stolen vehicle markers, the current level of inaccuracies (in particular through out of date information) with ANPR hotlists is having only a limited impact. This is because intercept teams have developed methods of corroborating ANPR hits before taking action, for example only stopping vehicles which appear on a number of databases and checking the validity of hits on Mobile Data Terminals with live PNC links. However, as an intelligence-based system ANPR requires accurate data to support its exploitation.

All Forces report inaccuracies with data on hotlists. In extreme case this results in intercept teams repeatedly stopping a vehicle which should no longer be on a hotlist. In relation to Force generated hotlists, the accuracy issue is closely linked to the weeding of data. The AACT is attempting to implement a system of Force points of contacts to which all inaccuracies in hotlist information can be sent to. This will increase the efficiency of correcting inaccuracies on hotlists.

In order to remove the need for officers to manually weed vehicles from hotlists, Forces have introduced policies where only vehicle intelligence from recent months is downloaded onto hotlists.

Similar problems are experienced with PNC information markers for stolen vehicles. Forces report that when stolen vehicles are recovered, the stolen marker is not always quickly taken off PNC resulting in the vehicle creating ANPR hits. This is a particular problem with information markers from other forces and can result in an intercept being carried out on a vehicle which is in the possession of the rightful owner.

The limited currency of DVLA and MIDAS hotlists is usually caused by records being updated since the hotlist was disseminated to Forces. However, when it comes to recording the accuracy of these hotlists it is important to note that the majority of Forces will only record a hit as inaccurate once a vehicle has been stopped. This method of recording accuracy does not include all the other potential inaccurate hits that do not receive a response from fixed sites or due to officers corroborating the hit against other databases and deciding not to take action.

Hertfordshire Constabulary recently conducted an evaluation of the accuracy of the DVLA database based on a count of all inaccurate hits which are subject to a stop check and those which are not, but are identified as inaccurate through checks on PNC. This evaluation showed that the DVLA VED database had an average monthly accuracy of 50.9% from January 2006 to September 2006 and the Keeper database had a monthly average 40.4% accuracy over the same period. This compares to 49.7% (VED) and 41.3% (Keeper) average monthly accuracy in 2004/05 and 47.6% and 38.4% in 2005/06. However, it should be noted that the accuracy of the DVLA databases appeared to improve in August and September with a monthly average of 59.4% for the VED data and 65.7% for the keeper data, although the reasons for this improvement are not yet clear.



Due to the inaccuracy of DVLA and MIDAS databases, intercept teams will commonly corroborate a hit from these hotlists with PNC before deciding to stop a vehicle. This minimises the operational impact of an inaccurate hit from a DVLA or MIDAS database. It is essential that DVLA ensure their hotlists are updated and disseminated to forces on a regular basis and that forces maintain an effective version control system for these hotlists.

F14 Specialist areas of policing such as L2/3 and Special Branch (SB) are not using existing ANPR resources and capability to its current potential. AACT has deliberately not promoted this element as yet, waiting until NADC and BOF2 are functional, and therefore this finding is unsurprising. However, some forces have devised significant value from current ANPR infrastructure as a Level 2 policing tool.

Whilst level 2/3 policing and SB are making use of ANPR there is evidence that they are not exploiting it to its full potential. All Forces reviewed were not confident that vehicles linked to level 2 criminals were routinely being placed on ANPR hotlists for intelligence or intercept purposes.

One of the reasons for this is that some level 2 and 3 operations are often covert with officers being concerned that the use of ANPR could compromise operational security. There is not widespread knowledge of the potential to use covert markers on back office facilities which would alleviate this fear of compromise. This demonstrates the need to communicate to forces the functionality of BOF2.

One Force also identified that whilst level 2 criminals subject to specific operations may have their vehicles placed on ANPR, the large volume of level 2 criminals that are not subject to operations did not have their vehicles on a hotlist. This means that ANPR intercept teams can not disrupt the activities of all level 2 criminals that are not subject to operations.

In addition to limited intelligence inputs at level 2, few Forces are tasking ANPR intercept resources specifically against level 2 criminals. One notable exception to this is Merseyside Police, who have a significant mobile ANPR capability of 20 vehicles at the disposal of their Matrix Unit to target level 2 criminals. The MPS intercept teams also regularly work in conjunction with Operation Trident to target gun crime in London.

North Wales Police and DVLA – Operation Debar

For a 23 day period in early 2006, North Wales Police worked in partnership with the DVLA to target uninsured and unlicensed vehicles in North Wales. ANPR intercept teams were deployed to specifically target these vehicles on North Wales' roads. In addition, proactive targeting of individuals and vehicles took place based on the DVLA database and local intelligence. The operation had access to three ANPR teams, 24 vehicle recovery units and an average of 80 to 100 police and DVLA officers on a daily basis.

The operation achieved the following results:

- 1,680 vehicles seized (1,202 using DVLA powers and 478 using police powers)
- 1,000 of these vehicles were crushed
- 133 arrests were made.

The National Joint Unit (NJU) in the MPS administers a national ANPR hotlist of vehicles relevant to terrorism enquiries. Force SB will submit requests to the NJU for a vehicle to be included on the national hotlist. This hotlist would then be sent to all Forces for inclusion on their BOF. Initially this hotlist was sent via the SB cluster. Due to the perceived sensitivity of this hotlist, it was not always loaded onto all Force ANPR systems and often restricted to those owned by SB, such as ports ANPR. In future, this hotlist will be sent direct to Force ANPR administrators for inclusion on all ANPR systems. Further to this, it was observed that the national hotlist contained few vehicles relative to the number of investigations or suspects in this area of policing, indicating that ANPR is not being used to its potential in Counter Terrorism (CT) investigations.

F15 There is anecdotal evidence that the use of ANPR has disrupted criminal activity and that some criminals are taking counter measures to avoid detection. However, it is not clear if this is a deliberate attempt to avoid ANPR or just the ongoing attempts of criminals to evade general policing methods and surveillance.

Forces have anecdotal examples of criminals trying to avoid detection from ANPR cameras. The ANPR Countermeasures sub-committee of the National ANPR User Group has identified a number of ways in which members of the public are manipulating their registration plate in order to avoid detection from cameras. The workgroup identify three broad categories of countermeasures. The first are known as misrepresented plates and include registration plates that have been personalised using illegal fonts and spacing or the use of European style plates which are not reflective.

The second category is known as 'magic plates' which involve the use of materials to disguise the registration plate or 'blind' camera technology. The third category is cloned number plates where the same vehicle registration number is used on two different vehicles. The cloned plate analysis tool on NADC will help in the investigation and detection of this countermeasure. The AACT is also working with HOSDB, DVLA and the number plate supply industry to address these issues with a report due to be submitted in December 2006. It is not known whether individuals who are using countermeasures are doing so primarily to avoid ANPR cameras or speed cameras.

The modus operandi in relation to vehicles employed by many level 2/3 criminals and terrorists could reduce the effectiveness of ANPR in tracking their movements. These criminals will often be aware of surveillance techniques and take care to change their vehicles regularly or use hire cars. Whilst criminals were employing these tactics prior to the wide spread development of ANPR infrastructure, it does present a challenge to ensure that ANPR is effective against them.

Intelligence received by one Force suggests that drug couriers are adapting their modus operandi because of the high number of occasions that they were getting intercepted by ANPR teams. This included carrying smaller quantities of drugs to minimise any loss, using trains and travelling in vehicle convoys in the hope that not all vehicles would be stopped. The convoy analysis tool to be delivered on the NADC, is specifically designed to assist in the detection of this tactic.

5.4 Working with partners

F16 Forces are regularly working with partner agencies, supported by the AACT, to conduct ANPR operations.

All Forces are taking part in joint ANPR operations with neighbouring Forces and with partner agencies. The Regional ANPR User Groups have established links between ANPR intercept team managers. In practice this means that (in most cases) there are effective lines of communication between intercept teams from different Forces to allow them to set up joint operations and indeed share good practice. Operations are also regularly conducted with representatives from VOSA and DVLA. Forces also reported operations in conjunction with HMRC.

6

Communicating ANPR



6.1 Development of good practice

F17 Despite the efforts of AACT to communicate good-practice and information on the exploitation of ANPR to Forces, in general there is a poor understanding of ANPR and its capability outside Force's core ANPR project team members. This seems to relate to communications within Forces, rather than communications between the AACT and Forces. As a result individuals using/developing ANPR across Forces are not aware of the good-practice resources available to them.

There are several ACPO ANPR working groups set up to address key issues in relation to ANPR. However, practitioners in the majority of Forces, particularly in the intelligence area, did not have a high level of awareness of current developments with ANPR or its application. AACT have undertaken substantial communications, including face-to-face meetings, workshops and good practice materials, however this communication has not been able to raise awareness outside Forces' core ANPR teams. This issue seems to relate to communications within Forces, rather than communications between the AACT and Forces.

Confusion was evident in Forces regarding the different roles of AACT and the PSU. Thematic Reviews in at least three out of eight Forces found that individuals within Forces incorrectly identified the AACT as responsible for providing funding for ANPR to Forces. Similarly, at least four Forces in the Capital Projects Review incorrectly identified the PSU as being responsible for the project management and delivery of the BOF2 and NADC. This confusion is despite communication from the AACT to the force ANPR project managers and indicates a problem of communication within forces.

Two out of the eight Forces subject to a Thematic Review had also recently been subject to a performance review by the AACT. A further two Forces reviewed felt that they wanted to see an increased engagement by the AACT, whilst the majority of people interviewed in the intelligence and investigations area had no knowledge of the team. Despite this the AACT have carried out visits to all Forces during the last two years engaging with all key individuals within the relevant business areas. This highlights a potential problem with individuals in key posts regularly moving on and demonstrates the importance of the AACT implementing an effective communications strategy.

It is also noted that the AACT has taken a deliberate decision not to communicate extensively with forces regarding the use of ANPR as an intelligence and investigative tool. This decision was due to the delays with BOF2 and NADC and a desire not to raise expectations of Forces before the technical capability to realise the benefits is available.

All Forces have used contacts within AACT to help address technical issues around the performance of BOF2 and general infrastructure problems. For example, Hertfordshire have received support in reviewing the security issues surrounding a new fixed site ANPR system and North Wales Police have received support regarding the functionality of the ANPR alarm stack in control rooms.

At the operational level, all Forces have developed contacts with ANPR intercept teams in other Forces and use these links to share best practice on an informal basis. ANPR user groups have also been set up by the AACT in each region and at a national level. These meetings are usually attended by a representative from each Force ANPR intercept team. Good practice is a standing item on the agenda of these meetings.

The National ANPR conference is aimed at individuals from all business areas although attendees are predominantly from the roads policing community. This conference does present examples of good practice and updates attendees on current and future developments.

Within Forces there have been attempts to document the types of tactics which can be used by intercept teams. Merseyside Police have documented several different ANPR intercept tactics to be used in different scenarios. Hertfordshire have also produced best practice advice regarding the identification and enforcement against countermeasures employed by criminals.

Within Forces, documentation outlining the types of intelligence product required for efficient deployment of ANPR intercept teams was limited. Hertfordshire have tried to rectify this by documenting the key factors to be considered for an ANPR tasking although this is not translated into what analysts and intelligence officers need to be producing in an intelligence product.

One of the most limited areas in terms of communicating good practice both within and between Forces is regarding the use of ANPR data by analysts. This situation is made worse due to current limited access to ANPR data in most Forces as back office facilities are being rolled out. Despite the potential ANPR offers as a source of intelligence, and with the exception of a few Forces, there is limited evidence of analysts routinely using ANPR data or any documentation of good practice within Forces. One exception is Kent Police who have recognised the value of ANPR as an intelligence tool. The AACT have arranged for Kent to give presentations on analysis at the ACPO National ANPR Conference and Regional User Groups regarding the use of ANPR by analysts.

The ACPO ANPR Crime Investigations Group has produced an investigator's guide to ANPR. This is to be followed by the AACT launching a good practice guide for Analysts. These guides will help to raise awareness of the use of ANPR within the intelligence and investigative communities and provide practical guidance to users.

F18 Following on from the previous finding, there was a poor awareness within Forces of national ANPR developments, in particular regarding the functionality that NADC and BOF2 will deliver. This was in spite of the significant communications on the subject by the AACT. This lack of awareness has not helped in communicating the value of ANPR in the wider policing context.

A common theme cited by Forces in relation to delays in delivery of infrastructure projects and the realisation of benefits was the delays associated with the delivery of BOF2 and NADC. There appeared to be a lack of understanding within Forces regarding the delivery time scales for BOF2 despite the fact that the AACT send out regular updates to Force project managers. This has resulted in at least four Forces having to re-schedule planned work with IT/IS departments and training days.

Whilst most ANPR points of contact (usually the intercept team Inspector) had an understanding of the functionality that BOF2 and NADC will offer, few individuals in other areas of the Force (for example, intelligence and investigations) had a clear idea of what would be available to them, demonstrating poor internal communications within Forces. Forces are also concerned over the level of access they will have to the NADC. One expected benefit of NADC is that it will reduce the demand on ANPR back office staff to carry out searches for other Forces. However, Forces are not clear on the level and speed of access they will have to NADC to conduct searches in relation to all levels of policing. The AACT intend NADC usage to be carefully managed in the initial roll out before increasing accessibility when appropriate.

6.2 Internal and external communication

F19 Forces have developed communications strategies to raise awareness of ANPR. These have addressed both internal (police) and external (general public) markets. The previous two findings would indicate that internal communications have had limited success, in particular given the supporting communications provided by AACT.

All Forces reviewed are publicising the use of ANPR both internally to their officers and externally to the public. Internal communications are usually focused on articles in Force magazines or through a Force intranet. At least 2 Forces have created an ANPR web page to raise awareness amongst officers and provide information on its use. The focus of internal communication has been on ANPR as an intercept tool reinforcing this with anecdotes of its benefits based on successful arrests and seizures.

External communication has also been focused on the benefits that ANPR intercept teams bring in denying criminals the use of the road. This will often include features in newspaper articles where journalists have been invited to observe an ANPR operation. External communication has also sought to distinguish ANPR from speed enforcement and emphasise its role in catching criminals. Forces have claimed there has been a reduction in enquires from the public regarding the link between ANPR and speed enforcement suggesting that the public are starting to understand the difference. ANPR intercept teams are also deploying signs on their vehicles and at the road side stating that they are involved in a crime fighting operation.

In addition to Force communications, there has also been communication to the public regarding ANPR through the national press from the ACPO ANPR lead. This has involved features and articles in national newspapers regarding the use and benefits of ANPR. Television documentaries on police forces have also started to feature ANPR.

7

Vehicle interception using ANPR



7.1 Level of policing and response criteria

F20 ANPR reads and hits from fixed sites are not always routinely monitored and dispatched to by control rooms on a 24/7 basis. There is also an absence of guidance on how to prioritise large volumes of hits from fixed sites.

All Forces reviewed plan to have BOF terminals in their control rooms in order to monitor and dispatch resources in response to hits at fixed sites. However, this has introduced a number of problems for Forces in relation to resource demands and the filtering of hits.

Fixed site ANPR on high volume roads can produce a very high volume of hits. The principle of having a BOF in a control room is so controllers can monitor ANPR hits and dispatch resources in response accordingly. This is claimed to increase the workload for controllers, although Forces have not been able to quantify this at the time of review. Two Forces were considering increasing the number of controllers in order to meet the demand of ANPR whilst others gave the responsibility of monitoring ANPR hits to existing controllers.

The latter method would often result in BOF terminals not being monitored effectively in control rooms as controllers would prioritise their other duties. This highlights a need for BOF to be integrated with command and control systems so that hits that meet specified criteria automatically generate an incident which must then be resolved by a controller. Integration between BOF2 and command and control systems has been logged as a requirement for future versions of BOF2.

When intercept teams are deployed near to fixed sites they would sometimes use one of their officers in a control room to dispatch hits. However, when the intercept team are not on duty or operating in a particular area fixed site monitoring would be left to existing controllers.

In addition to the resource constraints faced by controllers, at least three Forces claimed that they would struggle to resource or have reservations about dispatching BCU response officers to ANPR hits. Issues were raised concerning the potential for such deployment to increase the number of pursuits without increasing the availability of appropriate response resources.

Two Forces are considering making ANPR hits from fixed sites available to officers via mobile data devices. This will allow officers to access relevant ANPR information whilst on patrol and gives the potential for them initiate their own response to hits. Whilst this would reduce the demand on control rooms to monitor all hits themselves, it could introduce command and control problems in relation to which resources are responding to which hits.

One method for addressing the resource demand that fixed site ANPR hits create is to filter the hits which will receive a response. Forces have introduced filters based on a variety of criteria. For example, one Force will not immediately respond to any hits from fixed site ANPR when intercept teams are not on duty, whilst other Forces will respond to stolen vehicles, and PNC information markers. BOF2 has also been designed to allow filters to be applied to hits and is configurable within each Force.

It is accepted that Forces are still trying to quantify the resource demand from monitoring and dispatching resources to fixed site ANPR hits and that the majority of Forces are in the process of determining a criteria for hits that will receive a response. However, there are significant concerns over the responsibility of a police Force to act on the information (ANPR hits) that is made available to it. For example, the majority of Forces expressed concern that vehicles which produce a hit but receive no response may then go on to be involved in a serious offence.

Forces need a clear policy on what is an acceptable level of response to fixed site ANPR. This needs to balance the risks of the potential increase in number of pursuits and demand on resources against the potential for civil action by the public for a failure of police to respond to a hit.

Central to this is a clear articulation of the purpose of the specific fixed site cameras which should be identified in their initial business case (for example, are the cameras to be used as an intelligence gathering tool only or are they there to initiate an interception?).

7.2 Tactical deployment of ANPR

F21 A variety of deployment tactics are used for ANPR, though there has been limited evaluation by Forces of their relative effectiveness both within and between Forces.

ANPR provides Forces with a number of tactical options ranging from the type of ANPR resource to use (intercept team, overt and covert portable cameras, unmarked cars, fixed sites) to the way in which it is used. At least three Forces have documented the tactics available to them in using mobile ANPR. Merseyside police provide ANPR users and TTCG members with clear options in how to use mobile ANPR for specific objectives in relation to their Matrix unit.

However, no Force has yet conducted a detailed evaluation of the relative effectiveness of the tactics or the different types of ANPR resource. Whilst some Forces conduct results analysis of operations which have used ANPR this has not been in a systematic way which would allow comparison between different types of ANPR tactics.

7.3 Performance management

F22 There are a variety of performance frameworks in place to review ANPR intercept team activity based on process and outputs (principally staff activity and arrests). Some Forces have started work to include a wider definition of ANPR performance, though the focus of this is still on the intercept role and does not include the intelligence/investigative capability.

Seven out of eight Forces reviewed had performance frameworks for their ANPR intercept team. These performance frameworks are linked closely to the PSU performance indicators and focus on outputs such as arrests, seizures and FPNs.

Since the introduction of intercept teams, Forces have started to roll out ANPR capability to non-dedicated ANPR teams. This includes general road policing vehicles, armed response vehicles and area crime cars. Also, as fixed site ANPR is developed, general patrol vehicles may increasingly be working in response to ANPR hits. The increasing use of ANPR outside of the intercept team means that performance frameworks are not capturing the full impact of ANPR. Hertfordshire Constabulary have recognised this and are reviewing their ANPR performance framework.

Further to this, no Force has a performance framework in place to evaluate the impact of intelligence from ANPR despite it being a key purpose of the capability alongside vehicle interception. Kent Police have recognised this issue and are preparing an evaluation framework for the proof of concept of their ANPR analysis software. Such a framework will be a useful step towards quantifying some of the intelligence benefits from ANPR.

F23 Forces recognise the importance of being able to quantify the impact of ANPR on strategic objectives although very few are able to track ANPR arrests to Offences Brought to Justice (OBtJ). However, the status of disqualified driving and drink driving as non-recordable offences has meant the full impact ANPR is not recognised in terms on BCU and Force performance targets.

Whilst current performance indicators are based on a measure of the outputs of ANPR teams, Forces do recognise the need to demonstrate the impact of ANPR on outcomes related to Force priorities. This is particularly important given the need for chief officers to have evidence that would enable them to prioritise ANPR investment.

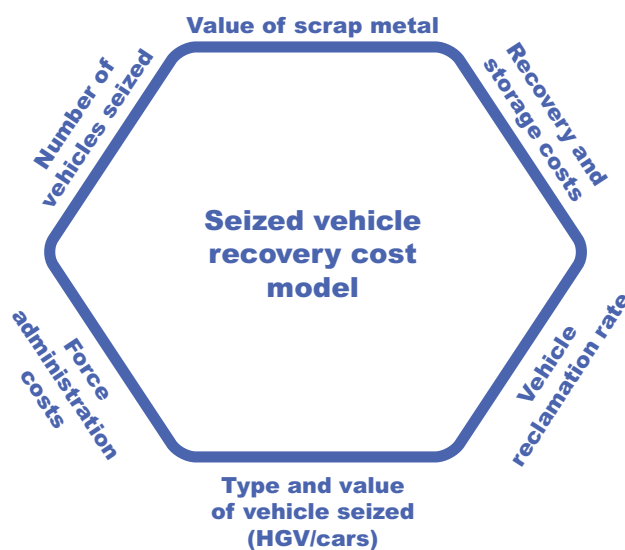
Two Forces are considering the use of sanctioned detections as a way of measuring the outcomes of ANPR intercept team activity. A further two Forces currently track ANPR arrests to OBtJ with one including this as a personal performance target for a chief officer.

Analysis of ANPR OBtJs has been carried out at a national level over the last two years. Often Forces find this difficult to track due to the way information is recorded and passed between the police and other CJS partners. In the 2005/06 analysis, it was found that 83.14% of recorded offences from ANPR teams result in an OBtJ compared to 66.7% from general policing methods.⁷ However, the wider use of ANPR outside of intercept teams, the use of ANPR as an intelligence tool and the complex factors which influence an OBtJ require more detailed assessment in an attempt to quantify the impact ANPR has on policing objectives.

Despite the evidence of the value of ANPR in relation to OBtJs, the AACT perceive that the status of disqualified driving and drink driving as non-recordable offences means that the potential benefit for ANPR to impact on Force and BCU detection targets is not fully realised. The largest category of arrests by ANPR intercept teams are for disqualified driving, whilst drink drive arrest rates are also high, yet as these are not recordable offences they do not contribute towards detection targets. It was felt that by amending the status of disqualified driving and drink driving to an OBtJ, the value of ANPR in achieving performance targets would become more apparent.

⁷Hartley McMaster, The use of ANPR technologies by police Forces in England and Wales – Final Report on Laser 3 Performance, 2006

Figure 4: Diagram showing factors influencing the costs of seized vehicle recovery



7.4 Vehicle seizure

F24 Forces are using vehicle seizure powers effectively. In practice, however, some Forces' recovery models are susceptible to changes in inputs such as the number of vehicles seized or the price of scrap metal.

Vehicle seizure powers under section 152 of the Serious and Organised Crime and Police Act are used by ANPR intercept teams to seize vehicles which are uninsured or unlicensed in seven out of eight Forces reviewed. Most Forces have restricted the use of this power to the ANPR and RPU teams, although at least two Forces reviewed have rolled it out to all officers.

Forces have developed agreements with vehicle recovery agents to recover and store these seized vehicles. These agreements are usually based on existing recovery agreements for other vehicles (for example, abandoned vehicles). The national standard charges for recovery and storage of a vehicle have been used as a basis for seized vehicle recovery cost models. This currently stands at £105 for the recovery of a vehicle, followed by £12 per day for storage. Forces have then implemented a variety of charges and incentives

in order to make the seized vehicle recovery process attractive to recovery agents and at least cost neutral to the Force.

At least two Forces issue administrative charges to recovery agents ranging from £15 to £45 for seized vehicles which are reclaimed. This money is used to fund administrative posts for vehicle seizure which is identified as a key cost for Forces in relation to this scheme. Some Forces will also pay recovery agents up to £60 for vehicles which are scrapped. The recovery cost models are finely balanced with at least two Forces reporting that they deliberately restrict the seizure of vehicles due to concerns about recovery agents making a loss.

Figure 4 shows the factors which influence the costs of recovering seized vehicles. All Forces were concerned that changes to the factors which influence this model could result in the recovery of seized vehicles not being commercially viable for recovery agents.

The MPS are unique compared to the other Forces reviewed in that they recover a large proportion of seized vehicles themselves and store them in MPS vehicle pounds. In the early stages of this recovery

Merseyside Police – Operation Tango

Operation Tango was conducted by Merseyside Police to remove uninsured vehicles from the road using ANPR.

Analysis comparing figures from May 2006 to May 2005 has shown that the removal of these vehicles corresponded with.

- Reduction in calls to the fire brigade regarding burning vehicles

- Reduction in calls regarding vehicles being used in an anti social manner

- Reduction in drive-offs from petrol stations.

Whilst this analysis does not prove a direct link between the increase in vehicle seizure and the crime reduction, it does provide a framework for more detailed evaluation.

scheme, MPS faced limitations on the amount of storage space for seized vehicles and had to restrict the number of vehicles seized.

The impact of vehicle seizure in denying criminals the use of the road has not been fully evaluated by any of the Forces reviewed. However, Merseyside Police have claimed the introduction of vehicle seizure powers for no insurance/ no licence have coincided with reductions in crimes and incidents which are linked to uninsured/ unlicensed vehicles.

F25 Forces are frustrated at the perceived loop hole regarding the documents required by individuals to reclaim a seized vehicle. This is a loophole that the AACT are working to address with the motor insurance industry.

All Forces have reported problems with the type of documents which are required for a member of the public to reclaim a seized vehicle.

These problems are centred on the use of third party and trader insurance policies to reclaim a vehicle. It is claimed that these documents are often produced by an acquaintance of the person from whom the vehicle was seized.

The acquaintance will return the vehicle to this individual once it has been successfully reclaimed. Anecdotal evidence from intercept teams shows that this 'loop hole' is resulting in the same vehicles being seized on repeated occasions demonstrating that the legislation is not being as effective as it could be in keeping uninsured and unlicensed vehicles off the road.

Some Forces, such as Hertfordshire, have developed their own policies to try and prevent abuse of vehicle seizure legislation by using third party or trader/fleet insurance. Hertfordshire Constabulary state that insurance policies used to reclaim a vehicle must specify the VRM of the seized vehicle in order for it to be released. This policy has generated numerous letters from solicitors but has not yet been legally challenged. Forces should consider a similarly robust policy as a means of preventing vehicles being reclaimed by criminals. Additionally, the use of PNC to highlight vehicles which have been returned following a seizure could aid targeting of repeat offenders. The AACT are also engaging with the insurance industry in order to improve the wording on insurance policies in relation to third party usage.

8

ANPR for intelligence and investigation



8.1 Intelligence gathering and investigation

F26 ANPR resources and information are being used as intelligence and evidence on major investigations, although SIOs have limited access to ANPR equipment suitable to their requirements. With the planned wider coverage of ANPR infrastructure and supporting back office infrastructure (NADC and BOF), the potential use of ANPR for intelligence gathering and investigations will increase substantially.

Whilst ANPR resources are primarily used for intercept activities there are examples of SIOs on major investigations tasking an intercept team for intelligence gathering activities. This has included deploying an ANPR intercept team on roads near to a scene of a crime in order to gather intelligence on potential witnesses who may have travelled through the area at the time of the offence. Covert vehicles have also been deployed to identify the movements of suspects in areas linked to an investigation.

Whilst a useful way of gathering vehicle intelligence, the use of an intercept team for this task is expensive. Some Forces have purchased

portable ANPR cameras that can be covertly or overtly deployed in order to gather intelligence. For example, one Force deployed covert ANPR cameras at the entrance to a premise believed to be targeted by suspects. The use of ANPR for this purpose is cost effective in the longer term compared to the use of an observation post or a video recording which would need to be viewed by officers to identify VRMs. Forces also reported increasing use of ANPR by mobile surveillance teams to find a target vehicles that had been lost or as a trigger to initiate surveillance.

Despite limited access to BOFs (see next page), SIOs are ensuring that ANPR databases are searched as part of their vehicle investigation strategy on major incidents. This is in line with the recently updated ANPR content in the Murder Manual. This would normally involve the identification of vehicles within time parameters near to the location of an offence or a search on BOF for a specific vehicle linked to a suspect. The use of ANPR in this way has resulted in all Forces reporting successes where ANPR information has contributed to a major investigation. The ACPO ANPR Crime Investigations Group has published an investigator's guide to ANPR, which was launched at the SIOs Conference in November

ANPR contributes to major investigations

- Following the murder of a police officer in West Yorkshire, ANPR information helped identify three vehicles that were linked to the offenders. In conjunction with other sources of information, ANPR was able to locate the vehicles in Bradford before and after the incident. The SIO felt ANPR had been vital in identifying early lines of enquiry.
- Information from ports ANPR system has been regularly used to aid major investigations, including identifying the movements of the suspects in the murder of Anthony Walker.
- ANPR information has been used in evidence to show the movement of a criminal charged with drugs supply. Following a drugs seizure, ANPR information showed that the criminals had recently travelled out of force area and then returned a short time later supporting a charge of drugs supply.
- Following a hit and run fatal RTC, ANPR was deployed on the road to identify regular travellers at times relevant to the RTC. Analysis of this database identified 35 vehicles which had been driven regularly along the road at the relevant time of the RTC. From this list, nine witnesses were questioned leading to the arrest and conviction of the offender.

2006. This guide identifies the numerous ways in which ANPR can be used in support of investigations.

As evidence, ANPR information is usually combined with other sources of intelligence to provide a picture of the movements of a suspect. SIOs are comfortable with using ANPR as evidence in prosecutions and recent work by the AACT on the use of ANPR in investigations provides guidance on this issue. When used as evidence ANPR information is usually displayed as an image of a vehicle and is therefore treated in the same way as CCTV. SIOs felt that there was a need to improve the quality of images captured by ANPR cameras or increase the use of it alongside Digital Video Recording (DVR) in order to improve the chances of identifying the driver and passengers in vehicles.

With the planned wider coverage of ANPR infrastructure and supporting back office infrastructure (NADC and BOF), the potential use of ANPR for intelligence gathering and investigations will increase substantially.

8.2 Access to systems

F27 Access to ANPR data is limited in most Forces with high levels of demand on back office staff to carry out searches requested by other departments and Forces.

Intelligence resulting from ANPR hits is not routinely shared with other Forces. If an officer stops a vehicle due to a hit from another Force's hotlist it will be the responsibility of that officer to notify the relevant Force. However, for hits from other Force hotlists which receive no response (for example on fixed sites that are not monitored) it is unlikely that any immediate notification will be sent to the relevant Force. This situation should be improved by the introduction of the NADC and the BOF to BOF information exchange which is expected to be a feature of BOF2.2.

The National Joint Unit (NJU) in the MPS provides the live time notification of hits on the Operation Wedge (Counter Terrorism) hotlist to all relevant officers in the country as well as sharing ANPR information with the Security Service. However, despite the efforts of the NJU, they still rely on notification of a hit from individual Forces. Again, the successful implementation of NADC should help to make this process more effective.

Kent Police – Ports Integrated Vehicle Intelligence System

Kent has developed a ports ANPR system in conjunction with other vehicle intelligence gathering technologies developing an innovative approach to ANPR infrastructure. The ANPR system is currently integrated with a digital video recording capability. Consideration is also being given to further integration with infrared technologies to detect the number of people in a vehicle and links to channel crossing booking information.

Only two Forces reviewed had widespread access to a BOF within their Force. This included direct desktop access for analysts, intelligence officers and investigators. BOF2 is configurable to allow access to any user defined by the system administrator. Such access allows searches to be carried out on the BOF without having to submit a request to a back office administrator to conduct the search. Widespread and direct access to a BOF encourages the use of ANPR by all officers. In Bradford BCU, where there is widespread access to a BOF, volume crime investigations involving a vehicle would not be closed unless appropriate searches had been carried out on the BOF.

8.3 Analysis and data mining

F28 In most Forces ANPR data is not routinely analysed to support the production of NIM products, in particular to identify target vehicles and optimal locations/times for intercepting them. Clearly the opportunity to exploit this type of analysis is limited as many fixed sites are still in the process of being established and the back office infrastructure (NADC and BOF2) is not yet operational. However this type of analysis,

which is supported by the forthcoming guide from the AACT on the analysis of ANPR data, leads to more targeted T&C and better use of resources.

Due to limited access to BOFs, only one Force was able to show that it routinely uses ANPR information in support of NIM intelligence products. Despite this, at least three Forces reviewed recognised the benefits of analysing ANPR data and had plans for doing this once analysts had access to a BOF. Some Forces had also produced ad hoc arrangements to provide downloads of ANPR data to analysts for specific purposes.

Analysing ANPR data in this ad hoc way based on specific downloads can be time consuming and to a certain extent relies on the users of the data having a prior knowledge of who they are searching for. One Force has tried to improve this process by developing a macro to run on a BOF which will provide peak travel time and location data for a specified vehicle based on the ANPR cameras it has passed during a specific time parameter.

North Wales Police – Operation Jubilee

Officers in North Wales Police analysed ANPR data from the Mersey Tunnels, specifically hits of hotlist vehicle associated with drug dealers who were buying drugs from or bringing drugs into North Wales from Merseyside. Analysts used this data to identify which vehicles were travelling to and from Merseyside most frequently and the peak times and days for these journeys. ANPR intercept and surveillance teams were subsequently deployed on the basis of this analysis.

Existing BOFs include basic data mining capabilities which are centred on VRM searching. It is also planned that the NADC and future versions of BOF2 will have analytical tools that will help identify travel patterns in vehicle movements although it is noted that use of these functions is likely to be limited to major crime enquiries initially, with BOF2 (version 2.3) likely to provide this facility more widely by late 2007.

F29 Forces are aware of the potential of integrating ANPR data with other data sources for deriving further intelligence and insight, and the AACT guide on the analysis of ANPR data supports this. Not all the analysis that Forces want to do is supported by planned BOF2 releases – it is inevitable in systems build where there are resource constraints that the needs of all users cannot be met. This is particularly the case for ANPR where the user requirements are developing as users become more aware of the potential of the data. As a result, some Forces are developing with suppliers their own analytical solutions to integrate the various data sources for analysis. Given that these systems are based on NAAS standards, other Forces should be able to benefit from this development in the future.

Whilst ANPR information on its own can provide useful insight on travel patterns and offender lifestyle, its true potential will only be realised when integrated with other data sources. Currently analysts use data primarily from sources such as crimes, incidents, custody, stop checks and intelligence reports. If integrated with these other data sources, ANPR will provide a rich source of information on vehicle movements which can be linked to other entities such as locations, places, events and people.

Different approaches are being taken by Forces to enable the integration of ANPR data with other data sources. Forces have imported ANPR data into i2 analyst workstation to enable analysts to view this alongside other imported data. Other Forces, such as Kent, are working with suppliers to develop new software which will build relational databases linking together data from any source including ANPR, and then providing facilities for the analysis and identification of entity links. These different approaches have not yet been communicated widely by AACT as they are in the proof of concept stage.

Analytical tools to be included on NADC and future versions of BOF2

- Vehicle Pattern Analysis – The extraction of ANPR data relating to a specific vehicle or group of vehicles of interest, with particular emphasis on identifying patterns of movement.
- Geographical Profiling – The representation of ANPR vehicle data on a map with a view to highlighting general patterns of travel and also specific locations and journeys of potential interest.
- Location Time Analysis – The interrogation of ANPR data relating to a vehicle of interest in order to highlight 'ghost plates', and rung and stolen vehicles. This is an automated function that will identify vehicles bearing the same VRN at two geographic locations, which are unlikely due to distance/time.
- Sequential Pattern Analysis – Identifying behavioural patterns of a vehicle of interest and exploring whether the movements form part of an historic pattern of behaviour.
- Post-Incident Analysis – The extraction of ANPR data between specific times and ANPR cameras to identify potential suspects and/or witnesses to crimes that have taken place.
- Convoy Analysis – The identification of vehicles of interest that are travelling within certain defined time or number of vehicle parameters of each other in the same area and direction at any given number of locations.

Kent Police and InterQuest Analytics (The Distillery)

Kent Police are working with The Distillery in developing a version of their InterQuest Analytics product which can incorporate ANPR data. The product brings together data from other repositories/silos and structures it for analysis. This can then be searched to identify links between entities (for example Crime series and vehicles read by ANPR in the vicinity). The intention of Kent is to run a proof of concept with this product in order to evaluate the benefits of integrating ANPR data in this way, developing automated analysis functions to inform intelligence products and making it is accessible to front line staff.

West Mercia Police and I2 Analyst Workstation

West Mercia are using their existing i2 Analyst Workstation to import ANPR data and then analyse this alongside other imported data sets from their crime, incident and intelligence databases. West Mercia use this to identify vehicles which may be linked to crime series based on the location and time they pass through ANPR cameras, link crimes based on vehicles identified close to the scene of multiple crimes, and build up a picture of a suspect's vehicle movements. The Force uses the analysis of ANPR data in conjunction with other data to both reactively and proactively deploy policing resources.

9

Findings, conclusions and recommendations



9.1 Findings

The key findings emerging from the review were as follows:

9.1.1 ANPR Strategy

- F1 Forces recognised ANPR as a strategic priority, although typically this is not backed by significant financial investment or reallocation of intercept officers/intelligence analyst resources to exploit current ANPR capabilities.
- F2 Force ANPR strategies do not fully acknowledge the intelligence role of ANPR. Rather ANPR is primarily seen as an intercept tool. This position was reinforced by previous HMIC Baseline Assessments which included ANPR only within Roads Policing.

9.1.2 ANPR Infrastructure

- F3 The benefits arising from current ANPR infrastructure investment have not yet been evaluated by Forces. Accepting that this infrastructure is a work in progress and there is anecdotal evidence that this infrastructure has been helpful, there is little quantitative evidence to support this. Without this evidence, it is difficult to justify the higher prioritisation of ANPR by Forces.

- F4 Forces have developed innovative approaches, with support from the AACT, in working with other organisations to the development and deployment of ANPR infrastructure. This has realised value above that which would otherwise be expected.
- F5 ANPR Project Managers have, for the most part, delivered roadside infrastructure on budget. The complexity of delivery, in particular in providing communications and power to roadside infrastructure, has meant that the process has often taken longer than planned.
- F6 While there has been some use of existing procurement frameworks to purchase ANPR infrastructure, the procurement process has typically been time-consuming with limited sharing of information between Forces. Further, the limited time scales to spend funding from the Home Office and uncertainty over future funding sources has meant that infrastructure projects are not always closely linked to a long-term ANPR strategy.
- F7 Some IS/IT departments are starting to support ANPR as a normal business process. However, contrary to advice from the AACT, most are still reliant on the expertise within project delivery teams.



- F8 Forces have relied upon PSU funding, sources from the public and private sector and the income from hypothecation (discontinued in March 2006) for the development of ANPR rather than prioritising and investing their own funds.
- F9 Forces are concerned about revenue costs for on-going maintenance of and support for ANPR equipment. Currently these costs are being met within existing budgets.

9.1.3 Tasking and Coordination of ANPR

- F10 All Forces have ANPR intercept teams. There are examples of their use within all levels of policing, although typically they are used to address volume crime and have yet to be acknowledged as a mainstream policing tool.
- F11 ANPR intercept resources are typically deployed as part of the T&C process. However, products and understanding to enable an effective tasking are limited and could be further developed by Forces to exploit the full potential of existing intercept teams.
- F12 The quality and volume of vehicle intelligence for ANPR is varied. To address this some Forces are implementing new systems for the collation this data.
- F13 With the exception of out of date stolen vehicle markers, the current level of inaccuracies (in particular through out of date information) with ANPR hotlists is having only a limited impact. This is because intercept teams have developed methods of corroborating ANPR hits before taking action, for example only stopping vehicles which appear on a number of databases and checking the validity of hits on Mobile Data Terminals with live PNC links. However, as an intelligence-based system ANPR requires accurate data to support its exploitation.
- F14 Specialist areas of policing such as L2/3 and SB are not using existing ANPR resources and capability to its current potential. AACT has deliberately not promoted this element as yet, waiting until NADC and BOF2 are functional, and therefore this finding is unsurprising. However, some forces have devised significant value from current ANPR infrastructure as a Level 2 policing tool.



- F15 There is anecdotal evidence that the use of ANPR has disrupted criminal activity and that some criminals are taking counter measures to avoid detection. However, it is not clear if this is a deliberate attempt to avoid ANPR or just the ongoing attempts of criminals to evade general policing methods and surveillance.
- F16 Forces are regularly working with partner agencies, supported by the AACT, to conduct ANPR operations.

9.1.4 Communicating ANPR

- F17 Despite the efforts of AACT to communicate good-practice and information on the exploitation of ANPR to Forces, in general there is a poor understanding of ANPR and its capability outside Force's core ANPR project team members. This seems to relate to communications within Forces, rather than communications between the AACT and Forces. As a result individuals using/developing ANPR across Forces are not aware of the good-practice resources available to them.

- F18 Following on from the previous finding, there was a poor awareness within Forces of national ANPR developments, in particular regarding the functionality that NADC and BOF2 will deliver. This was in spite of the significant communications on the subject by the AACT. This lack of awareness has not helped communicating the value of ANPR in the wider policing context.
- F19 Forces have developed communications strategies to raise awareness of ANPR. These have addressed both internal (police) and external (general public) markets. The previous two findings would indicate that internal communications have had limited success, in particular given the supporting communications provided by AACT.

9.1.5 Vehicle interception using ANPR

- F20 ANPR reads and hits from fixed sites are not always routinely monitored and delete to by control rooms on a 24/7 basis. There is also an absence of guidance on how to prioritise large volumes of hits from fixed sites.

- F21 A variety of deployment tactics are used for ANPR, though there has been limited evaluation by Forces of their relative effectiveness both within and between Forces.
- F22 There are a variety of performance frameworks in place to review ANPR intercept team activity based on process and outputs (principally staff activity and arrests). Some Forces have started work to include a wider definition of ANPR performance, though the focus of this is still on the intercept role and does not include the intelligence/investigative capability.
- F23 Forces recognise the importance of being able to quantify the impact of ANPR on strategic objectives although very few are able to track ANPR arrests to Offences Brought to Justice (OBtJ). However, the status of disqualified driving and drink driving as non-recordable offences has meant the full impact ANPR is not recognised in terms on BCU and Force performance targets.
- F24 Forces are using vehicle seizure powers effectively. In practice, however, some Forces' recovery models are susceptible to changes in inputs such as the number of vehicles seized or the price of scrap metal.
- F25 Forces are frustrated at the perceived loop hole regarding the documents required by individuals to reclaim a seized vehicle. This is a loophole that the AACT are working to address with the motor insurance industry.
- F27 Access to ANPR data is limited in most Forces with high levels of demand on back office staff to carry out searches requested by other departments and Forces.
- F28 In most Forces ANPR data is not routinely analysed to support the production of NIM products, in particular to identify target vehicles and optimal locations/times for intercepting them. Clearly the opportunity to exploit this type of analysis is limited as many fixed sites are still in the process of being established and the back office infrastructure (NADC and BOF2) is not yet operational. However this type of analysis, which is supported by the forthcoming guide from the AACT on the analysis of ANPR data, leads to more targeted T&C and better use of resources.
- F29 Forces are aware of the potential of integrating ANPR data with other data sources for deriving further intelligence and insight, and the AACT guide on the analysis of ANPR data supports this. Not all the analysis that Forces want to do is supported by planned BOF2 releases – it is inevitable in systems build where there are resource constraints that the needs of all users cannot be met. This is particularly the case for ANPR where the user requirements are developing as users become more aware of the potential of the data. As a result, some Forces are developing with suppliers their own analytical solutions to integrate the various data sources for analysis. Given that these systems are based on NAAS standards, other Forces should be able to benefit from this development in the future.

9.1.6 ANPR for intelligence and investigation

- F26 ANPR resources and information are being used as intelligence and evidence on major investigations, although SIOs have limited access to ANPR equipment suitable to their requirements. With the planned wider coverage of ANPR infrastructure and supporting back office infrastructure (NADC and BOF), the potential use of ANPR for intelligence gathering and investigations will increase substantially.

9.2 Conclusions

This review concludes that, within a relatively short time period, forces have successfully adopted ANPR as an intercept tool that (in the majority of cases) is tasked through the TTCG process. Intercept teams using ANPR continue to make a significant number of arrests and deny criminals the use of the road (for example through exploiting the new vehicle seizure powers).

This clearly demonstrates that ANPR makes a direct contribution to both national and force objectives and is used on a daily basis to engage criminals. In comparison to a number of other technology-enabled projects in the criminal justice area, its success has been remarkable.

The review identified a number of sub-conclusions (with the findings on which they were based referenced in brackets):

- C1 At Force level ANPR is not seen as a high priority policing tool. As a result, ANPR is not being adequately resourced and, unless this is addressed, the full potential of ANPR for Forces is unlikely to be achieved (F1, F2, F3, F19, F22, F23).
- C2 When delivering ANPR projects, Forces typically focused on outputs (getting infrastructure in place) rather than benefits realisation (delivering more arrests). As a result, ambitions around the use of ANPR to deliver policing objectives are not being set and infrastructure installed is not being fully exploited (F3).
- C3 Funding and delivery of joint ANPR projects and operations (for example involving local authorities and private sector) has generated benefits for the police. This partnership approach, which has been promoted by the AACT, is to be applauded (F4, F8, F9, F16).
- C4 Sub-optimal communications within and between Forces, their contractors and partner agencies has meant that the implementation of ANPR projects (in particular the delivery of roadside infrastructure) has been less efficient. There have been a number of lessons learned in this area that will usefully inform future implementations (F5).
- C5 There has been little coordination in the procurement of ANPR equipment between Forces. This has arisen largely out of individual Forces' desire to manage the procurement process to suit their own particular needs (F6).
- C6 The focus of ANPR activity to date has been primarily as an intercept tool. While some Forces recognise the wider policing benefits (for example for providing intelligence and surveillance), the exploitation of ANPR in these areas has been limited. The delivery of NADC and BOF2 should significantly enhance the potential benefits (F10, F14, F26, F27).
- C7 In spite of the overall success of intercept operations, poor quality/lack of vehicle intelligence and lack of analytical tools continues to be an issue. Forces are aware of these data issues, in particular relating to their own vehicle intelligence and are seeking to address this where they can. Analytical tools will be provided to forces as part of BOF2 roll-out in 2007, however few Forces have planned for additional analytical resources to exploit this (F11, F12, F13, F18, F21, F28, F29, F15).
- C8 The number of vehicle hits far exceeds the resources available to respond to them. As a result, high priority vehicles are not always being intercepted. With more ANPR infrastructure coming on line, this problem will increase. There is a risk with repeated failure to respond to specific vehicle hits that these vehicles could be subsequently involved in significant crime/ road traffic collisions (F20).



- C9 Vehicle seizure has become an extremely useful tool for ANPR intercept teams. It has directly contributed to denying criminals use of the road. While the process generally works well, there is a loophole regarding vehicle reclamation. There is variation between Forces about how this is handled (F24, F25).

Overall this report concludes that ANPR has made considerable contributions to fighting crime, although Forces could do more with the current infrastructure if ANPR was given appropriate Force priority. Further, with the delivery of the national projects and more roadside infrastructure in 2007, it is vital that Forces seek to exploit the increased potential of ANPR to deny criminals use of the road.

9.3 Recommendations

Given the continued success of ANPR and the potential offered by forthcoming national projects, the key recommendation is that the Home Office and ACPO must continue to support Forces' use of ANPR and ensure that Forces' seek to exploit the potential of the national projects. The current situation is that the responsibility for the operational delivery of ANPR lies with ACPO, through the

ACPO ANPR Coordination team (AACT). It is likely that this team will be subsumed into the National Policing Improvements Agency (NPIA) in the near future and any recommendations on ACPO may, therefore, have to be taken forward by the NPIA in conjunction with ACPO.

It is vital that the significant benefits that ANPR offers to the police service are communicated effectively. In addition the delivery of NADC and BOF2 in 2007 means that there is an even more urgent need to revisit the current communications strategy to encompass the wider capabilities of ANPR as an intercept, intelligence and investigative tool. This strategy must then be delivered at both the national and the force level – this will be a challenge given the limitations highlighted in the review of limited internal Force communications regarding ANPR. To help with this we recommend that other parties seek to exert their influence, in particular the NPIA (when established), HMIC (for example in the inclusion of ANPR within the baseline reviews) and Centrex (for example in the inclusion of ANPR in a wider range of training).



The core recommendations of this thematic review for the future development of ANPR nationally are as follows:

- The increasing prevalence of ANPR integrated with fixed site and CCTV infrastructure will greatly increase the number of ANPR hits on vehicles linked to crime. Forces have not yet begun to address the policy or resourcing implications of these developments. It is therefore recommended that ACPO produce a policy that advises forces on a response strategy that takes into account prioritisation of hits, health and safety, the implications of not responding in live time and any follow up actions required to deal with the intelligence gained from these identifications.
- In light of the development of the NADC, forces need to consider how ANPR will be used as an investigative tool in crime investigations, particularly where a vehicle is linked to the crime or a suspect. ACPO has recently provided guidance to forces on this issue.

- Force performance targets should be influencing the intelligence databases on which ANPR relies so that ANPR activity reflects the over-arching priorities. Forces must consider how they ensure that quality intelligence is provided to their ANPR systems and that this intelligence is linked to their policing priorities.

Further specific recommendations are as follows:

- R1 For Forces to exploit the full benefits of ANPR, those involved in business planning and high level resource allocation processes need to understand the full benefits (both as an intercept tool and an intelligence tool) of ANPR. While it is recognised that some of these benefits are not yet fully realisable (specifically as NADC and BOF2 have not yet been delivered), there needs to be greater understanding of the current and future potential of ANPR within Forces.

We therefore recommend that ACPO enhance their communications activities to educate the police community as to the benefits of ANPR, both current and future.

- R2 When making an investment in ANPR infrastructure, forces must make explicit reference to the outcomes that the proposed infrastructure (and deployment of intercept teams using this infrastructure) will make. To support this we recommend that Forces set in place appropriate monitoring arrangements of outcomes from ANPR investment related to clear outcome-related objectives. When reviewing the appropriateness of infrastructure investment, HMIC should review whether forces have actively sought to realise these benefits.
- R3 As part of the updated communications programme, ACPO should circulate their good practice guides on:
 - planning/delivering ANPR infrastructure. This could be updated to reflect Forces' most recent experiences in installing fixed infrastructure
 - engaging with external parties. Some partnerships may be best developed and coordinated at a national level (for example with the Highways Agency) and we therefore recommend that ACPO should take the lead on these.
- R4 Given that many Forces have now been through procurement processes, it is not considered necessary to specifically develop procurement frameworks at a national or regional level. However, we recommend that ACPO continue to provide a central repository of ANPR framework contracts to allow other forces in future to collaborate if appropriate. Forces should also consider the creation of longer term or open-ended frameworks to allow for the future procurement of ANPR equipment.

- R6 We recommend that ACPO develop a benefits realisation plan template for forces to use as the basis for exploiting ANPR. This will highlight an approach to exploiting the benefits of ANPR as an intercept tool, for gathering intelligence and for supporting investigation.
- R7 In order to improve and promote the analysis of ANPR data, we recommend that the ACPO team seek to:
 - communicate with Forces the exploratory/development work being done on software development, for example on integration of ANPR data with other police data sources to support analysis (eg The Distillery and i2 products)
 - continue the ANPR analysis input on courses run by the accredited National Intelligence Analysis Training centres
 - provide a repository of experiences of analysis products used with ANPR data, in particular how these have been useful and what their impact has been.
- R8 We recommend that ACPO should develop a national policy through the National User Group regarding the level of response to ANPR hits at fixed sites. This must be sufficiently flexible to reflect different Force resourcing levels, but must be robust to ensure that vehicle hits are responded to appropriately.
- R9 In the absence of enabling legislation, we recommend that ACPO continue their work with the motor insurance industry (MIIB) and the ACPO Vehicle Recovery Group to address vehicle reclaiming loopholes in a practical way. Forces should also consider adopting a more robust approach regarding the documents required to reclaim a vehicle. It would be useful if ACPO, as an organisation, agreed a consistent national, and robust, approach to counter this problem.

- R10 We recommend that the ACPO team should continue to work with the ACPO Vehicle Recovery Group to share best practice in vehicle recovery contracts, in particular the vehicle seizure aspect. This should involve specific support to forces who are not yet seizing vehicles.
- R11 We recommend that the Home Office should discuss with DfT whether the current fees for vehicle removal (set under The Removal, Storage and Disposal of Vehicles (Prescribed Sums and Charges etc) Regulation 1993) can be updated to reflect current costs. Such a discussion should also consider the transfer of responsibility for fees from the Home Office to the DfT.
- R12 This review has identified a number of areas that would benefit from further research in order to inform future decisions on the use of ANPR. It is therefore recommended that the NPIA carry out a programme of research and evaluation in the following areas:
 - the relative effectiveness of different tasking and deployment methods for intercept teams (eg fixed or mobile, TTCG or self tasked deployments)
 - a cost benefit analysis of ANPR teams
 - the effectiveness of ANPR capability at level 2
 - an assessment of the intelligence benefits of ANPR.
- R13 We recommend that HMIC should include the role of ANPR in delivering targets within the baseline reviews they undertake and consider the significant impact that ANPR will continue to have on protective services so that this can be reflected in the inspection process.

Appendix A: Benchmarks

ANPR benchmarks provide a statement on good, aspirational or poor practice within a Force relation to ANPR. These were used to provide a standard set of benchmarks to measure Forces against.

Section	Benchmark
ANPR Strategy	<p>The Force has a strategy for the development of ANPR</p> <p>The Force's ANPR strategy is clearly linked into their Policing Plan</p> <p>The Force's ANPR strategy is clearly aligned with ACPO's ANPR strategy</p> <p>The Force's ANPR strategy recognises the dual role of ANPR - intercept and delivering intelligence</p> <p>The Force's ANPR strategy links into to regional issues (in particular neighbouring Forces/L2 criminality)</p> <p>The Force's ANPR strategy is outcome driven (arrests) rather than output driven (infrastructure)</p> <p>The relative importance of ANPR is high compared to the Force's other competing priorities</p> <p>The Force has an ACPO lead for ANPR</p> <p>The Force ACPO lead's priority is the reactive use of ANPR resources over intelligence gathering</p> <p>The Force ACPO lead is concerned by delays in the production of BOF2 and NADC</p> <p>Day-to-day leadership/ownership of ANPR sits within roads policing</p>
ANPR Infrastructure	<p>The actual location of fixed site ANPR cameras has had to reflect a range of priorities, not all of which are policing</p> <p>There is recognition that the best ANPR camera sites for intercept are not the best for intelligence</p> <p>The roll-out of fixed ANPR has been incremental and typically town-based</p> <p>The Force has adopted innovative approaches to developing ANPR infrastructure networks</p> <p>The Force has clearly articulated the expected benefits (impacts and outcomes) from ANPR infrastructure</p> <p>The Force tracks benefits arising from ANPR infrastructure on an on-going basis</p> <p>Exploitation of infrastructure is dependent on the successful delivery of BOF2</p> <p>The Force has a dedicated Project Manager for delivering ANPR infrastructure</p> <p>The Force has experienced delay in the delivery of fixed infrastructure for a number of reasons (contractors, planning, procurement)</p> <p>The Force has experienced increased costs in the delivery of fixed infrastructure for a number of reasons (rework, unplanned costs)</p> <p>The requirements of the end users from the ANPR systems were clearly articulated at the outset</p>
Infrastructure	<p>The Force has set up a new procurement framework for ANPR infrastructure and services</p> <p>Performance of existing ANPR infrastructure and systems is used to inform future procurement decisions</p> <p>Ongoing supplier support is through clearly defined service level agreements</p> <p>Procurement of ANPR infrastructure and services has taken longer than anticipated</p> <p>IT procurement for Force is not always cognisant of the needs of ANPR and intelligence sharing</p> <p>The Force has shared/sought to share procurement experiences/decisions with other Forces</p> <p>The delivery of ANPR IT support is primarily from within the ANPR project delivery team</p> <p>Suppliers have provided the Force with detailed training in the use of systems provided</p> <p>The Force has committed significant capital expenditure to ANPR</p> <p>The Force plans to commit significant capital expenditure to ANPR in the short term</p> <p>The Force has used a range of alternative funding for ANPR from both the private and public sector</p> <p>The Force is considering/has identified ways of generating revenue from ANPR activity to support on-going delivery</p> <p>The Force has funding in place for future revenue expenditure (in particular maintenance and support)</p>
Tasking and Coordination of ANPR	<p>The Force has at least one dedicated ANPR intercept team</p> <p>Dedicated ANPR intercept teams operate in conjunction with Level 2 or neighbourhood policing team resources</p> <p>ANPR intercept is used as a significant and mainstream policing tool</p> <p>The deployment of dedicated intercept teams is managed as part of the T&C process</p> <p>Dedicated ANPR intercept teams are normally tasked to address specific problems for which there is associated vehicle intelligence</p> <p>The use ANPR resources for addressing Level 2/3 and CT issues is fully developed</p> <p>Those involved in the T&C process have an understanding of the types of tasks suitable for an ANPR team</p> <p>The intelligence product provided to ANPR intercept teams is good (both quality and volume of vehicle intelligence)</p> <p>Intelligence relating to Level 2/3 and CT targets is routinely put on to ANPR systems</p> <p>Issues around data accuracy (eg DVLA and MIDAS) hotlists are not causing significant operational problems</p> <p>The success or otherwise of the previous T&C deployments of ANPR teams is discussed at the next T&C meeting</p> <p>The Force conducts joint ANPR operations with partner agencies (such as VOSA and HMRC) and other Forces</p>

Section	Benchmark
Communicating ANPR	<p>The Force is an active participant to ACPO ANPR working groups</p> <p>The Force is aware of the roles and responsibilities of ACPO ANPR team and the PSU in supporting and developing ANPR use</p> <p>In making funding bids to PSU, the Force has a clear understanding of what is required</p> <p>The Force has articulated to the ACPO team user requirements of the BOF2</p> <p>The Force has a clear understanding when BOF2 will be delivered, what tools will be incorporated and how it will be of use to them</p> <p>The Force has used contacts within ACPO to help address technical issues around the performance of BOF</p> <p>At the operational level, the Force has developed contacts with ANPR intercept teams in other Forces to share best practice</p> <p>At the operational level, the Force has developed contacts with intelligence analysts in other Forces to share best practice in mining ANPR data</p> <p>The Force has a clear understanding of when NADC will be delivered and how it will be of use to them</p> <p>The Force has benefited from positive engagement from the ACPO team in terms of improving performance</p> <p>The Force has an internal communications policy for ANPR aimed at increasing awareness of its potential</p> <p>The Force has documentation outlining good practice for ANPR intercept teams</p> <p>The Force has documentation outlining good practice in terms of mining ANPR intelligence</p> <p>The Force has documentation outlining the types of package required for efficient deployment of ANPR intercept teams</p> <p>The Force has an external communications policy for ANPR which is proactive and highlights benefits</p>
Vehicle Interception using ANPR	<p>Control rooms have/will soon have ANPR terminals to aid with intercept team operational deployment</p> <p>There has been an increased demand on control room staff and response resources since the implementation of fixed sites</p> <p>Filters have been introduced to reduce the number of hits they respond to from fixed sites</p> <p>A variety of deployment tactics are used for intercept teams (roadside checks, ANPR vans, unmarked vehicles and fixed sites)</p> <p>The relative merit of different deployment tactics is routinely evaluated</p> <p>Performance of intercept teams is reviewed regularly using Key Performance Indicators based on volume indicators of arrests and seizures</p> <p>The use of Key Performance Indicators is not distorting operational activities</p> <p>Key performance indicators reflect the wider performance activity as well as the dedicated intercept team</p> <p>The Force regularly assesses the impact of ANPR on OBtJ delivery</p> <p>The Force is able to quantify the performance of ANPR with regard to its intelligence benefits</p> <p>Vehicle seizure powers (for no insurance) are being actively used by the intercept teams</p> <p>The Force has an agreement with vehicle recovery agents to recover and store seized vehicles</p> <p>Vehicle recovery agreements are stable and provide the basis for future workload planning</p> <p>Vehicle seizure legislation is effective in keeping vehicles belonging to criminals off the road</p>
ANPR for Intelligence and Investigation	<p>ANPR is being deployed to specifically gather intelligence on suspects in major investigations</p> <p>ANPR data is regularly mined for information on vehicles linked to major incidents</p> <p>SIOs have/would have no issue in using ANPR as evidence in prosecutions</p> <p>SIOs regularly make use of covert portable ANPR equipment for intelligence gathering against targets or crime problems</p> <p>There is an efficient process for sharing ANPR intelligence with other Forces</p> <p>There is widespread access to ANPR read and hit data across the Force</p> <p>ANPR data is routinely analysed as part of the NIM process</p> <p>Forces recognise the potential of integrating ANPR data with other police data sources with some development work taking place with software suppliers</p> <p>The Force has all the necessary analytical tools to identify patterns and links within ANPR databases</p> <p>There is a clear understanding of the contribution that ANPR intercept teams make to Force objectives</p> <p>There is a clear understanding of the contribution that ANPR intelligence make to Force objectives</p> <p>There is a clear link between the contribution of ANPR to Force objectives and Force funding of ANPR</p> <p>There is evidence that criminals have changed behaviour as a result of overall ANPR operations</p>

Appendix B: Acronyms

Acronym	Meaning
AACT	ACPO ANPR Coordination Team
ABI	Association of British Insurers
ACPO	Association of Chief Police Officers
ACPOS	Association of Chief Police Officers in Scotland
ANPR	Automatic Number Plate Recognition
BCU	Basic Command Unit
CCTV	Closed Circuit Television
CDRP	Crime and Disorder Reduction Partnership
CJS	Criminal Justice System
CTO	Central Ticket Offices
DfT	Department for Transport
DCA	Department for Constitutional Affairs
DVLA	Driver and Vehicle Licensing Agency
EVI	Driver and Vehicle Licensing Agency
FIS	Electronic Vehicle Identification
FLINTS	Force Linked Intelligence System
FTE	Full Time Equivalent
FPN	Fixed Penalty Notice
HMIC	Her Majesty's Inspectorate of Constabulary
HMT	Her Majesty's Treasury
HO/RT/1	Home Office Road Transport form 1 (document producer)
MoT	National Criminal Intelligence Service
NCIS	National Criminal Intelligence Service
NIM	National Intelligence Model
OBTJ	Offences Brought To Justice
OCU	Operational Command Units
NJG	Narrowing the Justice Gap
PA	PA Consulting Group
PITO	Police Information Technology Organisation
PNC	Police National Computer
PSU	Home Office Police Standards Unit
RTA	Road Traffic Act
SOCA	Serious and Organised Crime Agency
SORN	Statutory Off Road Notification
VED	Vehicle Excise Duty
VERA	Vehicle Excise and Registration Act
VOSA	Vehicle and Operator Services Agency
VRM	Vehicle Registration Mark

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