

# CCTV Image

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## Watching the Games

**Ahead of the 2012 Olympic Games, what preparations is being made for CCTV?**

### CCTV User Group Autumn conference

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### Salford is plotting

Salford City Council has gone CCTV camera mapping mad!

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# High time for camera mapping

Salford City Council has embarked on an ambitious programme of mapping public and private cameras to enable police and other users to quickly find the images they require via a web-based user interface. We went to meet the people who made the system possible.

DO YOU REMEMBER the one about Britain having 4 million CCTV cameras? That's the figure the national media caught onto a few years ago, after a report author scaled up the number in one particular area into a UK-wide projection. But that was all it was – an informed guesstimate. Nobody really knows and still doesn't.

The irony of having surveillance units, but not necessarily knowing how many, their locations, fields of view and associated information won't have been lost on many CCTV User Group members. That discomfiting feeling has been leveraged more recently by the national CCTV strategy and local moves towards discovering exactly what is out there on the ground. Local authorities may have a pretty good idea of the equipment they have installed, but their cameras are only a percentage of the potential additional coverage provided by, for instance, educational establishments, museums, highways authorities, transport providers and myriad commercial system operators.

Harnessing the combined lens power of all these cameras would exponentially multiply their current crime prevention, detection and deterrence value, and now genuinely exciting ways of achieving this cost-effectively for mutual benefit are being seen. CCTV Image has already profiled the way in which surveillance power is being more efficiently harnessed in Cheshire as a result of efforts spearheaded by the local constabulary. There, intelligence is gathered by Police Community Support Officers (PCSOs) and entered into a geographical information system. The process has side effect benefits, for it's providing the PCSOs with a way of breaking the ice with introductions to local businesses they might not have contacted otherwise.

The positive experience has already prompted Cheshire police's deputy chief constable, Graeme Gerrard, to call for a national register of CCTV systems, particularly for those focussing on public space surveillance for not just policing purposes but community safety reasons. Mr Gerrard told CCTV Image (Summer 2008 issue) that he suspects the public will have expected this mapping work to have been done already, adding that "there is a very big hole in our evidence base around the effectiveness of CCTV".

## Salford's solution

Similar thoughts have occurred in the Manchester area, where Paul Coward, Salford City Council's part-time corporate GIS Consultant, explains that he had the initial idea of mapping the open space cameras for a range of community safety purposes. Paul took this thought to Stephen Kearney, the local authority's principal community safety officer and together they developed it into a workable system that is already online and expanding rapidly. Paul is also Director of Salford GIS, which has implemented the system commissioned by the City Council on a GIS platform provided by Cadcorp.

Salford's CCTV Mapping system used the council's existing public facing web mapping system as a template to develop an extranet



Salford: at the forefront of a new wave of camera mapping

application that allows password controlled access to the crime and disorder reduction partnership for crime prevention, detection, CCTV network planning and improved partnership working. Organisations provided with passwords include Greater Manchester Police, the Greater Manchester Fire Service, Salford University, the community safety team, British Transport Police, and the council's neighbourhood managers (community liaison officers). A total of 374 camera locations within the city council area (including 17 traffic safety locations) have been mapped to date. One hour of training is all that's required to use the system and some 80 people have already had this. A PDF user manual has just been added to the system too.

From the outset, all of the area's public space monitoring camera locations were pinpointed and their maximum fields of view in optimal conditions determined. Paul explains that this involved a methodology that translates on-screen to differentiated information. For instance, camera fields of view are shown by two different shades of yellow: for cameras sited at a height of 12 metres or below and those mounted above 12 metres. "We checked the field of view by rotating the PTZ units as far as possible in each direction and then testing their maximum zoom capability. The operational parameter used is that a person's features must be

An extranet application was developed which enables authorised users to interrogate the mapping system via the Council’s website. Screenshots (right) indicate some of the many functions available via the site.

distinguishable at 10% of screen height at maximum zoom.”

Stephen adds that a number of organisations were invited to provide details of the cameras operating both within Salford’s boundary and those looking into it; these include units maintained by Salford University, the British Transport Police and the City of Manchester. Armed with the details they provided, this data was used to ‘populate’ the CCTV Mapping system which was integrated with Ordnance Survey base mapping, aerial photography and other relevant data sets. The information includes details of licensed premises, second hand goods dealers and prescription chemists, as well as motor salvage yards, scrap metal dealers, petrol stations, car parks, pubs, fast food outlets, hotels and clubs, and children’s residential homes.

The recent spate of economically driven criminal offences such as stripping of lead from roofs has led to the police requesting that religious buildings be indicated on the system too. In addition to this, planning applications have a role, since they are a relevant factor affecting camera placement. Tree preservation orders (TPOs), which may interfere with existing lines of transmission or fields of view, are also being included. The reasons for this include the possibility of council officers implanting tree pruning operations that may breach such TPOs, as well as assisting network planning – to ensure future cameras aren’t located next to TPO protected trees.

## Practical use

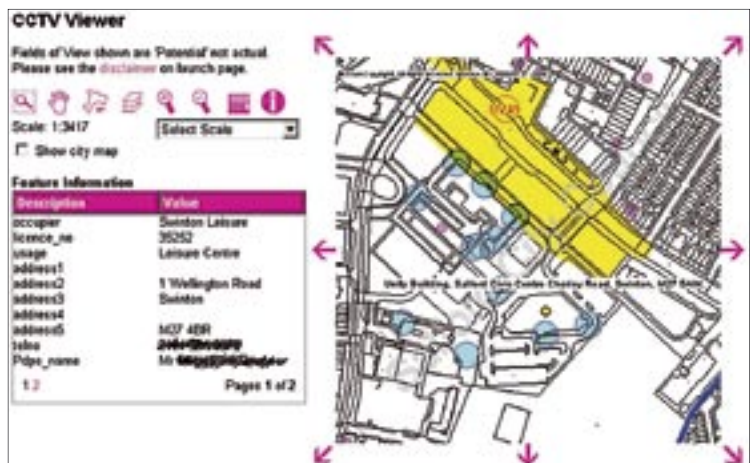
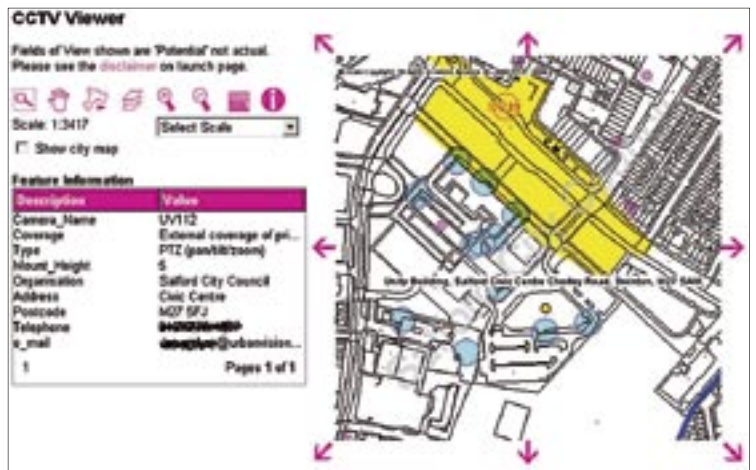
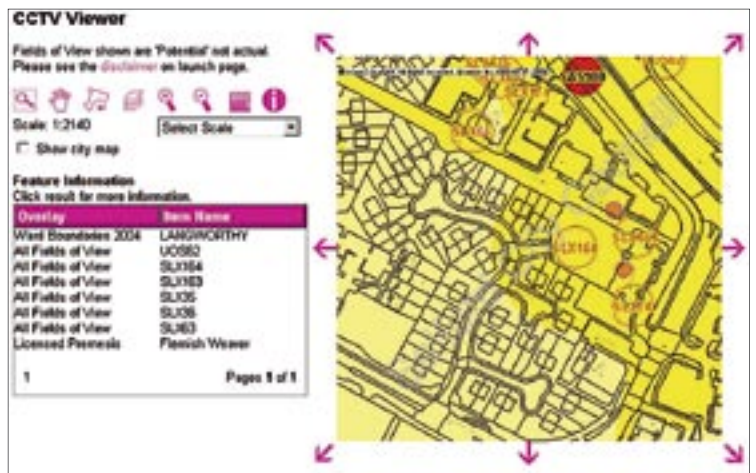
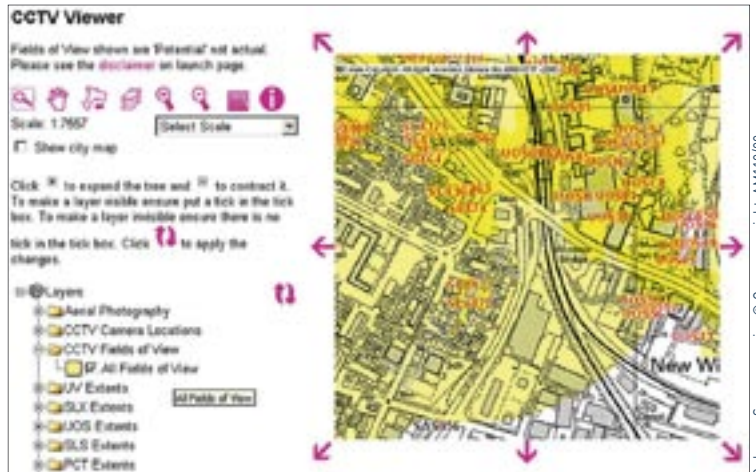
The system allows quick identification of an offence’s location, its access and escape routes, whether CCTV coverage is available and if so which camera(s) and associated monitoring station can be located to help with this enquiry. “In addition to such practical uses, the system’s longer term value lies in demonstrating where surveillance is required, as well as measuring the crime displacement effect of cameras and being able to react accordingly, for instance by deploying mobile CCTV units,” Stephen Kearney adds.

Stephen and Paul demonstrate the user experience using a laptop and screen projector, showing how the technology provides a scaleable map using, for instance, postcodes to identify particular areas of Salford, with camera fields of view clearly identified. A blue ‘boundary’ marker also shows the extent of individual cameras’ coverage if more than one is on-screen. Private cameras are coloured differently and system users can find out information including when cameras were commissioned, the type of unit, nature of its picture transmission and which control centre its images are sent to – in the council’s case one of two locations (see panel).

‘Friendly/observation’ points such as libraries, museums and police stations are also listed as potential locations for mounting temporary CCTV, while a category called ‘Recyclables’ details places such as motor salvage yards, scrap metal dealers and secondhand goods shops where criminals may sell or pawn stolen items to realise a quick gain and dispose of incriminating evidence. The police can use the system to quickly identify locations near a reported incident and use the on-screen contact details to find out if such items have been brought in. Supporting CCTV images could also then be quickly gathered.

“By using this system a far more detailed evidential case can be provided in terms of matching data to geographical crime patterns and seeing where CCTV is really required,” says Stephen. “This means CCTV managers can present a better case for moving cam-

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Ordnance Survey mapping © Crown copyright. AM11/0/08

eras or expanding their system and it avoids the potential lottery scenario in which those who shout loudest obtain the investment. In operational terms, daily users such as the police don't have to physically go out to an area following a crime and work out where the surveillance units are located, whose cameras they are, and then try to establish who to contact about obtaining access to recordings that may or may not be useful – we've already put that information on the system. In reality, this has meant in the past that officers abandoned attempts because it was too time consuming.

"The system also has a role in real-time incidents, allowing control centres to communicate more effectively with the police, fire or other services and determine if a developing situation is within the view of a camera. Immediate requests can then be made to train cameras on an area to gather information, while in a dangerous situation a CCTV monitoring centre can assist by providing crucial details without endangering police or security officers, or indeed the public."

## Exciting expansion

Previously, private camera users had been invited to voluntarily register their units for inclusion on the system, but the system now provides a publicly accessible internet where private organisations can upload details of their installations. Once checked for relevance (are they internal or external cameras?) these details will be merged with the existing system to create a more detailed picture of Salford's CCTV.

Besides Greater Manchester Police's Salford division, other police districts are also now interested in 'piggybacking' onto the system, offering the potential for linking up CCTV cameras across the Greater Manchester area. One of the other attractions for this lies in a further interesting system capability, in which routes between linked crimes could be calculated to provide information on any cameras that may be able to identify the offender due to the route they may have taken.

Paul Coward explains that the route between a vehicle related crime scene and the location of an abandoned vehicle can be worked out, allowing the police to identify known criminals and use camera images for potential prosecutions. This routing application would be bolstered

if more police divisions used the system, since vehicles recovered outside the Salford area could then be included too.

Meanwhile, other councils and police forces have expressed an interest in Salford's GIS system and it's hoped that a commercial licensing arrangement could be used to fund the appointment of a full-time system manager at Salford

to help exploit the capabilities in the longer term. Stephen Kearney is also interested in following Cheshire police's example in using the resources of PCSOs to proactively gather private CCTV system data.

Upcoming operational enhancements to the system include a bigger map window and more user-friendly information: instead of navigating through layers to find what you want, one mouse click will provide the relevant details. The expected 2009 move to a new, consolidated council control room is also likely to include the capability for registered users to remotely access current and historic recorded CCTV footage via a web-based system using proxy IP addresses. This would aid police investigations, for instance, by allowing them instant access to images without the current time and resource implications of retrieving them.

"We've set up this system for less than the cost of a single pole mounted CCTV camera. The police are already making active daily use of it, saving considerable time and freeing officers up to investigate incidents rather than chase CCTV footage. In the short time since going live, the results have included the mounting of a successful police surveillance operation using a roof-top mounted camera over a significant distance (previously not considered), and the apprehension of a person making repeated nuisance phone calls to the fire brigade using images from CCTV cameras pinpointed by the system."



Paul Coward, Director of Salford GSI

## DATA POINTS THE WAY

### Information drawn from the GIS data informs CCTV decisions



SALFORD CITY COUNCIL'S CCTV is currently controlled via two control rooms. John Laycock, Team Leader, Security Services for second-generation arms length management organisation (ALMO) Salix Homes, explains that one of the monitoring facilities is used for the security and safety of council owned housing stock.

Showing us around the control room first set up in 1999, he notes that some 300 cameras are available (70 of them PTZ) and they include rooftop views across the area that prove useful in helping combat problems including anti-social behaviour, vehicle crime, street robberies, and drug and drink-related incidents. John's team works in conjunction with concierge services and patrolling (contracted) security staff, with the surveillance cameras backed up by control over access control measures.

"We could certainly make positive use of the GIS CCTV Mapping system's intelligence-led approach to inform the case for new surveillance projects by providing hard facts about how crime is affecting communities and helping demonstrate the remedial effect. It would also prove a significant help in determining the displacement effect of cameras by tracking a range of crime figures to see how they change in relation to existing camera locations," John comments.

And he adds, "Crime and anti-social behaviour changes as communities move around, so you need to move on with surveillance too. In a real-time context the system is already helping operators to direct their attention towards which camera views are a priority, improving their effectiveness."