LONDON

AMBULANCE

SERVICE

CAD 2010 PHASE 2 PROJECT

DRIVERS OR OTHER REASONS FOR CHANGE

ISSUE 1.1

PRODUCT NUMBER – FS 2.2

London Ambulance Service NHS Trust
Product No: FS 2.2
Date: 16/11/2005

Project: CAD 2010 Phase 2 Project
Product Title: Drivers Or Other Reasons For Change
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1.   PURPOSE

To identify and document all other drivers or reasons for changing the current Central Ambulance Control, whether relating to the technology, processes, procedures or otherwise. (E.g. LAS targets or Key Performance Indicators; National Targets; legislation or regulation).To identify the origin and authority of those drivers or other reasons. To determine, at a high level, what is 'needed' to satisfy the driver or other reasons for change and any impact which satisfying that need is perceived to have upon service delivery, cost or other factors.

To conduct initial and brief market research with key suppliers and other organisations utilising innovative or highly regarded Computer Aided Dispatch systems (CAD) to support similar generic needs and determine any opportunities for change, any impact that exploiting that opportunity is perceived to have upon service delivery, cost or other factors.

2.   INTRODUCTION

The NHS is currently undergoing a massive reform the biggest since its inception 57 years ago. This reform, aimed at improving the patients experience and ensuring the NHS is a patient led service includes: The NHS Plan, National Programme for IT (NPfIT), Public and Patient Involvement, Foundation Trusts, Patient Choice, Reforming Emergency Care and Transforming NHS Ambulance Services. These are all programmes being implemented by the NHS to improve the quality of patient care delivered by NHS healthcare professionals. The London Ambulance Service NHS Trust as part of the NHS is required to align its strategic vision with that of the NHS as a whole. A new CAD environment that remedies the shortfalls of the present system by meeting more challenging performance levels and improved patient care, has been identified as crucial to ensure the LAS succeeds in meeting its strategic vision and that of the wider NHS.

The NHS Plan, 'A Plan for Investment, A Plan for Reform' (2000) "sets out the government's commitment to putting the patient at the centre of care". The LAS seeks to achieve this through its continued vision "to be a world-class ambulance service for London staffed by well-trained, enthusiastic and proud people who are recognised for contributing to the provision of high quality patient care".

The LAS aspires to provide the highest quality care to patients. From the telephone answering and triage services of the Emergency Operations Centre (EOC) and Urgent Operations Centre (UOC); to the dispatch of the most suitable response in relation to the patient's medical condition; through to the subsequent services of assessment, treatment and transportation provided by first responders, frontline ambulance staff, emergency care practitioners (ECPs) and urgent care staff.

The LAS Service Plan and eventually the Strategic Plan that will come into effect in 2006/07 span seven years and set down the approach that the LAS will use to integrate with the wider plans for development in the NHS. This Strategic Plan has the patient experience at its core and crucial to achieving this is the implementation of a new CAD environment which will have the ability, capacity and flexibility to handle both the increasing and changing demands on the Service culminating in the delivery of timely, appropriate and high quality patient-centred care.

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3. ISSUES

In recent months there has been detailed consultation with stakeholders and business users of the CAD system by the CAD 2010 Project Team. It has become apparent that, in order for the Trust to conform to its strategic aims, it needs to improve on the existing call taking and dispatch processes, as well as the CAD and other IT systems that support them, and better exploit the Management Information they provide. The CAD 2010 Phase 2 Project was initiated to study the feasibility and business options for a new CAD environment with the potential to rectify existing problems and provide the needs envisaged in the future to ensure the Trust maintains alignment with its Strategic Vision and that of the NHS as a whole.

4. DRIVERS AND REASONS FOR CHANGE

4.1. OVERVIEW

The LAS is struggling to meet its performance targets. It has little chance of bringing about sufficient improvement in performance to meet existing and predicted increases in service demand without a major investment in new technology to support changes to the relevant business processes.

The existing CAD system is now nearly 10 years old. It was developed in-house without a long-term future upgrade path. It does not have sound data architectures nor a sufficiently flexible infrastructure but, over the years, it has been stretched, squeezed and expanded, by a single, expert resource, to accommodate all manner of changes and it is now virtually undocumented.

The current system requires a disproportionate amount of manual input and a heavy reliance upon the manual retention of information at each control position in order to maintain a comprehensive operational picture. It obstructs efficient, collaborative and flexible working within the control room, across the LAS and between NHS and other partner organisations and it causes bottlenecks within the receipt and allocation of emergency calls.

The current system is not fault tolerant; consequently control room staff operate a time-consuming and inefficient parallel, paper-based system to ensure business continuity during failure and to assuage operator's fears arising from the sudden total loss of mission critical data and the enormity of restoring the entire operational picture since that failure, whilst continuing to deliver an emergency service. It does not exploit technological opportunities to predict or warn of potential deficiencies, delays or inefficiencies. It is unable to support the level of agility required of the modern ambulance service and it is not sufficiently resilient to provide the level of availability expected of a modern, emergency service.

The current system will not provide the level of service and contingency capacity required to guarantee safety in the lead up to or during the 2012 Olympic Games; it will not meet the growing and evolving demands of NHS emergency care services; and it will not support the effective operation of the LAS into the next decade.

However, whilst research during this stage very clearly identifies the need for better IT, this underpins the more fundamental need for changes to the way the organisation works and thereafter to the provision of IT to support those changes. In other words, this project should now be seen, not so much as an IT project aimed at delivering a new CAD but as a project delivering *'IT Enabled Business Change'*. Although much of the requirements centre on control rooms many other parts of the organisation have

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made clear their need to bring about improvements in the way they work through changes to the IT supporting the mission critical business processes surrounding the CAD systems.

This project is therefore not just about a new CAD system and it is not just about changes within control rooms; it is about changes throughout the whole organisation. The re-examination of existing processes, supported by new technology, will enable opportunities to be exploited to deliver tangible benefits to the whole organisation.

Recognising this important shift in emphasis, the Project Board are now viewing the aim of this project as being a *'new CAD environment'*, rather than just new CAD system(s). This is entirely consistent with the backing paper entitled "CAD – The Way Forward" that was presented to the Trust Board on 22 February 2005. This is also the reason why work to define existing and proposed business processes has become increasingly important during this stage and will become a driving force of subsequent stages.

4.2. CURRENT PERFORMANCE

The NHS Plan sets out the key role of Ambulance Services as;

"…ensuring the delivery of high quality, modern, flexible and patient centred services. Ambulance Trusts have been given the responsibility of leading reform whilst ensuring the delivery of NHS performance targets, clinical quality, financial integrity and the transformation of the patient experience."

Key standards of performance for the LAS include:

- Responding to 75% of Category A (life-threatening) calls within 8 minutes or less and 95% of such calls within 14 minutes.
- Responding to 95% of non-life threatening (Category B) calls within 14 minutes.
- GP Urgent patients should arrive at hospital within 15 minutes of the arrival time specified by the doctor in 95% of cases.

For the current year the LAS is 2% beneath the Category A, 8 minute target and only just achieving the Category A, 14 minute target; there is no contingency capacity to accommodate projected increases in demand, especially that from population growth (see section 4.3 below).

This performance is based upon current timing parameters that only commence after receipt of initial call details and chief complaint (a fundamental outline of the medical condition). In April 2007 the timing parameters will be brought forward to commence from the moment the call is connected to the control room, leaving the LAS with an even greater difficulty in meeting performance targets. In patient terms this means that a first responder will not get to Category A (life-threatening) patients fast enough.

35% of all emergency calls are Category A calls; 2% of these involve cardiac arrest, an average of 15 per day. The sooner a cardiac patient is treated the greater their chance of survival and better their quality of life thereafter. In cases of cardiac arrest, delay costs lives! Getting to patients with chest pain in a timely fashion also serves as a preventative measure against cardiac arrest. The impact on the wider NHS will be less patient days spent in hospitals thus leading to reduced hospital costs and an overall reduced pressure on the health system.

The current performance for GP Urgent calls is 53%. This is a drop from the 58% recorded by the Healthcare Commission during the 2004/2005 Performance Ratings when the LAS was awarded a 2 Star rating and was placed in the bottom 3 of the 31 English ambulance services. Star ratings indirectly impact on ambulance service

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funding.

Changing the way the LAS operates in order to meet these challenges is an example of where changes are required to areas of operational business processes and the IT that supports them to enable exploitation of alternative care pathways for patients. This will improve the patient experience; improve the LAS performance and realise benefits across the NHS.

4.3.   POPULATION GROWTH

The LAS serves a resident population of about 7.5 million. By 2016 London's population is expected to have grown by 700,000. Until recently the main cause for population growth in the capital was the natural change brought about by the fertility rate exceeding the mortality rate but now migration into the capital from other parts of UK and the rest of the world also plays an important factor. The Thames Gateway area has been mapped out as a major area for this growth, with plans for the building of 91,000 homes on more than 600 acres of land.

London also has a large transient population that must be accommodated within plans for predicting the demand on emergency services. The influx of commuters and tourists increases the population of London by about 700,000 each day. Heathrow airport currently deals with nearly 70 million passengers a years and this is expected to grow by another 30 million following the opening of the 5th Terminal. The 2012 Olympic Games will cause a further, massive, spike throughout the 16 day period of the Games and a significant additional growth of transient and semi-permanent residents during the many months of building and other preparations that will precede the games.

The LAS currently responds to approximately 2,400 calls per day across London. This translates to 876,000 responses per year or roughly 1 call per year for every 10 permanent residents. Using this as a 'rule of thumb' indicates that an increase of 700,000 in the resident population, during the next decade, will result in more that 70,000 additional emergency calls to the LAS, per year; or an average of nearly 200 additional calls per day. The Thames Gateway alone is expected to generate a further 30,000 emergency calls per year to the LAS by 2016. These figures, together with the percentages shown at section 4.2, above, indicate an annual increase of 490 people in cardiac arrest that the LAS will respond to by the year 2016.

4.4.   THE 2012 LONDON OLYMPIC GAMES

The Olympic Games are due to be held in London in 2012. This is a very high-profile and nationally prestigious event that will generate a massive national and international public interest in the UK and London specifically. The Games are expected to attract 11,000 athletes with an equal number of officials, coaches and members of the 'Olympic Family'. 20,000 of the world's newspaper, radio, television and internet journalists are anticipated and ticket sales are expected to top 9 million. During the short 16 day period of the Games nearly 500,000 spectators a day are expected to travel to events in and around London generating anything between 100 300 additional emergency calls to the LAS each day.

Many of the sports venues and facilities for worldwide Olympic Teams will be based in the East of London where a large regeneration scheme has already started. Work on this and other Olympic preparations will grow as the date of the games draws near, creating additional jobs and a long period of accident prone construction work staffed by local resources as well as additional transient workers.

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Demand on the Emergency Services will be greater than it has ever been before. Ambulance crews will be required at or nearby to the Olympic events, the increased volume of people within London will generate a significant increase in emergency calls to the LAS and the potential for major incidents, or multiple major incidents at any of the capitals major venues, transport facilities, entertainment venues or other places.

Security will be a major concern and it can be expected that an enormous security operation will be in place well before the Games start. These Games will represent a very tempting opportunity for organised terrorist groups and individual fanatics that will require the provision of significant contingency capacity, effective collaborative working with many partner NHS and other organisations, and a control capability to meet the eventuality.

The LAS is struggling to meet its performance targets using its current CAD technologies and the current business processes. Without significant change, the current LAS CAD environment cannot meet the enormous additional demand that the Olympics Games of 2012 will place on it.

4.5. REFORMING EMERGENCY CARE - ALTERNATIVE CARE PATHWAYS

The Department of Health's ten year emergency care modernisation programme is set out in the 2001 strategy document 'Reforming Emergency Care'. This strategy focuses on seven core areas:

- Ambulances
- Critical Care
- Improving the Patient Experience
- Minor Illness and Injury
- The Right Staff in the Right Places
- Timely Admissions
- What Happens in A&E

Professor Sir George Alberti was appointed National Director for Emergency Access with responsibility for overseeing the implementation of the Reforming Emergency Care strategy. Sir George's identified that ambulance services provide the first point of access to health care for a wide variety of patient conditions, ranging from life-threatening emergencies to chronic illness and social care. He is concerned about the way health communities co-operate and communicate with each other to improve the patient's overall experience of emergency care. He believes that ambulance services lie at the core of this and his vision is one of ambulance services co-ordinating communication with appropriate NHS health care providers at the point of a patient's first access to emergency care to determine and deliver the most suitable care pathway to meet the patient's needs.

For some while, the LAS has recognised that the exclusive use of the traditional double-manned ambulance to attend every call is not necessarily in the best interest of the patient, the ambulance service, the hospital A&E department or the NHS as a whole. The use of alternative care pathways for non life threatening calls, from the point when a patient first accesses emergency care, can provide a significant improvement to the patient's overall experience, can improve the care delivered to patients and can provide a more effective and efficient emergency care service. The use of alternate care pathways will ultimately reduce pressure in A&E departments by patients being treated on scene or being referred to minor injury units, GPs, Out of Hours Centres or walk-in centres, etc.

To realise Sir George's vision the LAS will require a CAD environment capable of

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supporting effective and efficient collaboration and sharing of information between all elements of the control room (including Urgent Operations Centre and Patient Transport Services) with sector staff and with all elements of NHS health care. This will require advanced, flexible and agile control room, MDT and other communications facilities with messaging and interfaces to the systems and network infrastructure of the National Programme for IT (NPfIT).

The business process and supporting IT of the current LAS CAD environment are unable to meet these needs and cannot deliver against this vision.

4.6. STRATEGIC REVIEW OF NHS AMBULANCE SERVICES IN ENGLAND

In May 2004 the Department of Health appointed Peter Bradley CBE, Chief Executive of the London Ambulance Service NHS Trust as National Ambulance Adviser and asked him to lead a strategic review of NHS ambulance services in England. The document titled "Taking Healthcare to the Patient: Transforming NHS Ambulance Services" sets out the conclusions of the review. These are consistent with and support the vision of the National Director for Emergency Access. The review makes a number of recommendations for improving the care provided to patients at their point of need. These are that ambulance services should:

- improve the speed and quality of their call handling, provide significantly more clinical advice to callers and work in a more integrated way with partner organisations to ensure consistent telephone services for patients who need urgent care
- continue to improve the speed and quality of service provided to patients with emergency care needs
- provide an increasing range of other services, e.g. in primary care, diagnostics and health promotion
- improve the consistency and quality of care provision
- improve efficiency and effectiveness
- support performance improvement
- develop the workforce

Many of these recommendations involve changes and improvements to the business processes of the service and the LAS require significant advances in its CAD environment to provide the technology to support the delivery of these changes.

4.7. THE NATIONAL PROGRAMME FOR IT (NPFIT)

The National Programme for IT (NPfIT) is being delivered by the new Department of Health agency "NHS Connecting for Health". Over the next 10 years it will bring modern computer systems into the NHS to improve patient care and services, and will transform the way the NHS works. The programme will deliver a number of areas of functionality that will provide opportunities to support the collaborative working of LAS operational staff (control room and response crews) with other NHS partners, improve the sharing of information and delivering significant improvements in efficiency; these are:

- New National Network (N3)
- NHS Care Record Service (NHS CRS)
- The Data Spine
- Picture Archiving and Communications Systems (PACS)

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New National Network: N3 is the name for the National Network, which replaces the private NHS communications network NHSnet. N3 provides fast, broadband networking services to the NHS offering reliability and value-for-money. This new, high speed network is vital to the delivery of the National Programme for IT, providing the essential technical infrastructure through which to deliver the reforms and new services needed to improve patient care.

NHS Care Record Service: The NHS Care Records Service (NHS CRS) is central to NHS reform and will transform the way health and social care information is managed. It will give health care professionals access to patient information where and when it is needed.

Currently, patient health information is held as a mixture of paper based and computer records that cannot easily be shared. Even records held electronically are effectively 'locked away' on computers that cannot talk to one another. The NHS Care Records Service will change this by digitising over 50 million patient records, establishing a central record of a patient's care, and allowing information to be shared safely across the NHS.

An individual is likely to be treated by a variety of care professionals in a range of locations throughout their life. Patient-centred care requires information to follow the patient so that it is available wherever and whenever it is needed. This means, for example, that if someone from Doncaster becomes seriously ill while on holiday in Devon, they can be attended by a local care professional who will have immediate access to the patient's medical records. The care professional can be informed of any drug allergies and previous treatments, ensuring that life-saving treatment can begin immediately.

The Data Spine: The Data Spine is the name given to the national database of key information about a patient's health and care. It forms the core of the NHS Care Records Service and will include the key data crucial for a patient's care to commence. More detailed information about all of a patient's contacts with the NHS will be held at the local level, where most healthcare is administered. The key nationally available information, together with the more detailed local information, combine to produce the complete Care Record of a patient.

Picture Archiving & Communications Systems: Picture Archiving and Communications Systems (PACS) capture, store, distribute and display static or moving digital images such as electronic X-rays or scans. PACS takes away any need to print on film and to file or distribute images manually. This means that as images are created they can be immediately sent and viewed across several NHS locations.

The current CAD environment cannot exploit the full potential of these opportunities. A new environment is required to support the collection and sharing of data; to interface with the national facilities and enable the collaboration with NHS partners; to implement fast, effective and efficient ways of working; and to provide the agility for the service to adapt as the transformation within the NHS progresses.

4.8. CIVIL CONTINGENCY ACT 2004

Following the fuel crisis and severe flooding in the autumn and winter of 2000 the Deputy Prime Minister announced a review of emergency planning arrangements and associated legislation. The result is the Civil Contingency Act 2004 which addresses all types of civil emergency, including acts of terrorism.

The introduction of the Act makes the LAS a Category 1 responder with legal

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obligations to assess, plan and advise on emergencies. The Act has modernised local civil protection activities and introduced special legislative measures to deal with incidents of a larger scale. It has introduced a new updated definition of "emergency" appropriate for the type of threats and risks that the UK faces in the 21st century, as follows;

"*an event or situation which threatens serious damage to human welfare in a place in the United Kingdom; the environment of a place in the United Kingdom; or the security of the United Kingdom or of a place in the United Kingdom*".

The Act is separated into two parts: local arrangements for civil protection (Part 1) and emergency powers (Part 2); it is designed to encompass emergencies ranging from localised incidents to catastrophic emergencies such as natural disasters, terrorist attacks and so on. Part 1 covers the array of potential incidents for which local responders are obliged to make appropriate preparations as part of their civil protection duties. Part 2 covers the emergency powers that Government may grant to facilitate the response to an emergency.

Part 1 of the Act identifies Category 1 responders as including:

- Local Authorities
- Government Agencies
- Emergency Services
- NHS Bodies

and places the following duties upon them:

- Risk assessment
- Develop Emergency Plans
- Develop Business Continuity Plans
- Arrange to make information available to the public about civil protection matters and maintain arrangements to warn, inform and advise the public in the event of an emergency
- Share information with other local responders to enable greater co-ordination
- Co-operate with other local responders to enhance co-ordination and efficiency

The London Ambulance Service NHS Trust is a Category 1 responder and must meet its legal obligations under the Act.

These obligations require Category 1 responders to assess the risk of an emergency occurring, to maintain plans to respond to an emergency, to publish the assessments and plans in so far as this is necessary or desirable to deal with an emergency and to maintain arrangements to warn, inform and advise members of the public about an emergency. In the process of maintaining plans for an emergency the LAS must maintain a control room capability that enables it to respond and deal with such major incidents as those plans address.

Underpinning the principles for NHS emergency preparedness and ability to respond is the speed and flexibility at local operational level. In order to achieve this, the LAS requires a control room capability that has the ability, capacity and flexibility to adapt quickly and absorb the unique and massive challenge that major incidents and other emergencies present. Major incidents require collaborative working and the speedy sharing of information with other responders as defined under the Act.

A new CAD environment is essential to ensure that the LAS can continue to meet its legal obligations under this Act into the next decade, and beyond.

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5.   INITIAL MARKET RESEARCH

5.1   Introduction

Due to the limited time available for this piece of work within the constraints of this stage, it was decided that best value would be gained by:

a) visiting the Ambulance Exhibition (AMBEX) to gain an insight into the current offerings of key suppliers to the UK Ambulance CAD market,

b) visiting a small number of UK ambulance services known to be using CAD systems that appeared of interest to the purpose of this component product and who could accommodate a visit from the LAS during the week scheduled within the current plan.

The following supplier stands were visited during the AMBEX exhibition:

- M.I.S.
- Zoll Ltd
- Fortek
- Cleric
- VisiCAD

Site visits at the following Ambulance Services were undertaken to view the operational use of the CAD systems shown:

- West Country Ambulance Service   M.I.S.
- Staffordshire Ambulance Service   VisiCAD - and - Right CAD
- East Midlands Ambulance Service   M.I.S.
- West Yorkshire Ambulance Service   M.I.S.

The following services are currently tendering for replacement CAD systems and could not be visited within the constraints of the schedule. It is considered that limited value would be gained from viewing systems for which replacements were already planned however, a copy of their requirements document has been obtained for research and any innovative ideas used within the LAS Requirements Catalogue:

- Greater Manchester Ambulance Service
- Kent Ambulance Service

The visiting team comprised:

- AMBEX: Brij Dhunna, Colin Strugnell, Andy Lloyd
- Site Visits: Colin Strugnell, Andy Lloyd

5.2   AMBEX EXHIBITION

5.1.1. Introduction

The AMBEX Exhibition was held in June 2005 at Harrogate.

On arrival the visiting team spent the afternoon browsing the stands to obtain a view of all the main points of interest and to gathered literature prior to directly approaching the suppliers.

5.1.2. M.I.S.

The first CAD supplier visited was MIS who were exhibiting their latest version. First impression of the main screen was that it seemed 'very busy,' with large numbers of

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open windows, all with varying colours and with regular updates flashing. Many of the command actions required a mouse click and due to the large amount of open windows there was a lot of clicking required to navigate around the different screens.

The call taking window was very small and only opened in a quarter of the top left of screen that also incorporated windows showing vehicle status, availability and other incoming and current calls, this was constantly updating.

At one point all the windows available seemed to be overloaded with information which could lead call takers to take an incorrect decision. When asked if it was possible to change the screen layout to provide the call takers a larger window incorporating only the call taking functionality, the representative's reply was that once users had undergone training they would see the benefits of the current layout and would not want to change it. When asked if the system would incorporate drag and drop allocation (one of the LAS requirements), the reply was that MIS did not consider this to be the best way to allocate calls and therefore they would not support the requirement.

The call taking use of the mapping software was particularly good. When the call taker is presented with a number of different premises in a street an arrow points out each house as a call taker scrolled down the list of possible addresses from a pick list in the gazetteer search. However, the visiting team found that the maps used were very small and would not aid allocation of resources; the icons were large and overlapped road and area names. With a large number of vehicles in a small area this would prove ineffective and may introduce operational risk.

There were good points to the system and benefits to service delivery, in line with comments made in the sales literature and were evidenced during the demonstration; for example:

- Status plan management and demand analysis
- Status plan compliance auditable by user
- Auditing of all aspects of the system
- Real time monitor for supervisors
- Workload distribution plan

The visiting team agreed that this product should be investigated further by a visit to the site of an existing Ambulance Service user.

The visiting team found the answers to some of their requests worrying at such an early stage of the discussions. The answers to some questions appeared to be met with little customer focus.

5.1.3. Zoll Ltd

Zoll Ltd seemed to be expecting the visit and were aware of the development comprehensive user specification by LAS. The representative spent a lot of time demonstrating the gazetteer search for call taking and, although this seemed impressive, the team wanted to see other areas of functionality as well.

The visiting team were not impressed by some of the answers to simple questions. For example; the system was capable of drag and drop allocation from the incoming call window to icons on the map and the team asked if it was possible to reverse this process. The answer made it clear that enhancements cost extra and gave the feeling that Zoll were not interested in working with the LAS to develop the system to incorporate requests for functionality which, in the opinion of the visiting team, represented essential requirements.

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The visiting team considered the screen layout and mapping uninspiring. Unfortunately time with Zoll was limited during the team's first day and the representative was not present on the second day and the stand was busy with all the other products Zoll were displaying.

5.1.4. Fortek

Fortek was both user friendly and visually pleasing. It also met many of the LAS requirements. All questions were well answered by the representative and anything the system was not currently able to do they seemed happy to develop.

Fortek also had very impressive major incident tools. A tablet PC enabled managers 'in the field' to download maps of the incident location on the tablet and, using icons, plot the locations of vehicles, road closures etc. It also allowed for free hand notes to be made and it included action cards. All this information was then capable of being downloaded to a control unit on scene via GPRS or WIFI. The CAD system could also be interrogated by hospitals to enable them to prepare for casualties.

A point of concern to customer confidence was that Fortek are only currently supplying Hampshire Ambulance service and the London Fire Brigade. The team later found out that Hampshire Ambulance service are soon to issue an ITT for a new CAD and the Fire Brigade are not using the latest software version.

5.1.5. Cleric

Cleric's CAD system catered for some of the LAS requirements and had a separate CAD for PTS. The system looked uninspiring but, despite this, it had some good features of which the meal break monitoring tool was good. The visiting team liked the playback facility to view the route taken by the responding vehicle, which they considered useful for complaint investigation, however it was noted that other suppliers also offered this facility. The strategic recourse deployment tool seemed easy to use and looked simple. The ability to track when suggested allocations are overridden was a useful tool for individual performance management.

5.1.6. VisiCAD

VisiCAD is produced by TriTech Software Systems. The visiting team saw the latest version which looked visually impressive. The system allowed for locations to be identified directly by clicking the mouse on the map to automatically populate the address field. The system also allowed for ambulance icons to be dragged to different locations on the map to automatically notify any other responder on way to the call of its new location. The system allowed isochrones to be drawn around an area, or set defined response times using the mapping system. Any incidents that fell within the area would automatically page all details to a responder/manager; MIS also had this functionality.

The visiting team liked the fact that the system allowed for whole screen mapping, but again the ambulance icons were large and when the map zoomed in they covered up to much detail. They were shown the system by one of the control room managers from Lincolnshire Ambulance Service who are currently using VisiCAD.

5.2. Visits to Outer County Services

5.2.1. Overview

To further the investigation of the current UK Ambulance CAD software market

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leaders a team visited four county ambulance services. The reasons for selecting these ambulance services were their use of the different products available and their availability to support a visit within our timescales. Each of the following reviews lists both the good and bad points discovered, from a user perspective. Some of these points are opinions expressed by users of the actual systems, at the sites concerned.

5.2.2. West Country Ambulance Service – (M.I.S.)

The initial reason for our visit to this service was due to their recent implementation of the latest version of CAD software from MIS. This latest CAD system is C3.

Positive

- System Status Planning. This allows the system to propose areas likely to receive an emergency 999 call. This predictive technology is based on an analysis of historical data captured hour by hour and day by day. This results in 168 standby plans.

- Operator Compliance to System Status Plan. The plans are only as good as the operator who should react to predications and move resources accordingly. The system keeps a compliance percentage score dependant on how closely the plan is followed. This led to competition amongst control staff regarding their own productivity. This functionality tool assisted management to monitor individual dispatcher performance.

- User Initiated Warnings. Call takers can tag a call that is in progress with 2 levels of warnings. These warnings would appear against the one line summary of the incoming call on the resource dispatcher's screen and would indicate the call taker had entered information that they considered that responding resources should be made aware of.

- Report Generating. The real time report generating for category A, performance and category B, call answering, were of high standard. The system has the ability to measure individual PCT performance in real time.

- The system allows for part or whole sectors or areas to move between controllers easily and quickly. The system also supported the movement of individual stations or call signs between different areas.

- The control room had a separate room used for staff training that also acts as a major incident (gold) control room. The system allowed for staff to be trained in the system alongside the live CAD, which included individual allocator training taking place alongside the live CAD.

- The system allowed for individual tracking of a vehicle by keeping the targeted vehicle in the centre of the mapping screen until on scene or released.

Negative.

- The system did not seem user friendly and involved too many different mouse clicks to navigate around the screen. Many parts of the system would benefit from being automated.

- The system did not allow individual users to reposition the different screens or adjust the size of the different windows

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- There was no link between the vehicle MDT and the CAD to transfer information entered by the crew whilst at scene. All information was displayed in a message box and then re entered into the relevant fields to update the status or non conveyed reason.

- The mapping system automatically centred on an incident whenever a controller viewed an outstanding incident. This would cause a problem when concentrating on a specific incident or vehicle on the map as the map moved every time a new incident was viewed.

- The map used the same screen as that for the incoming calls and vehicle status and location, taking up 1/3rd of available space.

5.2.3. Staffordshire Ambulance Service – (VisiCAD & Right CAD)

Staffordshire are currently using two CAD systems VisiCAD for the A&E operations and Right CAD for the Patient Transport Service. The points below are mainly based on VisiCAD:

Positive

- The drag and drop function was supported by a large arrow to help choose the correct vehicle.

- Hospitals have access to instant information on patient numbers expected to the relevant casualty department.

- The system had a meal break management system.

- The system allowed for easy transfer of vehicles between sectors.

- The system had good access to a resource file.

- The ability to automatically page responders if an incident falls within their catchment area.

- The system displayed the nearest vehicle but also recommended other resources that should also be considered e.g. a doctor or manager.

- Staffordshire use there own System Status Plan which is a bolt on to the CAD system. All managers have access to this via a Blackberry device to check the plan is followed.

- Staffordshire's system status plan seemed, anecdotally to be very impressive. The plan is only as good as the control staff following it and sending ambulances to cover the areas the system predicts to be the next area a call will be received. All staff did follow the plan closely and on several occasions senior mangers would ring to question why the plan had not been followed.

Negatives

- Slow response to change

- Large mapping icons covered parts of areas and road names

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- Staffordshire ambulance service dispatch an ambulance at the point an address is obtained this requires call takers to tell dispatchers when they have got the address. Due to this and the speed calls are dispatched it was difficult to pick up how the system was used to its full potential. There was an emphasis on the controller knowing the area and some didn't seem to use the system. The team observed a controller send a vehicle to a call clearly nearer to other available resources, without the system identifying the error.

5.2.4. Visit to East Midlands Ambulance Control - (M.I.S)

The East Midlands have recently implemented M.I.S. as their CAD supplier. Their previous CAD system was supplied by SSL and although popular with users it failed regularly and particularly at times of high demand. We were told the system was almost guaranteed to fail every December due to the high call rate.

The East Midlands Control room is set up in a similar way to the London Ambulance Service in that call takers have a separate area away from the Allocation and Dispatch area of Control and the Allocation area is split into areas and has a Controller, Radio Operator and Dispatcher. We were shown around the Control Room by one of the trainers who seemed very frustrated by the system, it transpired they have requested certain changes to the system that are still not in place six months later and are often given contradicting statements from the company around what is and isn't possible to implement, a further frustration is that MIS never give a time scale for implementation of requested enhancements or changes. MIS also admitted they were unable to add enhancements due to the pressure of implementation at other sites.

5.2.5. West Yorkshire Ambulance

The team visited West Yorkshire due to the trust being one of the pilot sites for the implementation of the EPRF. When they arrived they were informed that this had not happened yet but were welcomed into the control room to observe their CAD system. West Yorkshire chose M.I.S as their CAD supplier and they are currently using alert 2000 a system some 5 years out of date. This system was far inferior to the latest version of the M.I.S system seen in the West Country. The team were told the reason for implementing an old version was that it was tried and tested; but the team wondered how quickly M.I.S might implement any requested change to an old version of software.

5.3. CONCLUSIONS TO INITIAL MARKET RESEARCH

This report is based on first impressions of the systems viewed at AMBEX. It must be noted that these views are also based on limited time under the less than ideal circumstances of exhibition conditions. It was agreed amongst the team that the visit had been valuable to get an early impression of the current systems, mainly based on looks.

The team agreed that all companies supplying CAD systems did, individually, offer parts of the LAS requirement. However, it was the team's opinion that no single provider currently had a system that supplied everything considered essential for that requirement.

The team were concerned that some companies seemed uninterested in developing the system to incorporate LAS requirements giving the feeling that 'this is what you get, take it or leave it'. Some went as far as to say they did not agree with LAS requirements. There was no system that allowed Mobile Data Terminals to

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automatically update status. There is currently no system that allows part of an area to be removed and controlled from a separate control room in the event of a major incident.

Some systems could not identify a vehicle becoming available nearer to an incident than one already assigned. Of the systems viewed a large reliance seemed to be placed on the controller's knowledge of the area and the implied belief amongst suppliers (incorrect in the team's view) that a controller has time to monitor vehicle movement on a mapping system. This is a luxury not available to Sector Controllers in areas of London where the system must prompt if vehicles nearer to an incident become available.

None of the systems viewed gave insight into any innovative opportunities. All of the capability exhibited was already documented within existing requirements of LAS users. There was evidence which strongly indicated that no single product exhibited would be likely to meet all of the essential requirements of the LAS.

It was the opinion of the LAS visiting team that procurement of any of the exhibited systems would provide only limited areas of advantage over the current LAS CAD facilities but would result in a very high risk of loosing key (and in some cases, extensive) areas of existing essential capability (an indicative list illustrating this is provided below). It was also the opinion of the visiting team that the suppliers viewed were unlikely to be able to provide the scale of support necessary to ensure adequate maintenance and on-going development of an LAS system sufficient to meet a rolling programme of development.

Indicative list of potential capability losses:

- **MPS CAD Link:** Interface with partner organisation improves patient care reducing 999 calls by between 5 – 10%.

- **Pre-emptive CAT A calls:** Pre-emptive prioritisation of a CAT A call providing earliest notification to Controller.

- **Vehicle & Crew Rostering:** The default roster of vehicle call signs and associated crew to enable immediate use with changes being managed as exceptions.

- **Full Integration with MDTs:** To enable crews to directly update their status within the CAD.

- **Pre-Shift Vehicles:** The means to accommodate within the CAD and therefore fully control a vehicle and its crew that commence a shift earlier than rostered.

- **X-Ray Vehicles:** The means to accommodate within the CAD, and identify, a vehicle and its crew that remains on shift later than rostered.

- **Remote Control:** Capability to run CAD on laptops to accommodate events such as, for example, Notting hill Carnival.

- **Green Desk, FRU, and HEMS:** Filtering of calls for attention by specialist resources or input from a medically trained practitioner.

- **Logging of all MPDS PRO QA Data:** Inclusion within the CAD log of all responses recorded to MPDS call triage.

- **Full Integration with Radio/Cortex:** Integration between radio and Cortex to reduce duplication, improve accuracy and minimise opportunities for error.

- **Logging of ETA Information:** Inclusion within the CAD log of ETA information directly from the vehicle Satellite Navigation system.

After the visit to AMBEX and subsequently to the site of Ambulance Services using some of the CAD solutions viewed at AMBEX, the team felt that a rather dark picture had been painted regarding the prospects of meeting the LAS needs from UK Ambulance CAD suppliers. There appeared to be a serious lack of customer focus, some of which was, quite alarmingly, further evidenced by the users. At AMBEX, the team considered that suppliers had missed the prime opportunity to get a firm 'foot in the door' of the world's largest and busiest free ambulance service.

That said the LAS needs to find a suitable supplier capable of supporting the design, development, delivery and support of complex requirements to meet the reality of the growing demands faced by the ambulance service in London. A direct approach to some of these suppliers, through their main sales facilities, may provide opportunity for them to recover some of the lost ground, although it is clear that they have a steep hill to climb. Such an approach may be an option for consideration within Product FS 4.1 "Market Research" but, in order to meet the need, the LAS may need to start looking at opportunities beyond the UK Ambulance CAD suppliers.