

Monday



Decision No: 2015/76

REPORT TO: POLICE AND CRIME COMMISSIONER FOR LANCASHIRE

**REPORT BY: Detective Sergeant Nicholas Denman
Early Action**

DATE: 24th February 2016

TITLE: Request for Proceeds of Crime Act (POCA) funding towards collaborative purchase of Small Unmanned Aerial System (sUAS) with Lancashire Fire and Rescue Service

(Appendix A refers)

EXECUTIVE SUMMARY

This report sets out a request for PoCA funding to make a contribution to the purchase of Small Unmanned Aerial System to be operated in collaboration by Lancashire Constabulary with Lancashire Fire and Rescue Service.

RECOMMENDATION

The Commissioner is requested to approve the allocation of £10,000 from the PoCA reserve towards the cost of purchasing the Small Unmanned Aerial System.

Decision taken by the Police and Crime Commissioner for Lancashire:

Original decision, as set out in the attached report, approved without amendment (please delete as appropriate)	YES	NO
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Original decision required to be amended and decision as detailed below:

The reasons for the amended decision are as detailed below:

Police and Crime Commissioner: Comments

DECLARATIONS OF INTEREST

The PCC is asked to consider any personal / prejudicial interests he may have to disclose in relation to the matter under consideration in accordance with the law, the Nolan Principles and the Code of Conduct.

STATEMENT OF COMPLIANCE

The recommendations are made further to legal advice from the Monitoring Officer and the Section 151 Officer has confirmed that they do not incur unlawful expenditure. They are also compliant with equality legislation.

Signed: Police and Crime Commissioner Date:	Signed: Chief Officer: Date:
Signed: Chief Constable Date:	Signed: Chief Finance Officer: Date:

Introduction

This report considers the collaborative purchase and operation of a small unmanned aerial vehicle for use at both Lancashire Fire and Rescue Service and Lancashire Constabulary.

Running alongside Lancashire Constabulary's Early action initiatives, collaborative work is currently underway involving the three blue light services of fire, ambulance and police. We are currently exploring some innovative work with Lancashire Fire and Rescue Service aimed to improve overall public service which will ultimately reduce demand on the police.

Work is on-going with LRFS to scope out incidents where the fire service can carry out work traditionally done by the police. A number of police deployments have been identified for scoping and potential collaboration.

Joint Lancashire Fire and Rescue initiatives with Lancashire Constabulary are seeking to utilise the fire service workforce to deploy to operational incidents such as non-crime missing from homes, not only from a search and rescue capability but also with training they will investigate and locate through traditional policing techniques.

The collaboration coordinator is exploring and developing the possibilities and the untapped potential that the fire service can contribute to the wider Public Service Lancashire. As well as the purchase & use of the sUAS detailed in this document, current collaborative work streams include dismantling cannabis farms, the above mentioned missing from home searches & appeals for public assistance together with further expanding their reach into communities utilising their non-operational time to benefit the preventative Early Action agenda and wider public safety.

Background information

An Unmanned Aerial System is currently being developed within the Lancashire Fire & Rescue Service Future Firefighting Group as a 2015/16 item. The procurement of a sUAS was discussed at the LFRS Operational Strategy Group in June 2015 and a collaborative approach with Lancashire Constabulary was approved for consideration.

Historically, sUAS were simple, remotely piloted aircraft. However, autonomously controlled (i.e. computer controlled) systems are now being increasingly employed where the pilot no longer 'flies' the sUAS using traditional handsets but instead programmes the flight co-ordinates using simple software on a tablet.

The role of the sUAS is growing at unprecedented rates. Rapid advances in technology are enabling more and more capability to be placed on smaller airframes. A significant amount of new commercial 'aerial photo/video' commercial providers have appeared on the market, providing services for events such as weddings, house auctions or ground surveillance. More bespoke companies now provide aerial video services for agriculture or industries which require visual inspections for infrastructure such as electrical pylons, wind farms, pipelines or offshore rigs.

Up to recently, LFRS had the capability to remotely view operational incidents using an analogue downlink from the Lancashire Constabulary Helicopter to Command Units. Unfortunately the Police Helicopters have merged into a National Police Air Service (NPAS) and switched to Digital downlink facility. An upgrade on the downlink would be in the region of

£15,000 per Command Unit. With a reduction in overall capacity, the use of an NPAS helicopter for Police & LFRS work is never guaranteed, availability & demand from combined areas plays a significant part and LFRS face a significant hourly charge for the service.

The procurement of a sUAS will reduce the requirement for NPAS use at Police and Fire Service incidents and provide a holistic view of an incident from an aerial perspective, enhancing the decision making processes. Live footage of an incident provided by the sUAS could be streamed to various locations such as Fire and Police Command Units, Tactical Command rooms, Police/Fire control, and various locations.

Recent incidents have highlighted the benefits a sUAS could bring to the decision making process, their situational awareness (including that of safety) and overall command and control.

The following list provides a number of different event types where a sUAS could be utilised by Lancashire Constabulary and LFRS to bring an incident to a successful and expedited conclusion.

- Collapsed structures, unsafe structures and the inspection thereof
- Hazardous materials including explosives & suspect packages which can be inspected from long ranges
- Wide area Flooding and water related Searches
- Open Area Searches for Missing Persons
- Large transport crashes
- Chemical, Biological, Radiological, Nuclear, explosive (CBRNe) incidents
- Investigations (i.e. video footage and High Definition (HD) images from angles not usually available due to dangerous structures, etc.)
- Provision of media footage
- The assistance of agencies including the Police, Fire, Hazardous Area Response Teams (HART) and Mountain Rescue Teams (MRT)
- Inspection of high risk sites
- Incidents at height
- Preplanning & monitoring of VIP visits
- Monitoring of high risk events or Major Incidents
- Monitoring of suicide attempts / negotiator led incidents
- Identification of Cannabis Farms
- Potential Covert operational use/ surveillance
- Public Order situations / large sporting events

Benefits

The main benefits are listed below:

- Financial savings from the expedited resolution of an incident and reduction in NPAS use
- Reduction in the number of officers deployed e.g. for Missing Persons searches
- Enhanced situational awareness of events
- The ability to gain a view of a high risk area without placing responders at undue risk e.g. at height
- Increased speed of informed decision making and the ability to implement specific targeted safety controls

- Enhanced public and responder safety
- Increased potential for interoperability and collaboration between partners.
- The ability to stream high quality High Definition (HD) and Infra-Red (IR) real time images to remote viewing locations.
- An enhanced media coverage system. The provision of images rarely produced at incidents, other than by traditional news gathering techniques
- The ability to update intelligence with current imagery, rather than relying on outside image gatherers such as Google, etc. which are often out of date
- The development of a library of incident imagery to be used by partners
- Improvements in intelligence gathering & identification of risks
- Improvement in the quality of evidence e.g. RTC aerial views

sUAS Selection Criteria

1. Cost

Cost must be measured over the lifetime of a sUAS and include initial purchase, maintenance, training, crewing costs, repairs, legal compliance, design of documentation etc. It must also be noted that whilst some viable systems are initially cheap (as little as £1000), once requirements such as an infra-red cameras, secure communications, high quality video cameras etc. are built on the systems become more expensive, more complex and less likely to perform adequately. These 'ad-hoc' systems will bring additional legal compliance issues, requiring a significant number of staff hours and impose delays. The phrase 'you get what you pay for' is particularly apt for sUAS systems as a cheaper system will only fly in perfect weather conditions, seriously reducing its operational effectiveness at incidents.

2. Operability

In order to be cost effective, any sUAS must be able to operate in the vast majority of working environments experienced within LFRS. As such a sUAS must be able to operate in high winds, rain, snow and high/low temperatures. sUASs are particularly susceptible to high winds and an ability to operate in a strong breeze (40-50 km/h) is therefore a minimum requirement for operational use.

3. Pilots

Many sUASs require two operators – one to fly and one to control the camera. This adds tremendously to the logistics and cost of operations. Systems that are able to use 1 operator are significantly cheaper to crew, operate & maintain competence.

4. Ready to Fly

sUASs flown by emergency services need to be easily portable and fast to set up. The sUAS must be compact enough to enable safe travel by car and avoid manual handling issues. It must be easy to assemble and quick to get to work.

5. Flight Time

The sUAS must be able to fly for extended periods to increase its range, reduce the 'down time' whilst at an incident and improve its chance of capturing vital information.

6. Reliability

The sUAS must be resistant to damage during normal flights and constructed so as to minimise defects and issues. This not only reduces 'down time' but also increases safety. The less complexity built into a system, the less maintenance is required and costs are

reduced. It is often better to have a modular system where staff can replace parts rather than returning the product to the manufacturer.

7. High Quality Video/Image System

The best sUASs are able to stream both video and infrared video live and over long distances. It must also be able to transfer higher quality images or video quickly once landed. Many systems can carry only one camera, which obviously requires flight time and maintenance to change over camera types. Another aspect is how quickly the acquired data can be viewed. With many sUASs the data is recorded on the flyer. The data cannot be accessed until the flyer returns home. With on-flyer data storage the value of long flight times is negated since it takes to gain access to the imagery.

8. Network Support

Higher end sUASs have the ability for streaming images to be sent live to a command centre.

9. Easy to fly

An easy to fly system will increase effectiveness whilst reducing training time (and cost) and the potential for flight errors.

10. Safety

The sUAS must have safe systems to allow it to return safely if a problem occurs or if communications are lost. Safety systems should include;

- Low battery alert.
- Flying home when the battery is low.
- High wind alert
- Maximum flying distance.
- Loss of communication safety actions (return to safe altitude / fly home)

11. Resilient Communications

Communications between the sUAS and the pilot must be resilient so that images are secure and flight control cannot be interfered

Proposal

1. It is proposed that LFRS and Lancashire Constabulary jointly purchase a sUAS which will be piloted by LFRS staff for operational and support use by both partners.
2. The cost of deploying a suitable system is estimated at £60000. LFRS would fund £50000 of the cost and would therefore require a £10000 payment by Lancashire Constabulary for the initial purchase of the system.
3. LFRS will ensure that the sUAS is developed and delivered so as to conform with the legal requirements pertaining to Civil Aviation and Health & Safety regulations.
4. LFRS and Lancashire Constabulary will ensure the process for the capture and use of imagery complies with the relevant data protection requirements.
5. The sUAS will be based at LFRS Training Centre in Chorley and will be piloted by the existing cadre of Incident Intelligence Officers who already work closely with Lancashire Constabulary colleagues in gathering evidence and investigating fire related events.

6. LFRS will maintain the sUAS to ensure maximum availability for operational use.
7. LFRS will ensure that the sUAS is available for immediate use by Lancashire Constabulary on a best endeavours basis. Where a conflict of use arises, the degree of risk to life will determine which event is prioritised for sUAS deployment.
8. LFRS will seek to recover the staffing (pilot) costs for the use of the sUAS when its use is requested by Lancashire Constabulary. This can be estimated at around £30 per hour, which is a fraction of the running costs of the helicopter.

Costing

UPFRONT COST	£
Cost of sUAS	50,000
Initial training x six pilots	6,000
Accessories – spare batteries etc.	4,000
TOTAL COST	60,000
Cost met by LFRS	50,000
Cost to be met by the PCC	10,000

Maintenance of the sUAS	£
The Annual on-going cost of maintenance of a sUAS is difficult to gauge as their use in the FRS arena is limited. After discussions with GMFRS this can however be approximated.	500
Cost To be met by LFRS	500
Cost to be met by the PCC	0

Total funding requested from the PCC : £10,000

Link to Police and Crime Plan

The purchase of the sUAS will improve the delivery of policing services and enable the Commissioner to achieve the objectives in the Police & Crime Plan.