



Essex Police, Fire and Crime Commissioner Fire and Rescue Authority

Decision Report

Report reference number: 012-24

Government security classification: Not protectively marked

Title of report: Scheduled Replacement of Thermal Image Cameras

Area of county / stakeholders affected: Service wide

Report by: Steve Foster, Head of Technical Services, Supply & Logistics.
Jenny White, Category Manager (Corporate inc. Fleet)

Date of report: 20 March 2024

Enquiries to: steve.foster@essex-fire.gov.uk – Technical Services
jenny.white@essex-fire.gov.uk -- Procurement

1. Purpose of the report

The purpose of this report is to seek the approval for the procurement of the scheduled replacement of [REDACTED] new Thermal Image Cameras (TIC).

2. Recommendations

The Commissioner is asked to:

- Approve the procurement of [REDACTED] replacement Thermal Image Cameras procured through the UK Fire and Rescue Service Emergency Response Equipment Framework Lot 5 Ref - C002687 at a total cost of £691,932. The lead time for the cameras is 12 weeks. They are therefore expected to be available to bring into use during financial year 2024/25.
- Provide authorisation for the Chief Financial Officer to approve the purchase order in our finance system.
- Execute the contract following successful completion of the standstill period.

3. Benefits of the proposal

The proposal is to replace the service's 10-year-old Thermal Image Cameras (TICs). The current TICs are no longer capable of recording images / video to support incident investigations or

operational training. This is due to the internal (button) batteries failing, coupled with the main rechargeable batteries which, again, are failing and difficult to obtain. The technology of the current camera model has been superseded with modern equipment.

Thermal imaging provides:

- The vision for fast, safe entry into a hazard area
- Quick location of the fire
- Location of any casualties involved
- Quick assessment of the rate of fire development
- The ventilation status of the fire in the property involved
- Assessment of the potential for fire spread due to the construction and design of the building and the contents
- The vision for safe egress from a hazard area

Consequently, a thermal image camera is a vital piece of equipment, providing firefighters with a safe method to enter and exit a hazard area to save life and property quickly.

The current thermal image camera model has become unreliable due to its age. Ancillary items are difficult to obtain, and some functions do not work. [REDACTED]

4. Background and proposal

Information Gathering

Gathering information is one of the most important aspects of assessing a fire situation. Developments in thermography have allowed Incident Commanders to consider situations more accurately and help make better use of the time that is needed potentially to save life and prevent damage to property.

Thermography is an extension of infrared imaging science. Thermal imaging cameras are used to detect radiation in the infrared range of the electromagnetic range. These cameras produce images of that radiation that are incredibly useful in assessing various scenarios.

There are several ways that infrared thermography is useful for firefighting. Firefighters can use thermal imaging cameras to see through smoke, quickly locate people, and localise the seat of a fire. Infrared thermography enables firefighters to see through darkness and or obscurity to locate and assess a situation quickly, allowing them to spend less time gathering information and more time actively engaging a situation.

Additional Benefits and Uses

[REDACTED]

[REDACTED] In addition, the NFCC's National Operational Guidance (NOG) - Breathing Apparatus document outlines the use of thermal imaging equipment for all Breathing Apparatus (BA) crews, including emergency BA teams. It also includes recommendations following the Grenfell Fire for consideration, in relation particularly to the risk of fire and firefighting in tall / high-rise buildings.

Incident commanders can externally identify the hottest part of the building, called the "thermal signature", prior to making the decision to commit crews into a compartment fire using a thermal image camera. This also assists the search and rescue of trapped casualties.

Firefighters also understand the importance of fully extinguishing fires before proceeding to the next compartment or moving above the fire scene. A device within the camera called the 'hot spot tracker' can be used by incident commanders or crews to identify the hottest part of the building or compartment. During the concluding stages of a fire, the hot spot tracker can be used to identify hotspots that may be unseen or hidden from view to prevent re-ignition. Similarly to the hot spot tracker, the thermal imaging camera can also track cool spots within a compartment where firefighters can take refuge from intense heat or carry out fighting operations from the coolest part of the compartment.

Thermal imaging cameras are used to search for fire in smoke filled conditions. They are also used to:

- Fully extinguish fires before proceeding to the next compartment or moving above the fire scene.
- Ensure methodical search patterns are undertaken e.g. area by area, room by room or floor by floor.
- Ensure that search patterns are standardised across every fire and rescue service in the UK so that there is common understanding and procedure when firefighters from different services are engaged in joint working.

Thermal image cameras are also very useful for the search and rescue of missing persons. Essex County FRS has worked in collaboration with Essex Police assisting the search and rescue of missing persons.

These cameras are also useful to carry out a vicinity search following a road traffic collision where persons may have been thrown from a vehicle, particularly during the hours of darkness and when an incident is spread over some distance along the carriageway / roadway.

5. Alternative options considered and rejected

- 1) **Do nothing** – The current thermal image cameras used by the service are 10 years old. They are failing and cannot be repaired or replaced as the model is obsolete. Internal batteries supporting the video / record function are failing.
- 2) **Replace small quantities of thermal image cameras at staggered times** - Full training would have to be provided to all, however this would cause a heightened risk. Firefighters would become confused using the different models of camera during one of the most stressful and demanding activities undertaken by firefighters when wearing Breathing Apparatus at operational incidents.
- 3) **Replace all thermal image cameras on pumping appliances**, including training functions, to ensure that firefighters have a fully functional, fit for purpose piece of equipment to support their operational responsibilities. This will maintain a safe system of work for firefighters entering or exiting a hazard zone.

6. Strategic priorities

In accordance with the Fire and Rescue Services Act 2004, the service has a statutory duty to plan and provide arrangements for fighting fires and protecting life and property from fires within its area. The service is also required to secure the provision of sufficient personnel, services, and operational equipment to deal with all normal circumstances, as well as adequate training. This concurs with the Fire and Rescue Plan and Integrated Risk Management Plan (IRMP).

7. Operational implications

By providing and maintaining the availability of operational equipment, the service can provide and maintain the availability of crews and operational fire appliances. Failure to do this would result in limited or no resources being available to the public.

Representatives bodies, the Health & Safety Department, the Operations Department, Operational Training & Fleet Workshops were all part of the procurement and evaluation process.

8. Financial implications

A tender was run based on the West Midlands framework for Emergency Response Equipment. The total cost of Thermal Image Cameras is £691,932. There is a capital budget allocated for Thermal Image Cameras under the current replacement programme from 2024/25 of £695,000. The current lead time for this equipment is up to 12 weeks.

There will be additional labour cost associated with this equipment replacement to fit new 'on board' charging systems to service fire appliances. This cost will be met within existing relevant budgets.

This quantity will provide two Thermal Image Cameras for each pumping appliance plus 10 for Operational Training.

Training costs

The operational techniques for using the new Thermal Image Camera when wearing BA is the same as the outgoing camera. The new camera has three operating buttons as does the old camera, and its operation is very similar to the old TIC. The differences are that the new camera is smaller and more compact and has a smaller charging unit.

The new camera will be issued with an equipment manual detailing its use, and this can be covered during an 'On Call' training night.

9. Legal implications

This was a joint procurement exercise in collaboration with Hertfordshire Fire Service and Suffolk Fire and Rescue Service. During the evaluation stage, Suffolk withdrew from the tender. A further competition was run using the West Midlands Fire and Rescue Service national emergency response equipment framework with a practical assessment day held at Wethersfield Hot Fire Training Centre to evaluate the quality and useability of the thermal image cameras available in the marketplace currently. Three scenarios were used to test each thermal image camera through the same set-up with a panel of evaluators. These followed an initial desktop evaluation to ensure that all cameras were compliant with the standard required. A consensus meeting followed with the fire and rescue services involved to finalise scoring. The contract for the purchase of the thermal image camera will be as per the Framework Agreement call off terms and conditions, without any further amendments. The procurement route is a compliant route to market under the Public Contract Regulations 2015.

In accordance with the Fire and Rescue Services Act 2004, the service has a statutory duty to plan and provide arrangements for fighting fires and protecting life and property from fires within its area or response. By providing this replacement equipment, the service will meet its statutory duty.

10. Staffing implications

There are no staffing implications anticipated within the teams who will be responsible for implementing this new equipment. Firefighters are trained in the use of thermal imaging, so it will simply be a small piece of work to demonstrate the new equipment.

11. Equality and Diversity implications

It is not anticipated that the recommendations of this report will have an impact on any of the protected characteristics. The actions being taken will not have a disproportionate impact on individuals with protected characteristics (as defined within the Equality Act 2010), when compared to all other individuals, and will not disadvantage people with protected characteristics.

Race	No	Religion or belief	No
Sex	No	Gender reassignment	No
Age	No	Pregnancy & maternity	No
Disability	No	Marriage and Civil Partnership	No
Sexual orientation	No		

12. Risks

The Vehicle and Equipment Asset Management Strategy aligned the life cycle of this equipment to 10 years. Failure to procure new thermal image cameras in line with this strategy will result in the service being unable to meet the replacement schedule. This has the potential to create further maintenance and repair costs and difficulty sourcing increasingly more expensive batteries. In addition, the service will not be able to make the best use of the latest technology, compared to those thermal image cameras that are becoming more than 10 years old. This has potential to increase equipment downtime which will impact service delivery and firefighter safety.

13. Governance Boards

The recommendation is aligned to the Vehicle and Equipment Asset Management Strategy 2021-2026 Revision 8. This strategy was agreed via the Strategic Board in March 2021. In addition, the capital requirements have been agreed previously via the Capital Funding Programme Board, and this specific proposal was discussed and agreed in principle at the Strategic Board in March 2024.

14. Background Papers and Appendices

Background papers

Vehicle and Equipment Asset Management Strategy 2021 – 2026 Revision 8

Appendices

[REDACTED]

[REDACTED]

[REDACTED]

Decision Process

Step 1A - Chief Fire Officer Comments

(The Chief Fire Officer is asked in their capacity as the Head of Paid Service to comment on the proposal.)

.....I support the recommendations.....

.....

Sign:  Date:.....20/03/2024.....

Step 1B – Consultation with representative bodies

(The Chief Fire Officer is to set out the consultation that has been undertaken with the representative bodies)

.....Not applicable – replacement of vital equipment.....

Step 2 - Statutory Officer Review

The report will be reviewed by the Essex Police, Fire and Crime Commissioner Fire and Rescue Authority’s (“the Commissioner’s”) Monitoring Officer and Chief Finance Officer prior to review and sign off by the Commissioner or their Deputy.

Monitoring Officer

Sign:



Print: P. Brent-Isherwood

Date: 21 March 2024

Chief Finance Officer

Sign:



.....

Print:Neil Cross.....

Date: .. 19/03/2024

Step 3 - Publication

Is the report for publication? **YES**

If 'NO', please give reasons for non-publication (Where relevant, cite the security classification of the document(s). State 'none' if applicable)

Subject to redaction, as set out below

If the report is not for publication, the Monitoring Officer will decide if and how the public can be informed of the decision.

Step 4 - Redaction

If the report is for publication, is redaction required:

- | | | |
|---|-------------------|--------------------------------|
| 1 | Of Decision Sheet | YES/NO |
| 2 | Of Appendix | YES/NO (PLEASE DO NOT PUBLISH) |

If 'YES', please provide details of required redaction:

All yellow highlights are to be redacted.
The appendices are not to be published.

Date redaction carried out:

If redaction is required, the Chief Finance Officer or the Monitoring Officer are to sign off that redaction has been completed.

Sign: Print:

Date signed:

Step 5 - Decision by the Police, Fire and Crime Commissioner or Deputy Police, Fire and Crime Commissioner

I agree the recommendations to this report:

Sign:  PFCC

Print: Roger Hirst Date signed: 22/03/2024