



Essex Police, Fire and Crime Commissioner Fire and Rescue Authority

Decision Report

Report reference number: 029-24
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. Sarah Smith, Procurement Category Manager
Date of report: 15 th July 2024
Enquiries to: steve.foster@essex-fire.gov.uk – Technical Services sarah.smith@essex-fire.gov.uk – Procurement

1. Purpose of the report

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

2. Recommendations

The Commissioner is asked to:

- Approve the procurement of [REDACTED] replacement Thermal Image Cameras and 65 vehicle charging mounts procured through the UK Fire and Rescue Service Emergency Response Equipment Framework Lot 5 Ref - C002687 at a total cost of [REDACTED]. The cameras will be in use during financial year 2024/25.
- Provide authorisation for the Chief Financial Officer to approve the associated purchase order in our finance system.
- Execute the contract following successful completion of the standstill period.

3. Benefits of the proposal

The key benefit of the proposal is the replacement of the service's 10-year-old Thermal Image Cameras (TICs). The current TIC is 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 re-chargeable batteries which again are failing and difficult to obtain. The technology of the current camera has been superseded with modern equipment.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 hazardous area

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

The current Thermal Image Camera 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 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 quickly locate and assess a situation 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 (National Operational Guidance) 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, 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, in addition to facilitating the search and rescue of trapped casualties using a thermal image camera. Firefighters also understand the importance of fully extinguishing fires before proceeding to the next compartment or moving above the fire scene. 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 search patterns are standardised across every fire and rescue service in the UK so 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 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 still have to be provided to all crews, and this would cause a heightened risk. Firefighters would potentially become confused by 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 hazardous 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 IRMP.

7. Operational implications

By providing and maintaining the availability of operational equipment, the service can 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.

Representative bodies, Technical Services, the Health & Safety Department, Operations Department, Operational Training and firefighters were all part of the procurement and evaluation process.

8. Financial implications

[REDACTED]

The total cost of 170 Thermal Image Cameras is [REDACTED], plus 65 vehicle charging mounts [REDACTED] bringing the total for the required equipment to [REDACTED]. 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 cameras for operational training and spares.

Training costs

The new camera will be issued with an equipment manual detailing its use. This can be covered during an 'on call' training night.

9. Legal implications

This decision report supersedes decision sheet 012-24. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

As set out above, 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 for 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; 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.

We have considered whether individuals with protected characteristics will be disadvantaged due to the actions being taken. Due regard has also been given to whether there is an impact on each of the following protected characteristics as defined within the Equality Act 2010:

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 may 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.

This decision report was discussed at the PFCC's Strategic Board on 13 June 2024.

14. Background papers

Vehicle and Equipment Asset Management Strategy 2021 – 2026 Revision 8.

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 agree with this recommendation

.....
.....

Sign:  Date:26/06/24.....

Step 1B – Consultation with representative bodies

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

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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: 24 July 2024

Chief Finance Officer

Sign: 

Print: ...Neil Cross.....

Date: . 26/6/24. .

Step 3 - Publication

Is the report for publication? YES/NO

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

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:16/09/2024.....

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

Sign:  Print: Neil Cross

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: 24/07/2024