



LONDON FIRE BRIGADE

Report title

Procurement of New Radios

Report to	Date
Operational Delivery DB	16 December 2020
Corporate Services DB	19 January 2021
Commissioner's Board	27 January 2021
Deputy Mayors Fire and Resilience Board	16 February 2021
London Fire Commissioner	

Report by	Report number
Assistant Commissioner, Operational Policy & Assurance	LFC-0481

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I agree the recommended decision below.

Andy Roe
London Fire Commissioner

This decision was
remotely signed on
Date **25 March 2021**

Executive Summary

This report discusses the background to the procurement of new four-watt analogue/digital radios to replace those currently used by operational staff at incidents. It recommends the procurement of radios and ancillary equipment through a Crown Commercial Services (CCS) Framework.

If approved, this procurement supports the Delivering Excellence aim of the Transformation Plan by improving communications capability at incidents. This will in turn provide a better and safer working environment for operational staff and an enhanced service to the public.

Recommended decisions

For the London Fire Commissioner

That subject to the approval of the Deputy Mayor, the London Fire Commissioner:

1. approves expenditure of up to [REDACTED]¹ to procure new radios, associated equipment, and service/warranty package over a seven year contract, after completing an OJEU compliant procurement exercise under the Crown Commercial Service (CCS) Network Services 2 (RM3808, Lot 11) Framework.
2. delegates authority to the Assistant Director, Technical and Commercial Services, to award a contract to the successful bidder for the provision of new radios, associated equipment and warranties after completion of the tender exercise.

Introduction and Background

1. All UK Fire and Rescue services use Ultra High Frequency (UHF) radios for communications between operational staff at an incident. Wireless telegraphy licences are issued by the Office of Communications (Ofcom) under Section 8 of the Wireless Telegraphy Act 2006. The Act authorises the licensee to establish and use stations, install or use apparatus for wireless telegraphy, subject to certain terms, provisions and limitations. Fire and rescue services (FRS) pay for a licence to use a set of frequencies in the UHF 450-470MHz band.
2. The LFC currently uses a 4 watt UHF Entel radio which are personal issue for general use at an incident and a 1 watt UHF intrinsically safe (IS) Entel radios for use with Breathing Apparatus (BA) equipment. This BA radio is also known as the BARIE radio.
3. The current radios are models dating from 15 years ago which are coming to the end of their serviceable life and are increasingly incurring greater repair and replacement costs for LFC. New radios are more robust, built to a higher specification and have improved audio performance. The current radios use analogue technology whilst newer radios are capable of operation in digital mode which provides additional features such as text messaging not available in analogue only radios.
4. National Operational Guidance (NOG) is good practice operational guidance developed through the National Fire Chiefs Council (NFCC). NOG has guidance for Fire Rescue Services (FRS) that are looking to replace their fireground radios. It recommends that FRS's procure digital radios that can operate in both analogue and digital modes to ensure interoperability with other FRS and with any legacy analogue networks that may be utilised. These are known as dual mode radios
5. The NOG also provides detail on the standards for IS radios. These standards are derived from Appareils destinés à être utilisés en ATmosphères EXplosibles (ATEX) which contain two directives from the European Commission dealing with equipment for use in potentially explosive atmospheres. In the UK radios which align with these standards are known as ATEX radios.
6. A requirements gathering exercise involving operational staff was undertaken which included a survey, a number of workshops, discussions with other FRS and engagement with radio suppliers. At the same time, the respiratory protective equipment (RPE) replacement project were looking at the options to replace the IS radio used with breathing apparatus (BA) equipment.

7. Subsequently a review of the Specification for Fireground and Breathing Apparatus Radios was undertaken. This recommended that the LFC should:
- Provide a more appropriate level of IS for all general use fireground radios for both breathing apparatus and fireground operations;
 - Introduce a single specification 4W/IS ATEX radio for all radios;
 - Amalgamate the BA radio and Fireground Radio projects;
 - Provide radios via riding position with personal issue retained for senior officers
 - Retain a stock of higher rated IS radios for specialist operational use

The Commissioner approved this recommendation in LFC0266 and drafting of the requirements commenced.

8. Information was sought from other FRS's who had recently purchased dual mode radios, with particular focus on how the radios were connected to BA equipment. All FRS's consulted were using a piece of equipment called a Remote Speaker Microphone (RSM) for this purpose with the added benefit that RSM's also improve speech and audio quality. RSM's were added to the LFC specification.
9. Market research identified that there were two radio manufacturers who could supply a radio that met the IS standards that the LFC specified. Therefore, the Crown Commercial Service (CCS) Network Services 2 (RM3808, Lot 11) Framework was utilised as the procurement route as both suppliers are identified within it.
10. A mini-competition has commenced and trials of radios and RSM's with current LFC BA equipment commenced in October 2020 at the Fire Service College, Moreton in the Marsh. Station based evaluations over one month at four fire stations and evaluations at various buildings and locations throughout London are scheduled for January and February 2021. The trials are due to be completed in February 2021. The evaluation is due to be complete and the winning bidder identified in March 2021.

Alternative Options Considered and Consultation

11. The projects to replace the personal issue radios and the radios used with BA were initiated separately and had different requirements based on their intended use.
12. One of the recommendations from the Grenfell Tower Inquiry is to improve incident communications

Grenfell Tower Inquiry: Phase 1 report overview by The Rt Hon Sir Martin Moore-Bick October 2019.

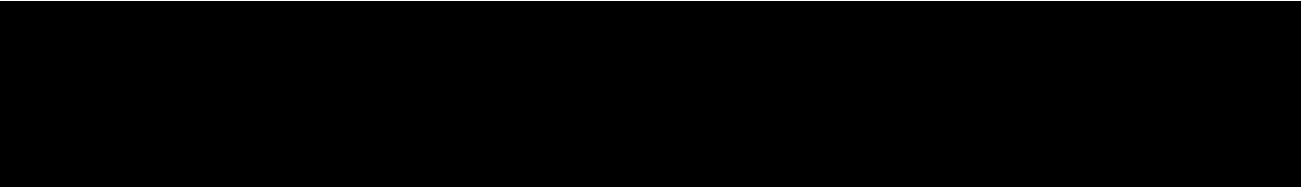
'Some of the equipment in use by the LFB, in particular the radio equipment, was unreliable or in some cases failed to work at all. I therefore recommend: a. that the LFB urgently take steps to obtain equipment that enables firefighters wearing helmets and breathing apparatus to communicate with the bridgehead effectively, including when operating in high-rise building'

Section 28.130 from the Phase 1 narrative of the Inquiry makes it clear that 'from the earliest stages of the incident the deployment of firefighters inside the tower was plagued by generally ineffective communications'

13. Therefore, the strong case for retaining a level of intrinsic safety whilst delivering a more powerful radio was overwhelming and thus the decision to procure one suitable radio for all tasks at an incident was made.
14. The London Ambulance Service, Metropolitan Police and Transport for London use a number of different radio systems however none use the UHF radios required by LFC. Therefore, there were no opportunities for a collaborative procurement with these partners.
15. The LFC does need to retain a capability in using this type of radio when working at incidents with other FRS's in order to meet our statutory obligation to provide assistance to other fire services. There is also a need to ensure radios are compatible with the hundreds of legacy UHF networks installed throughout London's built environment for example London Underground tunnels, Wembley Stadium and The Shard.
16. Representative bodies have been consulted on the approach and have provided input to the specification and training requirements.

Objectives and Expected Outcomes

17. Procuring a ATEX (intrinsically safe) IIA rated radio with a 4 watt output that is capable of use in both digital and analogue mode means the LFC will have a suitable radio for all tasks at an incident.
18. Higher rated, ATEX IIC radios will also be purchased to cater for those specialist incidents such as sewer rescues etc where a flammable atmosphere could be reasonably expected to be encountered. Due to the higher rating, these will be lower output (1watt) but still have the capability to operate in both digital and analogue mode.
19. Radios will be allocated per riding position on appliances and personal issue to senior officers as is the case in most other fire services.
20. A Remote Speaker Microphone (RSM) will be purchased with the radio to allow a BA communication interface to plug into the system via the industry standard 'nexus connection'. The RSM also provides improved audio quality in noisy environments
21. The provision of a support and maintenance service for the radio's and RSM's will include an annual service, software upgrade and battery check with a no cost replacement of the battery if required to ensure this critical communications equipment is in optimum condition for use at every incident.

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23. This solution will allow every firefighter to have a radio and every BA wearer to be able to contact each other and more importantly entry control, which addresses recommendations from the Grenfell Inquiry and is supported by our Representative Bodies as it is recognised as improving safety.

Impacts

24. The successful delivery of this project will have the following impacts not just within London but across the fire service and other emergency services nationally due to the collaborative and open approach we have taken to information gathering and sharing and keeping the community abreast of its progress.

Equality Impact

25. The London Fire Commissioner and decision takers are required to have due regard to the Public Sector Equality Duty (s149 of the Equality Act 2010) when taking decisions. This in broad terms involves understanding the potential impact of policy and decisions on different people, taking this into account and then evidencing how decisions were reached.
26. It is important to note that consideration of the Public Sector Equality Duty is not a one-off task. The duty must be fulfilled before taking a decision, at the time of taking a decision, and after the decision has been taken.
27. The protected characteristics are: Age, Disability, Gender reassignment, Pregnancy and maternity, Marriage and civil partnership (but only in respect of the requirements to have due regard to the need to eliminate discrimination), Race (ethnic or national origins, colour or nationality), Religion or belief (including lack of belief), Sex, Sexual orientation.
28. The Public Sector Equality Duty requires us, in the exercise of all our functions (i.e. everything we do), to have due regard to the need to:
- (a) Eliminate discrimination, harassment and victimisation and other prohibited conduct.
 - (b) Advance equality of opportunity between people who share a relevant protected characteristic and persons who do not share it.
 - (c) Foster good relations between people who share a relevant protected characteristic and persons who do not share it.
29. Having due regard to the need to advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it involves having due regard to the need to:
- (a) remove or minimise disadvantages suffered by persons who share a relevant protected characteristic where those disadvantages are connected to that characteristic;
 - (b) take steps to meet the needs of persons who share a relevant protected characteristic that are different from the needs of persons who do not share it;

- (c) encourage persons who share a relevant protected characteristic to participate in public life or in any other activity in which participation by such persons is disproportionately low.
30. The steps involved in meeting the needs of disabled persons that are different from the needs of persons who are not disabled include, in particular, steps to take account of disabled persons' disabilities.
31. Having due regard to the need to foster good relations between persons who share a relevant protected characteristic and persons who do not share it involves having due regard to the need to—
- (a) tackle prejudice, and
 - (b) promote understanding.
32. An equalities impact assessment has been carried out for the new radio and a comprehensive evaluation process has commenced with operational staff including all watches at four fire Stations. This is to ensure the widest range of users are included in the assessment of the radios and ancillary equipment.
33. A survey, that includes questions on the radios functionality and usability is being completed by all operational staff participating in the evaluation. The results from this evaluation will provide 50% of the total marks that will determine the choice of radio.
34. Consultation will continue with the disability working group, head of learning support and Neurodiversity/Dyslexia support group to ensure the radio is accessible and usable by all potential operational users.

Procurement and Sustainability

35. A procurement was carried out utilising the Crown Commercial Service (CCS) Network Services 2 (RM3808, Lot 11) Framework. An Invitation to Participate was published to the 6 companies listed on the framework. By the deadline for responses, three bids had been received from two companies. There are only two manufacturers in the market that produce a solution that matches our requirements. One company submitted a bid proposing one radio solution, and the other company submitted two bids, proposing a solution from the two radio manufacturers in the market. The evaluation is being carried out in two stages.
- Stage one is the evaluation of the method statement and tender. The evaluation consists of a number of mandatory pass/fail criteria. The price element is weighted at 25 percent, the quality element is weighted at 15 percent, and sustainability / social value is weighted at 10 percent.
 - Stage two is the practical assessment of the proposed solution and is weighted at 50 percent. This section includes evaluation with breathing apparatus which was carried out at Moreton on Marsh in October. Evaluation by station users and Incident Comms is due to be carried out during January and February 2021.
 - When all of the evaluation has been completed the scores will be collated and the winning bidder identified.

36. During the initial research period collaboration with other FRS's was actively pursued. Cambridgeshire Fire and Rescue Service expressed an interest in collaborating when our specification was for dual mode digital radios and they attended a number of the events held to engage with suppliers. When our requirements changed to intrinsically safe radios, they withdrew their interest in collaborating as this did not meet their operational requirements.
37. The procurement was risk assessed against the Responsible Procurement policy PN696, and relevant evaluation criteria included, in the Invitation to Participate. The prospective bidders are all Small to Medium sized Enterprises, who have an Environmental Management System in place, certified to ISO 14001 standard. The Social Value evaluation criteria questions for bidders cover the disposal of current assets, and their approach to managing the socio-economic and environmental impacts including waste reduction (packaging); circular economy opportunities (take back, refurbishment, remanufacture); transport emissions and support for disadvantaged groups.
38. Both proposals for the disposal of existing equipment meet the required criteria or better, with evidence of appropriate waste licences provided. The social value proposals of one bidder is considered poor as it provides little clarity or commitment on how it will address the risks they have identified and improve performance in this area outside of their ISO 14001 system. The other bidder has provided a good statement with clear commitments on many areas, including how they will reduce impacts related to travel, packaging and waste, and support diversity and fair wages
39. Bidders are also required to carry out a Self-Assessment Questionnaire (SAQ) using the Sedex (the supplier ethical data exchange) to identify potential ethical sourcing and modern slavery risks. Where the SAQ identifies a high risk, it will be deemed unacceptable and the contract will not be awarded. Electronics Watch terms and conditions have been included within the contract terms, which provide added support to the Commissioner to monitor the supply chain for ethical sourcing and work with the supplier to address any issues found. Based on company size the bidders are not required to produce and publish Modern Slavery statements.
40. The provision of SEDEX SAQ's are outstanding for both suppliers and are subject to follow up clarification and risk assessment. One of the radios is manufactured in New Zealand with low inherent risk of ethical supply issues whilst the other is manufactured in the Philippines, which has a higher inherent risk. Assurance of manufacturer specific risks (as opposed to generic country level risks) is enhanced with site specific risk assessment via the SAQ, which will provide information specific to the manufacturing site and its practices.

Strategic Drivers

41. Recommendations from the Grenfell Tower Inquiry, the HMICFRS reports and recent reviews in National Operational Guidance are all strategic drivers of this project.
42. This work also supports the Transformation Delivery Plan by:
 - Seizing the future – helping us to drive continuous improvement and innovation
 - Delivering excellence – helping us to improve the effectiveness of our service and better understand risk.

Workforce Impact

43. The representative bodies have been consulted throughout the project and as an employer, bound by the Health and Safety at Work Act 2017. The introduction of an intrinsic safety radio for all uses at an incident helps with reduction of risk in all environments and scenarios.
44. The change from personal issue radios to shared radios for station based staff has been agreed with the representative bodies based on the radios being allocated per riding position of fire appliance rather than on station establishment.

Finance comments

45. This report recommends the purchase of new radios, associated equipment and a service/warranty package at a cost of up to [REDACTED]. The cost of this purchase will be charged to capital programme. There is currently an approved capital budget of [REDACTED] in 2021/22 for Operational Equipment which incorporates the new radios and the Replacement of Respiratory Protective Equipment (RPE).
 46. The purchase of the radios as set out in this report at up to [REDACTED] will incur annual capital financing costs of [REDACTED] for the provision to repay debt (Minimum Revenue Provision) based on a 5 year asset life and £37,500 for interest cost per annum at a forecast rate of 2.5%. The capital financing costs are included within the revenue budgets in the 2021/22 Budget Submission (LFC-0432).
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Legal comments

48. Under section 9 of the Policing and Crime Act 2017, the London Fire Commissioner (the "Commissioner") is established as a corporation sole with the Mayor appointing the occupant of that office. Under section 327D of the GLA Act 1999, as amended by the Policing and Crime Act 2017, the Mayor may issue to the Commissioner specific or general directions as to the manner in which the holder of that office is to exercise his or her functions.
49. By direction dated 1 April 2018, the Mayor set out those matters, for which the Commissioner would require the prior approval of either the Mayor or the Deputy Mayor for Fire and Resilience (the "Deputy Mayor").
50. Paragraph (b) of Part 2 of the said direction requires the Commissioner to seek the prior approval of the Deputy Mayor before "[a] commitment to expenditure (capital or revenue) of £150,000 or above as identified in accordance with normal accounting practices...".
51. The Deputy Mayor's approval is accordingly required for the Commissioner to award a contract for new radios, associated equipment and a service/warranty package to the successful bidder, up to a value of [REDACTED] after completion of a OJEU compliant procurement exercise.

52. The statutory basis for the actions proposed in this report is provided by section 7 (2)(a) of the Fire and Rescue Services Act 2004, under which the Commissioner must secure the provision of personnel, services and equipment necessary to efficiently meet all normal requirements for firefighting.
53. Under section 2(1) of the Policing and Crime Act 2017, the Commissioner has a duty to keep under consideration whether entering into a collaboration agreement with one or more other relevant emergency services in England could be in the interests of the efficiency or effectiveness of that service and those other services.
54. The General Counsel also notes that the procurement route for the purchase of new radios and associated equipment is in compliance with the Public Contracts Regulations 2015. The Crown Commercial Service have conducted a compliant OJEU procurement in accordance with section 33 of the Public Contracts Regulations 2015 to set up the Crown Commercial Service (CCS) Network Services 2 (RM3808, Lot 11) Framework, from which the Commissioner is able to make a compliant call off.

List of Appendices

Appendix	Title	Protective Marking
1.	LFC 0266 A review of the Specification for Fireground and Breathing Apparatus Radios	None



LONDON FIRE BRIGADE

Report title

Review of the Specification for Fireground and Breathing Apparatus Radios

Report to

Date

Commissioner's Board
London Fire Commissioner

29 October 2019

Report by

Report number

Assistant Commissioner, Operational Policy & Assurance

LFC-0266x

Protective marking: **NOT PROTECTIVELY MARKED**

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Summary

This paper discusses the issues involved in determining if intrinsically safe (IS) radios are required during 'general use' (fireground and breathing apparatus) operations and whether a different standard of IS can be justified through an assessment of the risks involved. It provides a summary of the advantages and disadvantages in the specification and use of IS radios and if the current standard of IS is not required for general use operations how this may impact more broadly on radio procurement.

Recommendations

That the London Fire Commissioner agrees to

1. Provide a more appropriate level of IS for all general use fireground radios for both breathing apparatus and fireground operations;
2. Introduce a single specification 4W/IS ATEX radio for all radios;
3. Amalgamate the BA radio and Fireground Radio projects;
4. Provide radios via riding position with personal issue retained for senior officers; and 5. Retain a stock of higher rated IS radios for specialist operational use

Background

1. Both the fireground and breathing apparatus (BA) radios, currently provided by Entel, require replacement and are in varying stages of specification and procurement. The specifications for the current BA radio (Entel HT981 Ex) and fireground radio (Entel HX480/1) are different because of variations (actual and perceived) in their operational use. BA radios are specified as intrinsically safe (IS) because they are occasionally required to be used in hazardous areas (including, albeit rarely, exposure to potentially explosive atmospheres).
2. The fireground radio procurement is being managed through Information and Communication Technology (ICT) and the BA radio is being managed through the Respiratory Protective Equipment (RPE) project, led by Operational Policy and Assurance (OPA).

3. Regulations require that special precautions need to be taken in areas where there is potential for a flammable or explosive atmosphere to prevent equipment from being a source of ignition. In situations

The London Fire Commissioner is the fire and rescue authority for London

where an explosive atmosphere has a high likelihood of occurring, reliance is placed on using equipment with a low probability of creating a source of ignition, which is often referred to as 'intrinsically safe' equipment. Where the likelihood of an explosive atmosphere occurring is reduced, equipment constructed to a less rigorous standard may be used.

4. The Brigade currently uses intrinsically safe (IS) radios for BA operations. The current level of IS for these radios is equivalent to the standard identified in national operational guidance, which is a medium to high standard of IS.
5. Unfortunately, a disadvantage of this added protection is that radios with a medium to high standard of IS will generally only have a maximum of 1 Watt transmitting power versus a standard 4 Watt transmitting power for some lower standard IS and non-IS radios. The low transmitting power of the higher standard IS radios increases the potential for ineffective or limited radio communications between BA teams and the fireground, particularly where BA operations occur in the built environment.
6. This issue has been highlighted by a number of Fire and Rescue Services, and in a number of investigations undertaken by the Brigade, where poor communications at incidents, including poor radio performance, has been identified as a hazard and/or factor that has contributed to injury to operational staff. Furthermore, interviews with brigade firefighters suggest that due to experience with the poor signal propagation of BA radios, confidence in the equipment is low and therefore it is common practice for BA teams to enter smoke-filled environments (fires) with their non-IS 4W fireground radios on their tunics to improve communications.
7. Whilst the use of a medium to high standard of IS radio for BA operations has been the historical norm in the UK, in recent years many Fire and Rescue Services have moved away from the use of IS radios entirely and/or reduced the standards of IS protection associated with their BA radio equipment. This has been predominantly justified through a requirement to increase the effectiveness of BA radio communications (i.e. increasing available transmitting power) and through the general observation that firefighters may carry with them a range of other equipment that is not rated for 'intrinsic safety'. There is an additional benefit in that non-IS radios can be significantly less expensive to purchase and maintain than their IS counterparts. However, National Operational Guidance (NOG) states that FRSs should consider that an explosive atmosphere is likely to occur in normal operation and so a level of IS should be retained.
8. Current Brigade policy position on use of radios require the following:
 - All staff should have access to a non-IS radio (at this time this is on a personal issue basis)
 - All BA teams (minimum 2 wearers) must have an IS radio 'per team' to be worn by team leader
 - IC undertakes a risk assessment to determine if an explosive atmosphere is present; where an explosive atmosphere may be present non-IS radios must not be used by BA crews
 - Policy requires the use of non-IS radios when IS radios are not available, subject to risk assessment of whether an explosive atmosphere is present
9. The guidance in Brigade policy for making an assessment of the risk from an explosive atmosphere states that non-IS radios may only be used where a naked flame is already present and/or where a survey (using detection equipment) shows it is safe (subject to ongoing review). In practice, because of the nature of the incident, building structure or availability of appropriate detection equipment it will not always be possible for the IC to confirm this.

Assessment, selection and use of IS radios

10. ATEX is the name commonly given to two European directives that provide the requirements for controlling potentially explosive atmospheres in workplaces. These directives cover the protection of staff potentially at risk from explosive atmospheres and generate standards for equipment and protective systems that should be used in workplaces where an explosive atmosphere could occur.
11. The assessment of the relevant ATEX rating and protection principles required for equipment that may be used in potentially explosive atmospheres depends on a number of factors, including:
 - The classification of the hazardous location, which generally relies on the probability of a potentially explosive atmosphere occurring
 - The classification of the explosion group of gases/vapours/mists that are likely to be encountered (and usually can be identified in advance because of known storage and industrial processes, and (following the above)
 - Identification of the relevant protection principles and standard of protection
12. In the UK the requirement of the ATEX directives are put into effect by the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR). DSEAR is targeted at employers and places of work that manufacture, store, process or use dangerous substances and the requirements are for employers to assess and eliminate or reduce the risks from those dangerous substances/explosive atmospheres. The principles in DSEAR cannot easily be applied to firefighting operations because the fire service has limited or no control over the working environment, substances and/or processes in use at the sites we may have to attend.
13. When the principles of DSEAR and ATEX guidelines are however applied to firefighting operations the following can be concluded. National Operational Guidance (NOG) states that FRSs should consider that an explosive atmosphere is likely to occur in normal operation (classed as Zone 1). This guidance appears to be set against the context of the hazardous locations for which ATEX and DSEAR were designed to control. The environments that firefighters generally respond to differ in a number of key ways:
 - The buildings firefighters respond to will not normally be hazardous locations and as such will include multiple items of commercial, industrial and/or domestic equipment and installations that are not rated to any standard of IS, and
 - The frequency and duration with which a firefighter will be exposed to a potentially explosive atmosphere is very low. Firefighters will spend most of their time in relatively benign environments with very brief excursions into extremely hostile environments where combustion is already taking place. As such there are very few occasions or circumstances where a product rated for IS will be of any value.
14. There is no evidence that a portable radio carried by a firefighter has been the cause of ignition of an explosive atmosphere and it is worth noting that a number of fire and rescue services in both the US and the UK are not using IS radio solutions.
15. In light of the general presence of non-IS rated equipment in environments that firefighters attend, the fact that combustion will generally already be taking place, the low frequency of attendance at any incident where a potentially explosive atmosphere may be present, the minimal periods of time that firefighters may then be directly exposed to that environment and the fact that there is no evidence of a portable radio igniting an explosive atmosphere it would be more appropriate to allocate a classification of 'zone 2' to the general principles of firefighting operations.
16. In the United States (US) the National Fire Protection Association (NFPA) have recognised that the standards in use for both IS and non-IS radios do not take into account the extreme conditions in which

they may be used by firefighters. As a result they have worked to produce a new standard that is specific to this, but this will not be published until 2020. Whilst this standard has still not been fully published the NFPA have indicated that, following assessment, they do not intend to remove IS from the specification of BA radios but they have reduced the minimum standard required. The standard of IS they have set (Division 2) is broadly equivalent to the standard of IS identified through our risk assessment (Zone 2).

17. Consideration has also been given to the 'explosion group' classification for the IS standard. Firefighters will generally attend fire situations where combustion is already taking place. This will result in the generation of fire gases but as combustion is required to produce these gases there will also generally be an ignition source already present. In these circumstances IS rated equipment will not be required.
18. Additional risk from a potentially explosive atmosphere may be present for firefighters where there are the conditions for backdraught and/or fire gas ignition. The key control measures for firefighters for these conditions are to recognise the signs of these phenomena and adopt defensive firefighting tactics (fighting the fire externally) and/or using tactical ventilation to remove gases. It is important to reiterate that there is no known occasion where a firefighters radio has been identified as the cause of ignition at an operational incident, under any circumstances. It is much more likely that gases will track back to the original fire and/or for disturbed embers to be a source of ignition.
19. However, the Brigade may be called to hazardous sites and/or hazardous incidents, and in particular known chemical release or hazardous materials incidents with no active fire, that do resemble the circumstances the standards were designed for. In these circumstances higher rated IS radios (with 1 watt transmitting power) would be a requirement and these include entering confined spaces or premises where there is specific and additional risk potential for an explosive atmosphere such as:
 - Sewers
 - Silos
 - Ships and vessels
 - Flour mills
 - Paint spray shops
 - Premises that have conducted an assessment under DSEAR and identified they have hazardous locations (DSEAR requires hazardous locations to be displayed with warning signs that will provide information on risk to responders)
 - COMAH sites (although it will generally be normal practice for the site to provide the required standard of equipment to firefighters if required)
20. This supports the case for retaining a stock of higher-rated IS radios for incidents that have specific characteristics that increase the risk of inadvertent ignition of an explosive atmosphere (e.g. confined spaces where there is known increased risk of a potential explosive atmosphere).

Cost of radios and level of issue

21. In broad terms, radios with a level of IS tend to cost more than those without and therefore to keep to the same strategy of personal issue for all could be prohibitively expensive.
22. With the current shift system and personal issue, most of the radios are only in use for a quarter of their working life and therefore to ensure a more efficient use of resources as well as keeping within the current budget envelope, it is recommended that we move to a riding position level of issue. This would effectively mean that minimum purchase quantities without taking into account spares, could be reduced from 4500 units to 900. Allocation to senior officers would still have to be on a personal issue basis.
23. In terms of 'on-costs', this could potentially mean a higher level of wear and tear due to their continuous use and maintenance may need to be carried out by the manufacturers rather than our own radio workshops to comply with the IS arrangements.
24. As a guide, there are two radios currently on the market that would provide both 4 W transmitting power and a level of IS. The Tait TP9361 and the Entel DT885.

25. The Tait TP9361 and the Entel DT885 are four watt IS radios with a price point of approximately £500 which if allocation was on a riding position basis would equate to approximately £750,000. This is based on a calculation of needing to provide 1500 radios (including senior officer provision and spares for servicing).
26. Benefits of this solution could be realised by the addition of an accessory (first mic) permanently attached to the radio incorporating a speaker enabling improved communication between firefighters and between firefighters and members of the public. These would go some way to addressing recommendations from the Grenfell inquiry. If this was implemented, the proposed interim communications solution would not be required which would realise significant cost savings.
27. Taking into account the background into this subject outlined above it is considered that there are the following 3 options for the replacement of the LFB's general use fireground radios.

Options

28. **(Option 1)** Maintain the status quo with two separate radio projects to procure separate radio specifications, i.e. Non-IS FGR and IS BA radio
29. **(Option 2)** Dispense with IS standards for normal operations, adopt a single non-IS specification for FGR and BA radio, but keep stock of NOG-standard IS radios for specialist incidents
30. **(Option 3)** Introduce a new single specification for all general use fireground radios to;
 - Provide a more appropriate level of IS for all general use fireground radios for both breathing apparatus and fireground operations
 - Introduce a single specification 4W/IS ATEX radio for general use fireground radios
 - Amalgamate the BA radio and Fireground Radio projects
 - Provide radios via riding position with personal issue retained for senior officers
 - Retain a stock of higher rated IS radios for specialist applications

Recommendation

31. It is recommended that Option 3 is adopted for the reasons detailed earlier within this report.

Finance comments

32. This report sets out three options for the replacement of fireground and breathing apparatus radios. The capital programme currently includes £2.3m in 2019/20 for the Respiratory Protective Equipment project (BARRIE) and £1.8m forecast expenditure in 2020/21 for fireground radios. If option three is approved and the projects are amalgamated, then the amounts and timing of these payments should be reviewed and updated as required.

Workforce comments

33. Informal consultation has taken place with the representative bodies who have indicated that they will support this recommendation at the formal consultation stage.

Legal comments

34. Under section 9 of the Policing and Crime Act 2017, the London Fire Commissioner (the "Commissioner") is established as a corporation sole with the Mayor appointing the occupant of that office. Under section 327D of the GLA Act 1999, as amended by the Policing and Crime Act 2017, the

Mayor may issue to the Commissioner specific or general directions as to the manner in which the holder of that office is to exercise his or her functions.

35. By direction dated 1 April 2018, the Mayor set out those matters, for which the Commissioner would require the prior approval of either the Mayor or the Deputy Mayor for Fire and Resilience (the "Deputy Mayor").
36. Paragraph (b) of Part 2 of the said direction requires the Commissioner to seek the prior approval of the Deputy Mayor before "[a] commitment to expenditure (capital or revenue) of £150,000 or above as identified in accordance with normal accounting practices...".
37. The Deputy Mayor's approval will be required for the Commissioner when it comes to any new procurement of FGR and BA radios.
38. The statutory basis for the actions proposed in this report is provided by section 7 (2)(a) of the Fire and Rescue Services Act 2004, under which the Commissioner must secure the provision of personnel, services and equipment necessary to efficiently meet all normal requirements for firefighting.
39. Under section 2(1) of the Policing and Crime Act 2017, the Commissioner has a duty to keep under consideration whether entering into a collaboration agreement with one or more other relevant emergency services in England could be in the interests of the efficiency or effectiveness of that service and those other services.
40. The proposed procurement of FGR and BA radios must be in compliance with the Public Contracts Regulations 2015 and ATEX Directive 2014/34/EU which requires products manufactured for use in potentially explosive atmospheres and intend for sale in Europe, to provide assurance that the equipment will not cause an explosion during routine operation. The ATEX directive was implemented into law in Great Britain by The Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016.

Sustainability implications

41. No sustainability issues have been identified.

Equalities implications

42. The Public Sector Equality Duty applies to the London Fire Commissioner when they make decisions. The duty requires them to have regard to the need to:
 - Eliminate unlawful discrimination, harassment and victimisation and other behaviour prohibited by the Act. In summary, the Act makes discrimination etc. on the grounds of a protected characteristic unlawful.
 - Advance equality of opportunity between people who share a protected characteristic and those who do not.
 - Foster good relations between people who share a protected characteristic and those who do not including tackling prejudice and promoting understanding.
43. The protected characteristics are age, disability, gender reassignment, pregnancy and maternity, marriage and civil partnership, race, religion or belief, sex, and sexual orientation. The Act states that 'marriage and civil partnership' is not a relevant protected characteristic for (b) or (c) although it is relevant for (a).
44. Prior to implementation of the recommended option, a screening equality impact assessment will be undertaken. There are neutral impacts on individuals sharing a protected characteristic arising from this decision.