



LONDON FIRE BRIGADE

Report title

Replacement of Respiratory Protective Equipment (RPE)

Report to

Operational Delivery DB
Corporate Services DB
Commissioner's Board
Fire and Resilience Board
London Fire Commissioner

Date

16 December 2020
19 January 2021
27 January 2021
16 February 2021

Report by

Assistant Commissioner, Operational Policy & Assurance

Report number

LFC-0480

Protective marking: **OFFICIAL - Sensitive**

Publication status: Published with redactions

If redacting, give reason: Commercial sensitivity

Executive Summary

This report seeks authority to accept a tender for the provision of new Respiratory Protective Equipment and the associated repair and maintenance of such equipment.

In January 2018 an options paper (FP0888) was submitted to the Commissioner's Board recommending that a project be set up to research, plan and implement the replacement of our current breathing apparatus (BA) provision. This paper was accepted, and the project started in July 2018.

Extensive market research and dialogue with suppliers took place and Interspiro and 3M subsequently withdrew from the process leaving Draeger and MSA to compete for the contract. After the final equipment trials at the Fire Service College at the end of January 2021, MSA Safety were identified as the preferred bidder.

Recommended decision

For the London Fire Commissioner

The London Fire Commissioner in turn delegates authority to the Assistant Director, Technical and Commercial in consultation with the Director of Corporate Services to sign all relevant agreements and incur expenditure of up to £6,000,000 for the following items:

- New breathing apparatus set (facemask, backplate and air cylinder),
- Telemetry system (telemetry entry control board and telemetry repeaters/Leaky feeders),
- Rescue bag (enables firefighters to carry an emergency air supply into the incident),
- Integrated facemask communications system (Completes and compliments the planned

purchase and upgrade of fireground radios, the funding for which is requested in an additional paper),

- Shadow workshop,
- Appliance stowage modifications,
- Training.

The contract with MSA is for a period of 10 years with an option to extend for a further 5 years. The figure of £6,000,000 includes an estimate of costs of this optional five-year extension and this is based on purchase costs of up to £4,998,439.89 plus a 20% contingency for the option of the additional 5 years.

Funding to cover the optional five-year extension to the contract is requested to enable us to bring the use of the BA sets in line with the life of the cylinders (15 years) if required, and therefore get the best use out of the equipment. Durability of modern BA sets now makes this extension possible and therefore gives us more choice.

Introduction and Background

1. London Fire Brigade (LFB) has traditionally begun to replace our Breathing Apparatus (BA) provision every ten years with a project duration on average of three years. This means our BA sets are often thirteen or more years old before replacement. Using a replacement schedule of this duration ultimately leads to increased maintenance costs keeping older equipment in service (such as the programmed replacement of re-chargeable batteries). This is compounded by the present higher than predicted maintenance costs of the current BA set due to design issues with some of the components.
2. Our current BA sets were placed in service in 2010, making them ten years old in 2020, so in order to take advantage of available new technology, and to ensure we could conclude this process in a timely fashion the replacement project received approval to start in 2018 (FP0888).

Alternative Options Considered and Consultation

3. By completing this project, the LFC will benefit from market available technological advances in equipment thus improving safety for firefighters and addressing the recommendations of inspections carried out by the HMI-CFRS and the Grenfell Tower Inquiry. The alternative of preserving the status quo and postponing or cancelling this project would result in not realising these benefits.
4. Also, because this project is linked with the Radio Replacement workstream, its cancellation or postponement would affect our ability to complete the planned improvements in our radio communications system i.e. the implementation of the integrated radio interface in the breathing apparatus facemasks.
5. Delivering the RPE Replacement Project requires long term planning and resourcing in order to achieve this transformation across LFB. The cancellation or postponement of all or some parts of this Project will send the message to LFB teams that this work is currently not required which contradicts messages we have sent to all staff and the wider government community.

6. There is a risk with cancellation or postponement, that some or all of the corporate knowledge and external business relationships developed through the RPE Replacement Project will be lost or side-tracked. It will take time and additional investment to recover this resource and could impact on the reputation of LFC. Fire Rescue Services nationally are watching the outcome of this procurement process and it is clear that many are interested in following LFC's lead.

Consultation – Workforce

7. During the project, the FBU have been informed about the progress and technological solutions available. To date consultation has been informal, and this will move into the formal Brigade Joint Committee For Health And Safety At Work (BJCHSW) arena in due course.
8. The Fire Brigade's Union are attendees at Board level and were invited to attend and observe the practical user trials at the Fire Service College in January 2021. The representative bodies are fully supportive of the aim of the project to improve firefighter safety and render a better, more efficient service to the public.
9. LFC's Head of Health and Safety has had a central role in assisting us to specify, test and procure equipment that will enable our staff to operate within safe systems of work. A significant part of the equipment evaluation and scoring criteria includes areas such as ergonomics, manual handling, and ease of use.

Consultation – GLA Group

10. Research was carried out to explore options for a collaborative approach to procurement with the Metropolitan Police Service and the British Transport Police (BTP) but their timescales and equipment requirements did not meet LFC's so this was not pursued. The MPS use our equipment at incidents and the BTP have already gone ahead in procuring military specification breathing apparatus which is not CE marked against the relevant RPE standards in EN 137.
11. The London Ambulance Service were notified of the project at the beginning and the agreement has been for us to keep them informed of progress. They have a minimal requirement for Breathing Apparatus and this is only related to Extended Duration Breathing Apparatus used by the Hazardous Area Response Team (HART).

Consultation – Fire & Rescue Services

12. The LFC considered utilising the Devon and Somerset Framework Agreement for RPE for this procurement. As the intention was to address the complexities of the components element (spares) and combine what previously had been two separate contracts, as well as the purchase element through a risk transfer model (described in full below), and the need to maintain the in house maintenance requirement within the OSC, this falls outside of the scope available within the Framework which resulted in the decision to advertise solely on behalf of the LFC.

13. The NFCC has been kept informed of LFC's progress with this project formally through the National Respiratory Protective Equipment Working Group (RPG) and individual, informal contact has been maintained with interested services such as West Midlands Fire and Rescue Service, Hampshire Fire and Rescue Service, Northamptonshire Fire and Rescue Service and several others engaged with us in the National Breathing Apparatus Challenge.

Objectives and Expected Outcomes

14. Through the review and replacement of our current RPE the objectives are to:
- Provide improved communications to Entry Control and between BA wearers;
 - Continue to provide and improve the facility for data exchange between the wearer and the entry control operative currently provided by telemetry as well as comprehensive data for management use in relation to training, health monitoring and safety event investigation;
 - Deliver a respirator and Chemical, Biological, Radiological and Nuclear (CBRN) capability for every fire appliance riding position and introduce a more complete RPE capability that carries a lower physiological burden than our current solution (lighter and more ergonomically designed equipment);
 - Realise RPE specifications that meet the needs of the LFB in undertaking its duties whilst encompassing health and safety and compatibility with all personal protective equipment (PPE) requirements;
 - Ensure LFB benefits from the technological upgrades on the market resulting in superior Respiratory Protective Equipment;
 - Review current BA ancillary equipment with specific focus on upgrading BA personal lines and rescue equipment;
 - Meet recommendations from the Grenfell Tower Inquiry or any subsequent strategies to prevent fire deaths, in support of improvements to RPE in the future;
 - The expected outcomes of committing to expenditure are that substantial benefits will be gained from new technology thus improving safety for firefighters and crucially enhancing our ability for rescue and therefore delivering a better service to the public.

Procurement

15. Previous arrangements have had a separate contract for the purchase of BA sets and for the spares to maintain them. This has meant it has been a challenge to budget sufficiently for the spares element of the contract, with no commercial relationship between the equipment and the components required. This has resulted in LFB having no control over the budget required for spares and no recourse should there be a significant component failure, other than to replace at the LFB's own cost. One example of this was where the BA set reducers came with a ten-year service life, but LFB technicians started discovering faults with them after two years. The time it took to investigate, negotiate solutions and provide labour involved to replace the faulty parts, all had to be borne by LFB. To address this situation a combined spares and purchase contract and a range of options were included in the tender process, as outlined below. The intention was to undertake an element of risk transfer from the LFB to the provider, making them responsible for the durability of the set and setting up a commercial model that links the two requirements fully, to allow LFB visibility and control over the budget.

16. As the preferred bidder for this procurement, MSA are offering a lighter BA set overall, a simpler, easier to use control unit and wireless repeaters that are light and easy to deploy with minimal interventions from the user, compared to previous BA sets. Their telemetry entry control board is NOG compliant, a fraction of the weight of the current board and tablet-based with intuitive operation. Data on firefighters' breathing rates, activity in BA and emergency signals is automatically uploaded to the cloud and can easily be downloaded for use in accident investigation and health monitoring.
17. An open procurement procedure was chosen for this project, due to the small size of the market and the specific nature of LFB's requirement. Initial market engagement was undertaken in 2018 prior to the initiation of the procurement process to ensure that the nature of the requirement (a combined spares and purchase contract with some form of warranty provision which would pass the risk of failure on to the provider) could be fulfilled by the market.
18. The Tender was drafted to include a suite of commercial models for tenderers to bid against:
 - Comprehensive life warranty of BA set and equipment
 - Reduced scale life warranty of BA set and equipment
 - Capital purchase and spares bought by LFC as required (similar to current provision)
19. The timescale of the proposed contract was agreed to be 10 years, with an option to extend for a further period or period of up to 5 years. This was agreed due to the anticipated life span of the sets being 10 years, and with a view to run concurrently with the anticipated lifespan of the associated cylinders being purchased, should the LFC decide to extend. This timescale is also anticipated to mitigate any future compatibility issues between cylinder and set (and therefore potential certification difficulties) that were identified as a risk at the implementation of this project.
20. The OJEU notice was published on 31/07/20 with a tender return deadline of 16/10/2020, to allow tenderers sufficient time to respond to the various options. 2 bids were received in response to the OJEU notice, from Draeger Safety UK Ltd and from MSA (Britain Ltd). Evaluation sessions were held by the LFB evaluation team, comprising participants from Operational Policy and Assurance, Operational Support Group, ICT, Sustainability and Procurement.

Commercial Model Options

21. In all the options below, the parameters and definitions of fair wear and tear are crucial, as LFB will remain liable for costs of labour and spares needed as a result of unfair wear and tear, loss, accident or wilful misuse. There will be an initial capital outlay for the sets, cylinders and ancillary equipment in each option. The on-going expenditure on repairs and maintenance for each of the various options outlined will depend upon the Commercial Option chosen. Labour for repairs and maintenance will be provided by LFB technicians in all cases.
22. All options include an initial 2 year fully comprehensive warranty of the sets and associated components. The successful provider MSA will be expected to provide all spares and replacement kits and replaceable components within the parameters of fair wear and tear within this initial 2 years. All labour will be undertaken by LFC technicians. A planned maintenance schedule has been completed during the tender process and should there be any additional repairs needed for fair wear and tear, the labour cost of these will be re-

charged to the provider using the hourly rate of an LFB technician (currently £22 per hour) , and the provider will also have to provide any additional components that are required for no extra cost. The re-charge will not apply to the costs of labour and parts needed as a result of unfair wear and tear, loss, accident or wilful misuse, as these will be at the LFB's cost.

23. There are a further three options for the commercial model, which will be discussed further between LFB and MSA before a final agreement is reached, as set out below:

Option A: Fully Inclusive Service Charge: 8 years

- This will be a fully comprehensive warranty for 8 years and will be in the form of a service charge. The service charge will, as in the initial warranty period, include all spares and replacement kits and replaceable components needed within fair wear and tear but exclude labour costs. (8 years rather than 10 is cited because the first two are under warranty).
- The service charge will also include all additional costs needed to manage the contract, including refresher training for technicians, management, etc.
- Tenderers were required to complete a schedule of components required to maintain their sets, indicating the anticipated frequency of replacement for each element during these 8 years. The time needed to make these repairs was also documented. This will be a schedule of the contract.
- The labour cost to make these planned fair wear and tear repairs set out in the schedule will be covered by the LFB, i.e. it will not be covered by the service charge. If, however, a repair is needed more frequently than is anticipated, LFB will recharge the supplier for the cost of the labour to make this repair, using the hourly rate of an LFB technician, as set out in the tender documents, and the provider will also have to provide any additional components that are required for no extra cost. This would not extend to 'exceptional' repairs which remain the LFB's responsibility.
- This option was the preferred option LFB, providing that Value for Money could be clearly demonstrated upon evaluation of the bids received. Therefore, Option B and C were created to allow further analysis on this point and the implications of each option clearly understood.
- The minimum potential cost for this option is £6,000,000 whereas the maximum potential cost would be £8,405,000 . It is important to note that this will include all necessary repairs, spares and maintenance, training and management of the contract throughout the life of the contract. The only additional costs which cannot be quantified at this point relate to any replacements of components or equipment resulting from "unfair wear and tear".

Option B: A minimal service charge: 8 years

- This reduced service charge option will utilise the same frequency schedule of repairs, provided by the tenderers, as required in Option A. The substantial difference for this option is that the LFB will pay for the components in line with this schedule when the repairs are needed, rather than this be built into the service charge, as well as bearing the labour cost.
- This service charge will only cover all additional costs of management of the contract, training elements etc., but not the components required.
- Components will be bought as needed using a pricing schedule provided by tenderers during the procurement process. The cost of these will be indexed in line with RPI and subject to a controlled annual increase if required.
- As with Option A, should a component need to be replaced more frequently than is outlined within the tender, the LFB will not only re-charge the provider for the labour cost of doing so, but also for the cost of the component.

- This Option was created to address concerns about potential cost inflation being included in tender responses to Option A; and to mitigate the impact of these should they be identified. It was determined that through close analysis of the differing costs presented by Option A vs B, would bring clarity to the opportunity for Value for Money (VfM) for the LFB being achieved through one or the other option, and to allow the LFC the opportunity to make a decision on the best VfM with a clear understanding of the possibilities of either option.
- The purchase price for the equipment remains the same. The foreseen costs including the reduced scale warranty costs are as follows: a minimum of £6,000,000 and a maximum of £6,228,800 for the life of the contract. This does not include all required spares and repairs which will depend upon the durability and performance of the equipment.
- The LFB's preferred option, subject to the outcome of the trials, would be to utilise option A to enable full control over the budget implications of this procurement. However as there is a vast difference in cost between the two bids received for this option, this decision will be taken upon completion of the full evaluation in January 2021.

Option C: Current Provision: Spares and components bought as needed, no service charge

- This option, while building the spares requirement into the same contract, is a continuation of the current process. The tenderers provided a price schedule of all components needed and the LFB will purchase these as and when they are needed. This option is included primarily as a comparator for the cost elements of options A and B.
- Any additional costs needed, i.e. training elements, will be paid for as needed throughout the life of the contract.

Value for Money Determination

- The LFB's ability to determine which option would generate the best VfM (Value for Money) was created through analysis of the schedules provided by the tenderers. Within all options, a schedule of expected repairs was completed and the costs of the components for these repairs and the duration of the labour time to make the necessary repairs was also included. This would also be tested for voracity during the technical trials in January 2021. This information would be used to analyse the costs of Option A (extended warranty) vs. Option B and allow the LFB to determine the VfM potential of each option fully.
- This option, while building the spares requirement into the same contract, is in essence a continuation of the current process. The tenderers provided a price schedule of all components needed and the LFC will purchase these as and when they are needed. This option is included primarily as a comparator for the cost elements of options A and B.
- Any additional costs needed, i.e. training elements, will be paid for as needed throughout the life of the contract.

Costs

24. Costs of the preferred bid and each option are outlined below:

Bidder:	Initial Purchase Price (total as based on current equipment list)	Initial Purchase Price with 20% contingency	Option A: Comprehensive Warranty: Cost of 8-year warranty	Option B: Reduced Scale Warranty	Option C: Cost of Spares: basket of goods comparator used on most common

					spares: (per set)
MSA (Britain Ltd)	£4,998,439.89	6,000,000	£0.00*	£0.00**	£236.76

Revenue costs

25. The costs of servicing and maintaining the equipment per year will be up to approximately £471,000, which is based on an average of the last three years. These costs are already incurred for the service and maintenance of LFB's existing RPE and therefore do not require additional Deputy Mayor approval in relation to this procurement.

LFB are confident that this figure will be reduced over the coming years for reasons including but not limited to:

- New equipment will initially need less maintenance or replacement
- At every stage of the project LFB have identified ways of reducing the capital purchase quantities which means there will be less equipment to maintain and therefore lower labour and component costs.
- LFB have rationalised Standard Duration Breathing Apparatus (SDBA) and EDBA sets meaning that there is only one model to buy and maintain spares for thus reducing stock levels.
- A smarter way of supplying spare sets to stations has been identified, which means that the number of sets held can be reduced with the resultant lower cost of servicing.

Impacts

26. This work supports the Transformation Delivery Plan by:

- Seizing the future – helping us to drive continuous improvement and innovation; as part of this project we have worked extensively with manufacturers to develop their equipment to address specific needs of the fire service rather than settling for industry norms or factory settings. Tangible gains through this work have been the production of lighter equipment and equipment that is simpler to use and maintain.
- Delivering excellence – helping us to improve the effectiveness of our service and better understand risk. Lighter equipment means our firefighters face lower physiological stress and therefore their ability to rescue is improved.

Equality Impact

27. A smaller, lighter weight, more ergonomic RPE set would be a feature which will support LFB to attract and encourage more diverse groups to consider firefighting as a career, especially for those who have not previously considered a career as a firefighter.

28. The benefits of making the RPE equipment lighter and more ergonomic will encourage more people to join as a firefighter. In 2016, LFB commissioned research by 'Future Thinking into

the barriers facing women when considering a career as a firefighter'. Relevant findings included:

- The work being perceived as "dangerous, too physical"
- The perception of a woman firefighter as being someone who needs "exceptional upper body and general strength."
- Perceived barriers such as "dangerous and risky", "not physically strong enough", "it is very daunting".

29. The research concluded that "it is important to note that even if the LFB are able to address the barriers we have identified, the role itself only genuinely appeals to the minority." It is therefore even more crucial that we take as many steps as possible to demonstrate due regard to the Public Sector Equality Duty in ensuring that the LFB is encouraging to participate in activities where their participation is disproportionately low. Making our equipment as light as possible is a tangible step towards this aim.
30. The inclusion Team have been consulted throughout this project and Equality Impact Assessments are treated as live documents to be regularly reviewed as the project progresses.

Sustainability

31. The procurement was risk assessed against the Responsible Procurement policy PN696, and relevant evaluation criteria included, in the Invitation to Participate. The specification covers:
- a. Waste disposal options including the potential for reuse or recycling of both the 8 litre cylinders and BA sets;
 - b. A rationalised approach to cylinder stocks and BA sets to one model that means that less equipment is required overall, reducing the consumption of materials and associated impacts.
 - c. The more efficient provision of BA via the revised cylinder size and compatibility with EDBA will result in fewer vehicle movements to provide EDBA to major incidents and therefore reducing air emissions correspondingly.
32. 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.



LONDON FIRE BRIGADE

33. MSA have both a statement and published policies and practice in addressing the relevant issues under the Modern Slavery Act 2015. Where required further clarification will be requested to ensure full compliance with the Modern Slavery Act before the final consideration of the bids.
34. The waste documentation provided for one of the bids did not align to the disposal approach outlined in the bid and further clarification will be requested to ensure full compliance with waste regulations before the final consideration of the bids.

Strategic Drivers

35. Recommendations from the Grenfell Tower Inquiry, the HMICFRS reports and recent reviews in National Operational Guidance are all strategic drivers of this project.

Workforce Impact

36. The representative bodies have been consulted throughout the project and as an employer, bound by the Health and Safety at Work Act 2017, LFB has a moral, legal and economic obligation to reduce risk to as low as reasonably practical and any possible reduction in weight of equipment will protect firefighters.
37. Evidence is available that firefighting, especially if carried out over a long career will have a detrimental effect on weight-bearing joints. Reducing this weight supports longevity of service for firefighters, particularly with an ageing workforce.
38. Using 6.8 litre cylinders compared to the 8 litre cylinders for SDBA represents a weight saving of approximately 20% which would deliver improvements in firefighter safety and operational effectiveness. It has been shown in studies that the physiological burden of wearing SDBA, particularly in heat and smoke, can result in fatigue, which can lead to reduced capacity to make effective decisions and to increased potential for injury through manual handling and slip and trip injuries. Any reduction in weight of the SDBA set and cylinder will have a positive impact in this regard.
39. From the start, the project team has made it clear to suppliers that equipment must be designed in such a way as to be simpler to use, test and maintain. This will have a direct effect on the end user and simpler kit will generate a lower training burden and lower maintenance costs.

Finance comments

40. This report recommends the purchase of new Respiratory Protective Equipment (RPE) through MSA. The estimated cost of up to £6,000,000, including a 20% contingency, based on the preferred bidder that will be charged to the capital programme.
41. There is currently an approved capital budget of £8,200,000 in LFB 2021/22 budget for Operational Equipment, for the RPE replacement and fireground radios. It is expected that up to £2,150,000 is to be used for the purchase of radios and associated equipment. This leaves

a balance of £6,050,000, which can be applied to the Replacement of RPE and allows for any incidental costs relating to the project.

42. The capital element of the RPE purchase, as set out in the report at up to £6,000,000 will incur annual capital financing costs of £600,000, for the provision to repay debt (Minimum Revenue Provision), based on a 10-year asset life and £150,000 for interest per annum, at a forecast rate of 2.5%. The capital financing costs for the current capital budget are included within the revenue budget in the 2021/22 LFB Budget Submission.
43. The report notes that the costs of servicing and maintaining the equipment per year is approximately £471,000, which is based on an average of the last three years. This cost will be contained within the annual revenue budget for the maintenance and repairs of breathing apparatus, which can now be set aside for the revenue stream of this project. The report also notes that there is confidence that this figure will be reduced over the coming years. Any savings identified will be considered and reported on as part of the annual budget setting process.

Legal comments

44. 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.
45. 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"). 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...".
46. The Deputy Mayor's approval is accordingly required.
47. The statutory basis for the actions proposed in this report is provided by Sections 7 and 8 of the Fire and Rescue Services Act 2004, which states that fire and rescue authorities must make provision for the purpose of fighting fires and rescuing people in the event of road traffic accidents. In making this provision a fire and rescue authority must, amongst other things, secure the provision of the equipment necessary efficiently to meet all normal requirements.
48. General Counsel also notes that the proposed equipment is being procured in compliance with the Public Contracts Regulations 2015 and the Commissioner's Standing Orders relating to Procurement.

Workforce Comments

49. The FBU are represented on the working group and RPE Replacement Board and have been consulted throughout the project with regular, scheduled update meetings on a monthly basis.

List of Appendices

Appendix	Title	Protective Marking
1.	None	

