

Decision title

# Aerial Appliance Review 2018<sup>1</sup>

Recommendation by

Assistant Director, Strategy and Risk

Decision Number LFC-0093-D

Protective marking: NOT PROTECTIVELY MARKED Publication status: Published in full

#### Summary

As part of the London Safety Plan, the Brigade made a commitment to undertake a review of aerial appliances. This included looking at the optimum location for aerial appliances, and whether or not aerials should be included within the Brigade's initial response (i.e. that an attendance standard should be set for these vehicles). LFC-0093 provides the outcome of that review.

#### Decision

Based on the evidence put forward by this paper the London Fire Commissioner agrees: That

- a) The current 11 aerial locations remain as follows: Clapham, Dagenham, Forest Hill, Greenwich, Hayes, Old Kent Road, Paddington, Soho, Tottenham, Wembley and Wimbledon. This is based on the current locations providing the fastest average response times to incidents across London;
- b) The three extended height aerials (currently being procured) are added to the fleet;
- c) An attendance standard is not set for aerial appliances, and that all aerial appliances continue in line with existing practice to be mobilised based on the principle of the closest available appliance; and
- d) A crew manager should be the minimum role of the officer in charge of the aerial appliance which is in line with other specialist appliances.

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Date 12-09-2019

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

(1) this report reference has been amended to LFC-0104. For more information, please contact Governance: Governance@london-fire.gov.uk



#### Report title

# Aerial Appliance Review 2018<sup>1</sup>

Report to	Date	
Commissioner's Board	5 December 2018	
Report by	Report number	
Assistant Director, Strategy and Risk	LFC-0093	
Protective marking: <b>OFFICIAL - Sensitive</b>		
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#### Summary

As part of the London Safety Plan, the Brigade made a commitment to undertake a review of aerial appliances. This included looking at the optimum location for aerial appliances, and whether or not aerials should be included within the Brigade's initial response (i.e. that an attendance standard should be set for these vehicles).

This paper provides the outcome of that review.

#### **Recommended decisions**

Based on the evidence put forward by this paper the London Fire Commissioner agrees: That

- a) The current 11 aerial locations remain as follows: Clapham, Dagenham, Forest Hill, Greenwich, Hayes, Old Kent Road, Paddington, Soho, Tottenham, Wembley and Wimbledon. This is based on the current locations providing the fastest average response times to incidents across London;
- b) The three extended height aerials (currently being procured) are added to the fleet;
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- d) A crew manager should be the minimum role of the officer in charge of the aerial appliance which is in line with other specialist appliances.

#### Introduction and background

- The Brigade has 11 aerial appliance stations across London with four spare aerial appliances. These appliances attend a range of incidents. These vehicles – which can reach high up or over a wide area – have a range of uses, including providing a water tower, rescue operations, casualty retrieval or observation platform.
- 2. Between 2010 and 2016, the number of calls aerial appliances attended has decreased steadily; in 2010 the number was 4,804 and by 2016 the number of calls attended was 2,767.

- 3. However, 2017 saw a substantial increase for the number of calls aerial appliances attended (4,627). To date (21 July 2018), the figure is 3,465. This is due to the interim change to predetermined attendance (PDA) introduced on 22 June 2017 for high rise buildings. The change includes the attendance of an aerial appliance on all high rise PDAs. The interim PDA change has reversed the decrease in aerial appliance attendances.
- 4. In order to meet the London Safety Plan commitment (and in light of the change in usage), in February 2018, the LFB decided to model our aerial appliance locations to review our current locations against optimum locations. ORH were commissioned to undertake the modelling and to report on the findings.

# Approach to optimum locations

- 5. There a number of different options available and as part of the review, ORH has modelled optimal aerial locations based on specified sets of different criteria.
- 6. The modelling took into account normal aerial appliance incident types and current demand, to show optimum aerial locations regardless of whether there was station capacity bay availability for an aerial appliance. As part of the deployment summary within the modelling, we asked for the current aerial locations to be included within the risk coverage, i.e. modelled at current locations to provide the current average attendance times.
- 7. The first was optimisation based on the location of high rise buildings and considered locations for five extended reach aerials and six standard height aerials (the final number of extended reach aerials had not been determined at that time). This is described as Method 1 in the ORH Optimal Aerial Appliances Locations Report, and this was based on:
  - Optimising 11 locations against all buildings over18 metres (m), then selecting the best five locations for extended height aerials (against buildings over 32 m)
  - Optimising five locations for extended height aerials (against buildings over 32m), then adding six 'regular' aerials (against all buildings over 18m).
- 8. Secondly, we reviewed access of coverage of optimal locations (Method 2) based on:
  - Historic fire data where aerials **"got to work"** at incidents; this took into account both 18m and 32m buildings.
- 9. This "**got to work**" data was collected between June 2011 and November 2015, although is only complete up to March 2013) and was provided by aerial crews as part of a special data collection exercise. The phrase 'got to work' means that the aerial was used at an incident against one or more of some pre-defined purposes (as a 'pick' list). It covered a range of operational responses that included significant interventions e.g. rescues, as well as those which were less critical e.g. access. Whilst there were responses for every incident attended by aerial appliances during the collection period up to March 2013, it is significant that the data shows that, overall, only 22 per cent of aerials attending did 'get to work' (and this varied from station to station). The data shows that where an aerial was used (i.e. 'got to work') it was used for these purposes (per cent of occasions in brackets): an observation tower (12 per cent of occasions), water tower (4 per cent), for access (6 per cent), for rescues (1 per cent). Some caution is needed with the data as there will be issues with the data consistency arising from the differing approaches to recording adopted by different crews.

- 10. Both methods provide five optimum locations for five extended height aerials.
- 11. We have taken this approach to the modelling as it was felt the results would provide the broadest results to better inform any decision made. For the purpose of the modelling we considered building height as a potential determinant for the location of the aerials as there are over 5000 high rise residential building within London. However we accept the information within the Home Office, 'Fires in purpose-built flats, England, April 2009 to March 2017' report which shows that only eight percent of all dwelling fires nationally are in medium and high rise purpose built flats. Additionally, the report showed that rates in fire deaths for high rise buildings was 0.4 per cent whereas for house, bungalows, converted flats and other, the rate was 0.7 per cent. There are.
- 12. The following has been taken from the ORH report on the deployment summary:

Current location of the 11 Aerial appliances	Recommended locations based on Method 1 output	Recommended location based on Method 2 output
Clapham	Chelsea	Chelsea
Dagenham	Croydon**	Croydon**
Forest Hill	Dowgate**	Dowgate**
Greenwich	Ealing**	Greenwich
Hayes	Greenwich	Hammersmith**
Old Kent Road	Paddington	Heston
Paddington	Poplar**	llford
Soho	Shoreditch	Paddington
Tottenham	Soho**	Poplar**
Wembley	Tottenham	Soho**
Wimbledon	Wandsworth	Tottenham

Table 1 – Current and modelled optimum aerial locations

\*\* The modelling recommends consideration of these as extended height aerial locations

	Risk Measure			
Aerial Configuration	Historic 'got to work' incidents (actual)	>18m buildings	>32m buildings (extended height)	
Current Stations	8:38	9:55	No extended height aerials in current fleet	
Method 1 locations	8:47	7:52	10:49	
Method 2 locations	8:41	7:59	10:37	

13. There are some factors the ORH report does not take into account. These include possible longer average attendance times for larger vehicles (due to restricted manoeuvrability) and existing fire station capacity for stations that do not currently have an aerial. Additionally, access into or around any station that hasn't had an aerial appliance or extended height aerial appliance has not been taken into account. An example of this would be Tottenham Fire Station, which has a railway bridge on St Loys Road when turning right out of the fire station. An extended height aerial would not be able to travel under this bridge due to the appliance's increased height.

## Outcomes from the modelling

- 14. As shown above, with eleven aerial appliances across London at our current stations, there is a below ten-minute average coverage time across London for our got- to-work incidents. In addition to this, our current aerial locations provided the faster average response time across London for historic incident locations, against optimal stations within method one or method two. Got- to-work incidents have taken into account both 18m and 32m buildings.
- 15. A number of the stations in method one and method two would currently be unable to accommodate an aerial appliance. In addition, none of the stations highlighted in **bold** would be able to accommodate an extended height aerial appliance. This is due to various reasons including the size of the appliance, lack of fire fighter accommodation, absence of an available spare appliance bay or the road network making the station unsuitable.
- 16. Both method one and two would see the movement of aerials closer into central London, and as such some areas of outer London would see an increase in the attendance time of an aerial appliance.

### Extended height aerials

- 17. On the 28<sup>th</sup> March 2018, ORH completed a further request for modelling work on three extended height aerials across London. This was set against our current aerial stations, building height and optimal locations based on previous incidents ("got to work").
- 18. The report concluded that three extended height aerials based at three existing aerials stations could provide an average response time across London of 18:29. This is for buildings of 32m and above in height and the three station are Dagenham, Old Kent Road and Wimbledon. This time is just for buildings over 32m and as these aerials would still be mobilised as part of the 'closest available appliance principle', this time should not be taken in complete isolation.
- 19. The report demonstrated that an average response time across London of 10:37 (Method 2) and 10:49 (Method 1) for buildings over 32m in height could be achieved if we moved some of the

aerial appliance stations. However, within these methods, there are several stations which would not be able to accommodate any form of aerial appliance. Furthermore, even where stations could be amended to accommodate an aerial appliance, the time it could take to undertake the property works at the stations could further impact on the time when the extended height aerials would enter service. This would also require sufficient funding to be agreed to cover the costs of the works to the property.

### Analysis and recommendations

- 20. The current locations provide on average, the fastest response time to incidents in which aerial appliances have been used.
- 21. In England, the LFB has the greatest number of aerial appliances. There are 15 aerial appliances in total. 11 are at stations and 4 are spare appliances used in the event of any of the stations' appliances being out of action (e.g. due to servicing and maintenance or vehicle fault).
- 22. Additionally, the LFB are replacing our aerial fleet with traditional standard aerial appliances and not combined aerial rescue pumps (CARPS). Although CARPS meet the technical criteria of an aerial appliance, these would not be sufficient for the needs of London. This is due to the height of the ladder on CARPS, the crewing model used for CARPS and reviewing the lessons learned by other FRS within the UK.
- 23. The LFB, with 11 aerial appliances at the current locations would still provide the fastest average response time for aerial appliances to all incidents out of all of the metropolitan fire services of the UK.
- 24. Keeping the aerials at existing locations also aligns with the Brigade's equity of cover principle; providing the fairest approach to the distribution of aerial appliances. Our current aerial locations provide a below ten-minute average attendance time across London for previous incidents and for buildings of 18m and over.
- 25. The option of remaining at our existing locations has little or no impact to fire fighters in terms of their welfare, as no staff moves will be necessary. Additionally, the accommodation for staff at the existing aerial locations is sufficient. Officers in Property have stated that the building works for moving an aerial appliance could amount to hundreds of thousands pounds for each site, depending on the current facilities at any proposed new station.
- 26. It is also recommend that three extended height aerials be considered as sufficient for the Brigade's needs, this is based on:
  - the strategic location of three extended height aerials across London would be sufficient to meet the demand. Restrictions regarding the built environment of London means that more than three extended height aerials could negatively impact on the overall average aerial response time ;
  - extended height aerials being mobilised as either the closest available aerial appliance or on request as an extend height aerial; and
  - the increased costs of the extended height aerials, in addition to the increase in costs associated within training and possible building works to stations. Officers have already raised this in the aerial replacement project board and to the LFC regarding the increased costs.

- 27. Based on further modelling work completed by ORH, it is recommended that the aerial locations remain the same and the three extended height aerials be located at Dagenham, Old Kent Road and Wimbledon. This broadly provides an extended height aerial either side of London (North and South of the Thames) and one centrally located at Old Kent Road. This provides a below-ten minute average attendance time across London (based on historic incidents) for buildings of 18m and a below twenty minute average response time for buildings over 32m.
- 28. In light of the average attendance times based on historic data, there seems little to be gained from setting an attendance standard. There is a good overall response time to incidents for aerial appliances and current performance does not represent a concern. Additionally no other specialist appliance has an attendance standard in place, and so setting one for an aerial would set a precedent. It is also possible that setting an attendance standard in the current environment may be seen as a reactionary measure.
- 29. While there has been considerable political interest in high rise buildings after the fire at Grenfell Tower, incident data shows that there is little evidence to demonstrate there is a greater risk of fire in high rise buildings over other domestic properties, and focus should remain on the prevention of fire. Over time, the number and location of high rise buildings will change; if we change our current aerial locations to optimal locations against these building types, this will require continuous review and alteration in the future.
- 30. As part of the aerial appliance review, we have also looked at the officer requirements for aerial appliances in line with LSP 2017. Following consultation, firefighters at aerial appliance stations, senior officers and representative bodies have put forward the view that aerial appliances should have an officer in charge and not just be crewed by two fire fighters. Therefore, it is recommended that the minimum role of the officer in charge of the aerial appliance should be a crew manager which is in line with other specialist appliances that are not single crewed. This is in line with how aerial appliances are currently crewed.

### Training

- 31. The overall training costs for fire fighters in the use of aerial appliances is estimated at £37,960 per annum. This includes the additional training costs required for the extended height appliances.
- 32. The acquisition training for extended height aerial appliances is estimated to be £7,920. This is based on 12 training units (£660) per two delegates, with two skilled fire fighters per watch.
- 33. This will need to be reflected on the Statement of Training Requirement (SOTR) moving forward.

### **Finance comments**

34. This report presents a review of aerial appliances and locations. Aerial appliances are currently being procured as part of the Vehicle and Equipment contract and these costs reported as part of the budget process and Financial Position reports. The report notes that there are both acquisition and ongoing training costs for the use of aerial appliances. These costs will be contained within the training contract budget, which includes a supplementation for additional resourcing requirements following the incidents in 2017.

### Workforce comments

35. As the report is not recommending any changes to the current aerial locations, and that an attendance standard is not set for aerial appliances, with aerial appliances continuing to be mobilised based on the principle of the closest available appliance, there will be no requirement

for industrial relations consultation on these issues. Any discussion with the trade unions on new kit, and new training requirements, takes place in the health and safety arena.

# Legal comments

- 36. 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.
- 37. 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").
- 38. Paragraph (b) of Part 1 of the said direction requires the Commissioner to seek the prior approval of the Mayor before "[b] Approval of the final proposed text of the draft London Safety Plan (or any revision of it) for the purposes of sending it to the Assembly under section 327G(2) of the GLA Act 1999".
- 39. The London Safety Plan 2017 committed the Brigade to review the optimum location for aerial appliances, and whether or not aerials should be included within the Brigade's initial attendance standard. The review has taken place, and the Brigade's duty has been discharged, and as no change is proposed to the London Safety Plan 2017, the Mayor's approval will not be required.
- 40. 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.

### Sustainability implications

- 41. One of our principles is to ensure that sustainability runs through all our activities. Our appliances are a public facing image of the LFB and as such Eco-Efficiency will need to be factored into the appliances. Furthermore, the community safety priorities, focus on reducing the number of attendances at incidents, together with the review of how we use certain vehicles will reduce the risks arising from unnecessary vehicle movements and our carbon footprint.
- 42. Sustainability analysis also forms a key strand of the development of our London Safety Plan. This paper has been evaluated through the sustainable development impact assessment process
- 43. The proposals outlined in this report focus on achieving a fast response times for aerial appliances across London, which can be expected to deliver the lowest levels of mileage for these vehicles. This is based on the data from previous incidents and as such should produce the lowest level of emissions of air pollutants and carbon. This can also be expected to deliver the best outcomes in terms of delivering an efficient and effective response, further limiting the potential impact of the indirect sustainability implications associated with fires.

### **Equalities implications**

- 44. The Public Sector Equality Duty applies to the London Fire Brigade when it makes decisions. The duty requires us to have regard to the need to:
  - a) 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.

- b) Advance equality of opportunity between people who share a protected characteristic and those who do not.
- c) Foster good relations between people who share a protected characteristic and those who do not including tackling prejudice and promoting understanding.
- 45. The protected characteristics are age, disability, gender reassignment, pregnancy and maternity, marriage and civil partnership, race, religion or belief, gender, 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).
- 46. The London Safety Plan sets out how the London Fire Brigade intends to use the resources allocated to it, with regard to the three aims of Prevention and Protection, Response and Resilience, and People And Resources. The five principles provide the underlying values by which these aims are to be delivered. The recommendations within this report do not impact on our aims or principles.
- 47. The equality impact assessment indicates that the proposals in this report will not have a disproportionately adverse effect on any persons with a particular characteristic.

# List of Appendices

Appendix	Title	Protective Marking
	NONE	

### Consultation

[Note: this section is for internal reference only – consultation information for public consideration should be included within the body of the report]

Name/role	Method consulted
David Wyatt, Information Management	Meetings and Emails
Bob Whitmore, Fleet & Equipment	Meetings and Emails
SM Gary Woulds, Operational Policy	Meeting and Email
SM Chris Layton, Central Operations	Email
Deputy Commissioner Safety and Assurance Steve Apter	Directorate Board - 2.10.18
Gareth Beeton Fire Brigades Union	Meeting and Email
Deputy Commissioner Operations Tom George	Directorate Board - 23.10.18
Deputy Commissioner Safety and Assurance Steve Apter	Directorate Board - 27.11.18