

Grenfell Tower Improvement Progress

Assistant Commissioner – GTIRT

OFFICIAL

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Contents

Introduction.....	3
Purpose of report	3
Internal Safety and Learning Investigation	4
Progress of investigation	4
Governance of Grenfell Tower related improvements	6
Operational Improvement Process.....	6
Grenfell Tower Improvement Board.....	9
Improvement drivers	11
Organisational Learning Log	12
GTIRT Preliminary Report	13
Progress on improvements	14
Theme 1 – Observed failures of the building and its fire safety measures.....	15
Theme 2 – Operational Pre-Planning	20
Theme 3 – Command and Control	23
Theme 4 – Operations	31
Theme 5 – Brigade Control.....	37
Theme 6 – Communications.....	40
Theme 7 – Operational Equipment.....	43
Conclusion.....	45
Appendices.....	47

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Introduction

- 1 The fire at Grenfell Tower on 14 June 2017 took the lives of 71 people, with a further fatality on 29 January 2018, and left hundreds more with both physical and psychological injuries. Whilst fire and rescue services are trained to respond to fires in residential high rise buildings, the incident on the 14 June 2017 was of a scale and rapidity that was exceptional; preceded and precipitated by an apparent complete failure of the building's fire safety measures to perform effectively. Those failures created a set of conditions not previously experienced by the Brigade and provided a unique challenge for the Brigade and its partner emergency services who responded on the night.
- 2 The office of the London Fire Commissioner ['LFC'] has a statutory duty to review the performance of the organisation and ensure all learning from incidents is identified, disseminated, and acted upon where appropriate.
- 3 Like all incidents, large and small, there will be learning to be identified and it is acknowledged that any lessons to be learned and any good practice identified will undoubtedly apply not just to the London Fire Brigade, but nationally and possibly internationally.

Purpose of report

- 4 This report has been written in response to a request from the LFC to the Assistant Commissioner – Grenfell Tower Investigation and Review Team ['AC GTIRT'] for a detailed update on the progress of improvement activities being undertaken by the Brigade in response to the learning identified to-date from investigations into the Grenfell Tower fire.
- 5 It will provide a follow up to the preliminary report presented to the LFC on 2 April 2019 by the AC GTIRT.
- 6 The preliminary report provided a number of observations arising from the Grenfell Tower Inquiry ['the Inquiry'] Phase 1 evidence and a number of recommendations to the Brigade suggesting it consider various areas of policy, procedure and training. The preliminary report also provided information on the various improvements, related to the observations, which were already underway or completed at the time the preliminary report was presented.

7 This update report will also provide a summary on the current progress of the Brigade's internal safety and learning investigation, the improvement activities arising from this organisational learning and the governance arrangements for delivering the necessary improvements.

8 Reporting on current improvement activity is categorised into the themes used in the preliminary report and the Organisational Learning Log ['OLL'].

Internal Safety and Learning Investigation

9 Such was the scale of the incident at Grenfell Tower, a dedicated team within the Brigade, the Grenfell Tower Investigation and Review Team ['GTIRT'], was established to understand the circumstances of the incident and what happened on the night, identify lessons to be learnt, and when all the evidence is available, provide an unfettered and comprehensive evaluation of the Brigade's response to this unprecedented incident.

10 This investigation has and will continue to work alongside the statutory processes being undertaken by the Grenfell Tower Inquiry and Metropolitan Police Service ['MPS'], whilst acknowledging the primacy of those processes.

11 In order to meet its statutory duties under Health and Safety legislation, the Brigade investigates all accidents and near misses (collectively known as safety events) and this duty is being fulfilled through Senior Accident Investigation No. 287 ['SAI 287'].

Progress of investigation

12 The GTIRT investigation has built a comprehensive understanding from the evidence available up to 08:11 hours and this has been presented in two factual narratives.

13 The first, the Operational Response Report Volume 1 ['ORR Vol 1'] provides a minute by minute account of the incident from the time the fire was first discovered around 00:50hrs to 08:11hrs, the time the last survivor was rescued from the building.

14 The second, the Actions by Brigade Control Report ['Control Report'] provides a minute by minute account of the actions in Brigade Control from the time the first call was received from Grenfell Tower to 08:00hrs. It also provides information on how Control operates and delivers its statutory functions.

15 A further factual narrative will be produced in the future, titled Operational Response Report Volume 2 ['ORR Vol 2'], which will cover the period from 08:11hrs onwards. A review of the available evidence is ongoing and has, at the time of writing, been reviewed up to 13:00hrs on 14 June 2017. The LFC is asked to note that the evidence available after 11:00hrs begins to become more limited due to the absence of CCTV and other visual imagery and therefore ORR Vol 2 is likely to be less detailed than ORR Vol 1.

16 To identify further organisational learning, GTIRT has now commenced its Operational Response Analysis ['the Analysis'] to identify those areas that do not align with the expectations of policy, national guidance and / or training and determine the immediate and underlying reasons for this, to support improvements and / or avoid a reoccurrence. The analysis will also identify those outcomes that did align with the expectations of policy and guidance despite the unprecedented challenges presented by the Grenfell Tower fire. The Analysis will provide the basis and evidence for AC GTIRT's interim and final reports, likely to be published mid-2020 and the latter half of 2021 respectively.

17 Following its examination of the Breathing Apparatus ['BA'] and telemetry data gathered by GTIRT, it has now been possible to identify the composition of all the BA teams deployed into Grenfell Tower. A more detailed analysis of the data, including a comparison of the effectiveness of Standard Duration Breathing Apparatus ['SDBA'] and Extended Duration Breathing Apparatus ['EDBA'] in such circumstances, has now commenced to identify learning that may inform operational procedures and / or the design of BA equipment in the future.

18 A further work stream to support Module 8 of Phase 2 of the Inquiry has also now commenced which will identify the Brigade's actual and attempted interactions, both physical and remote, with the deceased to support its operational learning and support the Inquiry's intention to address the Coroner's inquest requirements. This work is complex in nature and will take a considerable time but will feed into the Analysis and AC GTIRT interim and final reports.

Governance of Grenfell Tower related improvements

19 The scale and wide-ranging nature of Grenfell Tower-related improvements has led the Brigade to utilise a blend of existing and new governance arrangements to organise, prioritise and deliver these improvements and these are identified in the following sections.

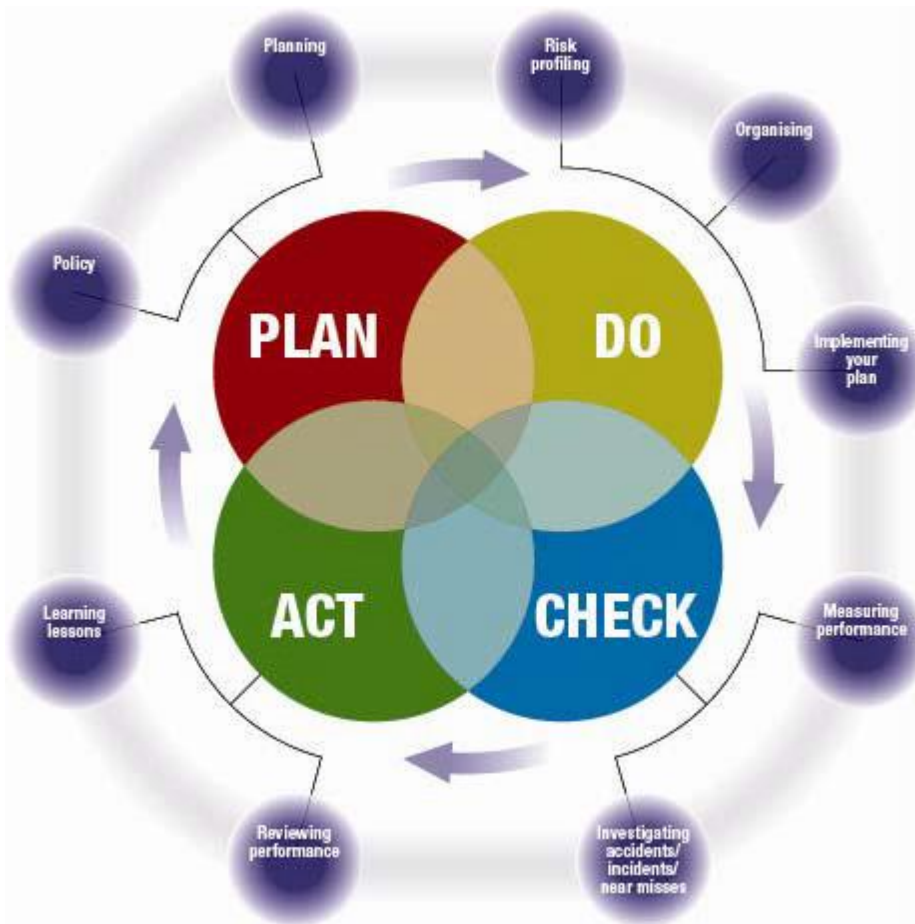
20 As a learning organisation committed to continuous improvement, the Brigade has number of other projects ongoing to deliver improvements to the service it provides to the communities of London, which may in turn contribute to Grenfell Tower-related improvements.

Operational Improvement Process

21 A number of items of organisational learning have been identified during the review of evidence to inform ORR Vol 1 and the Control report and these have been communicated to the responsible departments through the Brigade's business as usual Operational Improvement Process ['OIP'].

22 The OIP is aligned to the requirements of the Health and Safety Executive Guidance 65 ['HSG 65'] – managing for health and safety by ensuring that operational and training performance is measured against planned objectives and performance standards and by identifying and addressing any shortfalls. HSG 65 recommends four steps to successful health and safety management:

- **Plan** – Determine your policy and plan for implementation.
- **Do** – Identify, assess and record risks and controls. Implement control measures.
- **Check** – Measure performance.
- **Act** – Review performance and act on lessons identified.



23 The OIP is governed by the Operational Professionalism Board ['OPB'], chaired by the Deputy Commissioner – Safety and Assurance. The Board receives reports on a quarterly basis with recommendations for operational improvements and will determine if the recommendations are appropriate.

24 The OPB directs work as appropriate to implement any recommendations and to monitor the progress of work undertaken. The Board will consider the effectiveness of actions taken in support of those recommendations to provide assurance to the LFC that operational improvement has been delivered and embedded into the organisation.

25 To assist in the scrutiny of this information a sub-group of OPB, the Operational Improvement Process Oversight Panel ['OIPOP'] chaired by the Assistant Director – Health and Safety, oversees the management of the whole OIP and provides scrutiny of the reports and recommendations to OPB to ensure there is a co-ordinated response to internal and external drivers for operational improvement.

26 The OIP has a database that records the following information:

- Source and date of recommendation
- Actions identified by Brigade to address recommendations
- Dates action is taken and completed
- Regular monitoring updates against actions
- Person/s responsible for the action.

27 Once agreed by OPB a number of interventions can be used to deliver the required operational improvement and the timescales will vary depending on complexity of the identified solution, they can include:

Operational News

28 Operational News is a communication tool (hard copy and electronic) used to specifically communicate key issues and provide articles on new or amended procedures and equipment. The articles are supported with links to existing training material and /or Computer-Based Training ['CBT'] packages known as the training support pack (presented at the rear of Operational News). These are provided to enhance awareness and facilitate maintenance of skills. Any associated training is completed by station-based staff through the Brigade's Development and Maintenance of Operational Professionalism ['DaMOP'] process and recorded in Brigade Diary (formerly known as Station Diary).

29 Once the Board have selected the topics for Operational News, the Incident Command Policy team will manage the development of the publication and inform relevant teams / individuals, who compile the required article for Operational News. Training relevant to each article is mandatory. The training support pack highlights any new or existing training relevant to the articles published in each issue of Operational News for both station-based staff and senior officers.

New and / or amended policy

30 Where an issue identified by OPB requires a change to or the implementation of a new policy, Incident Command Policy and Assurance will inform the relevant team so the risk assessment and operational policy writing process can commence. This procedure may in turn require the author of the policy to initiate the training commissioning and alteration process ['TCAP'] which is managed by the Training and Professional Development ['T & PD'] department.

Big Learning – knowledge centre and computer-based training packages

31 All training support packages can be accessed via the Big Learning application on any Brigade desktop. Big Learning links to all current packages and training materials related to them. Links to training support packs are referenced at the end of Operational News enabling the end user to navigate the training material and find the appropriate training package relevant to the article they have read.

32 Big Learning hosts both extant training notes/packages and bespoke learning packages to support Watch based training that complements the articles presented in Operational News publications.

33 Commissioning departments are responsible for specifying CBT packages through a TCAP. These are designed and developed by the Brigade's training provider and are hosted on Big Learning . CBT packages are used as an additional tool to reinforce training for a number of key subjects determined by OPB and published within Operational News.

Maintenance of skills

34 Once the chosen solutions have been designed and delivered, DaMOP sets out responsibilities for station based staff to maintain their professionalism and competence by continually developing their skills, knowledge and understanding to achieve excellence.

Grenfell Tower Improvement Board

35 The Grenfell Tower Improvement Board ['GTIB'] has been established to provide a formal and scheduled forum for principal officers and other key internal stakeholders to consider and make informed decisions about the organisational learning arising from the Grenfell Tower Inquiry, the MPS investigation ['Operation Northleigh'] and the Brigade's own safety and learning investigation.

36 GTIB is chaired by the LFC and assists in setting the strategic direction of the Brigade in relation to making improvements in the areas of operations, health and safety, policy, training and other issues arising from scrutiny of the Grenfell Tower fire.

37 It does not manage the actual delivery of any strategies and initiatives that are the responsibility of the Brigade's existing governance processes, but will seek assurance that approved improvement actions have been implemented and embedded effectively. This includes seeking assurance that learning already entered into the OIP is being addressed

effectively and may include approving additional resources to deliver an action or, if necessary, prioritising the timing of the development and implementation of actions.

38 The terms of reference agreed by GTIB on 11 July 2019 detail its objectives as:

- Receiving products and recommendations
- Considering those products and recommendations, including any further actions that may be required
- Commissioning work to consider further or develop propositions for implementation of those actions that the Board agrees are required
- Receiving feedback relating to all commissioned work.

39 GTIB has adopted a commissioning methodology to organise, prioritise and deliver improvement opportunities. AC GTIRT will provide inputs arising from the Brigade's internal safety and learning investigation and will be the point of contact for the receipt of products from external sources and responsible for interpreting and presenting a summary of the information to GTIB.

40 The AC GTIRT, with the support of the General Counsel's department ['GCD'], will provide any context related to internal or external products.

41 GTIB will consider the internal and external products disseminated by GTIRT and the context provided to them in determining future actions. As the Brigade has a finite budget and resource capacity it is important that the Board fully consider other non-Grenfell Tower-related activities when making decisions on commissioning and the prioritisation of Grenfell-related improvements.

42 The Board members may choose initially to commission a review or request further information gathering by a thematic Board or Head of Service to inform any final decision on whether to commission an improvement action and / or determine what that action may look like.

43 When GTIB decides to progress an improvement opportunity, the Board commissions activity through the relevant Head of Service who is tasked to provide a summary of the key milestones to deliver the improvement, identify anticipated completion dates for each milestone, identify the risks and dependencies associated with delivering the improvement activity, and identify additional resources that may be required.

44 GTIB monitors the key milestones at a strategic level but more detailed monitoring of the actions that sit behind the milestones are monitored by the relevant thematic board, such as OPB or the Strategic Training Oversight Board ['STOB'], and reported to GTIB periodically.

45 At the time of writing, GTIB has instigated five commissions to deliver improvements in the following areas:

- Commission 1 – To publish information detailing the hazards and associated control measures relating to rapid fire spread in residential high rise buildings
- Commission 2 – To identify the initial costings and considerations including risks and dependencies for training related to Grenfell Tower improvements
- Commission 3 – To identify the proposed scope, milestones, risks and dependencies for improvements in response to organisational learning related to Brigade Control
- Commission 4 – The Assistant Director, Health and Safety to identify the proposed scope, milestones, risks, dependencies and lead departments for improvements related to the impact of the human factors identified as present at the Grenfell Tower fire
- Commission 5 – The Assistant Director, People Services to provide an initial response to the recommendations contained within the independent report, completed by Dr Noreen Tehrani, into the counselling support subsequent to the Grenfell Tower fire.

46 Further details on these commissioned improvement activities are provided in subsequent sections of this report.

Improvement drivers

47 At the time of writing the Inquiry has not published its Interim Report or any urgent recommendations so the Brigade's improvement activities are based predominately on two internal sources, the OLL which records learning identified during the review of evidence to inform the ORR Vol 1, and the GTIRT Preliminary Report, dated 2 April 2019, presented to the Commissioner's Board following the conclusion of the Inquiry's Phase 1 hearings.

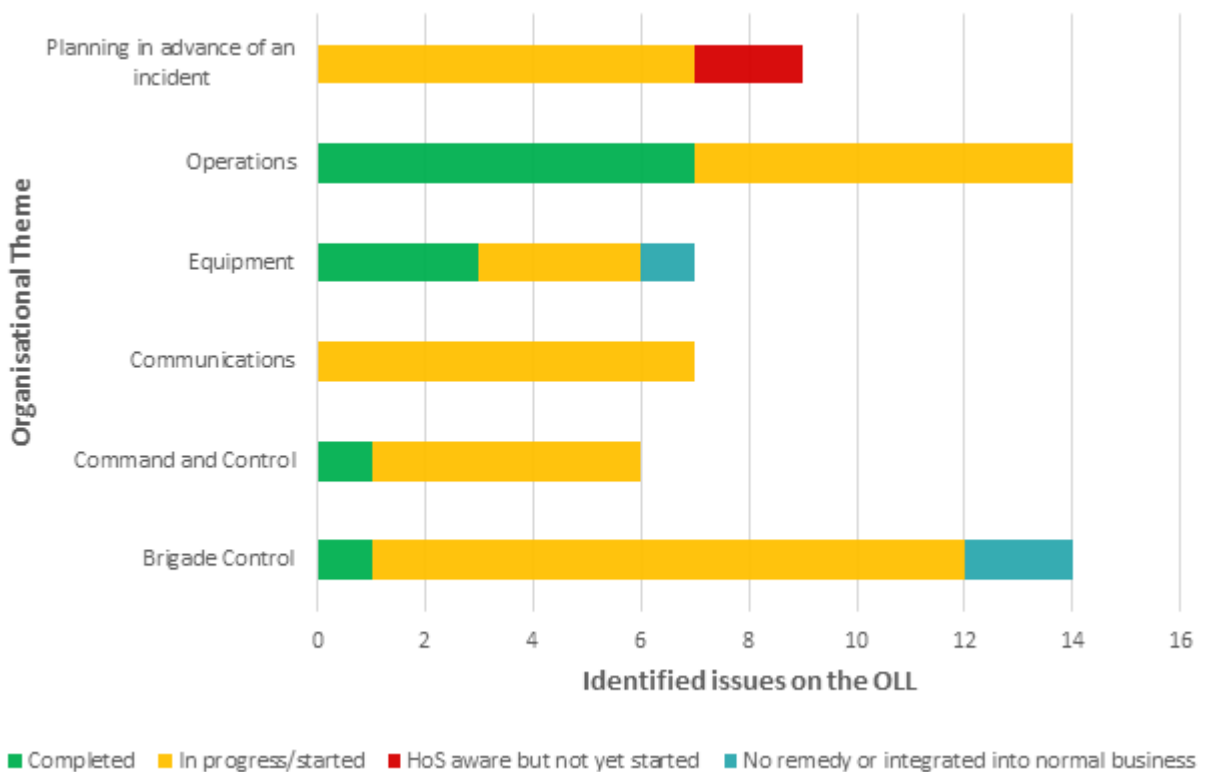
48 Further detail on both sources of information are provided in the following sections.

Organisational Learning Log

49 Specific items of learning identified during the production of the two factual narratives have been recorded in an organisational learning log, maintained by the GTIRT. There are currently 57 items of learning recorded and these are broken down into six organisational themes; Brigade Control, Command and Control, Communications, Equipment, Operations and Pre-planning.

50 The OLL is a live document, which records organisational learning arising from the Grenfell Tower investigation. It is also used by GTIRT to monitor the progress of actions to address the organisational learning to ensure there is no duplication of issues communicated into the OIP. A summary of the progress of those items of organisational learning is provided below.

51 Each of the 57 identified issues on the OLL has been detailed on a single pro-forma that have been uploaded onto the OIP database, the net result of this has actually created 64 individual issues, the reason for this was that the BA issues were amalgamated into one issue on the OLL but subsequently separated onto individual pro-formas. Two of the issues don't appear in the OIP as there was no requirement for them to go to the OIPOP.



The two issues that have not yet been started are;

- Options for transporting Relief Crews to and from incidents (OPA)
- The inability to identify individual firefighters and officers on the incident ground (Technical and Commercial)

52 GTIB monitors the progress of actions to address items recorded in the OLL through periodic reporting to it by the Chair of OPB. It should be noted that there is some natural duplication of issues captured within the OLL and the commissions instigated by GTIB.

GTIRT Preliminary Report

53 The preliminary report, attached as Annex A, is an output of the Brigade's internal investigation and review, produced following the conclusion of the Inquiry's Phase 1 hearings but was identified as a preliminary output only as there is a need for the Brigade and others to conduct further investigations during Phase 2 of the Inquiry's work, in order to achieve the fullest understanding and enable findings and conclusions to be presented.

54 The report predominantly covered the first seven hours of the incident up to 08:11hrs; the period of life saving activity and the focus of the Inquiry during its Phase 1 proceedings. The report also noted historical actions that were considered relevant or provided context to the actions / decisions taken on the night of the fire. In addition, observations that did not directly relate to the response on the night of the fire, but are relevant when the Brigade is considering improvement measures, were included to support continuous improvement.

55 Forty two key observations were presented in the report and themed into seven areas, broadly aligned to the categories in the OLL, following a review of the evidence held by the Brigade and that provided during the Phase 1 proceedings of the Inquiry. A summary of the key observations is contained in Chapter 4 of the Preliminary Report (pages 94–97 refer).

56 Each key observation is followed by the rationale for its inclusion in the report, together with any context provided by Brigade or national policy positions, together with relevant historical actions.

57 The actions the Brigade had completed or were progressing in response to the learning identified at the time of writing of the report were also presented at the conclusion of each key observation or at the end of the themed section.

58 Thirteen recommendations that pointed to matters that the Brigade may wish to consider following the Phase 1 evidence were also provided to support its decision making. A summary of the recommendations is contained in Chapter 5 of the Preliminary Report (pages 98–99 refer).

Progress on improvements

59 Reporting on the scope and status of the Brigade's improvement activities in response to the current identified learning from the Grenfell Tower fire is presented below in seven categories, aligned to the themes used in the OLL and GTIRT Preliminary Report, to assist in cross-referencing to the contents of those documents.

60 Where relevant, the reporting below notes the various factors that are relevant to and may influence the delivery of improvements. These may include factors such as the need to comply with health and safety legislation, the requirement to consult with Representative Bodies on health and safety and contractual matters, the requirement to comply with procurement law, and lead times for procurement of equipment and vehicles. These factors together with others such as budgetary constraints and the resources required to deliver multiple change initiatives that, on occasion, can lead to the need to prioritise the delivery of improvement actions.

61 The Brigade currently has a number of projects not directly related to Grenfell Tower learning identified within its corporate portfolio although it is recognised that a number may give rise to improvements relevant to Grenfell Tower-related improvement opportunities.

62 This report will not repeat information related to improvement actions already presented in the Preliminary Report; save where there is a relevant progress update relating to those identified actions. The report will focus on new or additional actions that have been instigated or identified since 2 April 2019.

Theme 1 – Observed failures of the building and its fire safety measures

63 High-rise residential buildings such as Grenfell Tower are subject to an extensive regulatory regime that governs the way in which they are designed, constructed and maintained. Fire safety is a crucial element of the building design process that dictates the way in which fire services are expected to carry out fire and rescue operations. Buildings such as Grenfell Tower were expressly designed to contain any fire in its compartment of origin for sufficient time to allow the fire and rescue service to extinguish it before it has the chance to spread. Accordingly, the building design is not intended to facilitate simultaneous evacuation or the mass rescue of all residents, especially at the same time as firefighting. At Grenfell Tower, there was no common fire alarm provided for that purpose, nor is there any regulatory requirement to install one, and the sole means of escape was by way of a single stairwell.

64 The impact of the non-compliant cladding installed on the exterior of Grenfell Tower and the apparent failure of the active and passive fire safety provisions within the building has been well documented by the Inquiry's expert witnesses. Why the building became so vulnerable to events that transpired on the 14 June 2017 is not yet fully understood and is to be fully investigated in Phase 2 of the Inquiry.

65 However, there was sufficient understanding and concern to result in Government instigating an independent review of building regulations and fire safety, headed by Dame Judith Hackitt. The review published an interim report in December 2017 describing how the regulatory regime covering high rise and complex buildings was not fit for purpose. Dame Hackitt's final report, published in July 2018, sets out a proposed new regulatory framework focussed on creating and maintaining safer buildings.

66 The Brigade continues to work with all stakeholders to identify and deliver improvements to the regulatory regime (Preliminary Report Recommendation 1). The following paragraphs provide a summary of the Brigade's support for the Hackitt review and the Ministry of Housing, Communities and Local Government ['MHCLG'] building safety programme.

67 The Brigade believes Dame Judith Hackitt's Independent review of building regulations and fire safety ['the Independent Review'] report was a positive first step towards a system which puts public safety first and which provides a framework for

meaningful reform. In its consultation response to the Government's response to the Independent Review, the Brigade says that the proposals for reform are a start, but much more detail is needed before we are satisfied that the necessary fundamental changes have been delivered. The Brigade continue to support improvement work in the following areas:

- Parameters and principles of a new regulatory framework
- Design, construction and refurbishment
- Occupation and maintenance
- Residents' voice – increasing the role of residents through fire safety engagement and training.
- Competence of fire risk assessors
- Guidance and monitoring to support building safety
- A review of the testing regime for compliance of products used during the building process

68 Brigade officers are supporting the building safety programme by ensuring that MHCLG and the Home Office are informed and updated on any new developments as a result of our ongoing inspection plan or any significant fires which may be relevant to matters being considered by the Expert Panel / MHCLG. Officers continue to provide technical fire service expertise to the Building Regulations Advisory Committee through their workshops focussed around the review of Approved Document B.

69 Brigade officers seconded to the National Fire Chiefs Council ['NFCC'] are leading the national response to key consultations to ensure that any new regime improves the current system whilst ensuring that it is suitable and practical.

70 In the week after the Grenfell Tower fire, the Brigade's Fire Safety ['FS'] department established a High Rise Task Force ['HRTF'] to review the risks associated with high-rise residential buildings within the Brigade's area. To date this team has conducted in excess of 1,500 activities for high-rise related work, including providing reassurance at residents meetings, co-ordinated visits with fire station based staff and the completion of 1,238 visits to high-rise residential buildings. These visits include second visits to buildings where Aluminium Composite Material ['ACM'] cladding material has been identified.

71 The HRTF audits were thorough inspections of the relevant (non-domestic) parts of premises and the management arrangements. HRTF audits incorporated sample intrusive audits and sought to establish so far as possible that compartmentation was not compromised. Emphasis was placed, for example, on understanding how building services enter and leave service risers and individual dwellings, which in turn required access into ducts and voids, and above false ceilings. Fire doors were subject to higher sampling rates and checks were carried out on the operation of firefighting lifts and ventilation systems and on the availability of other firefighting facilities.

72 Since the Grenfell Tower fire, the Brigade's officers have also consistently engaged with local councils via the London Councils Fire Safety Group forum. This has enabled the Brigade to share information, advice and good practice on a range of issues such as ACM cladding, fire doors and building fire safety. This engagement has enabled a consistent fire safety message and helped to maintain links between local councils and the Brigade's Fire Safety teams and Borough Commanders. The relationship between the Housing Act, the Housing Health and Safety Rating System ['HHSRS'] and the Fire Safety Order has also been discussed at this forum, as have topics such as Person Centred Fire Risk Assessments and Personal Emergency Evacuation Plans.

73 A number of additional FS posts have been established as a result of the funding secured from the Mayor of London, following the Grenfell Tower fire, to enhance the Brigade's audit regime. This has included development officers, quality assurance officers and the re-engagement, on a temporary basis, of previously retired Fire Safety Investigation Officers ['FSIOs'] to create a new 'Specific Projects Group'. This new group was tasked to focus on high-risk property types and complete a more intrusive audit as a result of the learning from the HRTF inspections.

74 Training of all station-based staff has begun, allowing them to integrate fire safety work into their core operational work. Babcock Training Services are delivering a half day briefing on fire safety in high-rise premises including elements of construction, compartmentation, firefighting facilities, evacuation strategies and ventilation systems. A computer-based training package and one day face-to-face training session covering fire safety in commercial premises is scheduled to take place in the financial year 20/21. It is anticipated that additional modules for other types of premises will be added following the initial training being embedded. Although this training will focus on specific premises types

there is generic fire safety knowledge throughout which will support crews in fire safety and firefighting tactics in all types of premises with the outcome of improving public and firefighter safety. The Brigade are exploring the introduction of fire safety during the Firefighter Development programme in the form of pre-course learning, initial development training and post-development training workshops.

75 The Brigade has, as previously reported, provided significant input into the NFCC publication '*Guidance: To support a temporary change to simultaneous evacuation strategy in purpose-built blocks of flats*' (1 May 2018). This guidance was published in May 2018 and superseded an earlier version published in October 2017. The guidance is for owners and persons / organisations responsible for buildings where a 'stay put' strategy was part of the original design, but is no longer considered appropriate owing to significant risk issues such as combustible external facades, specifically those fitted with ACM cladding. Following the publication of the NFCC guidance the Brigade has adopted a proactive approach to ensuring the Responsible Person complies with the guidance, by completing inspections and repeat visits as necessary.

76 However, the Brigade and the NFCC are of a shared view that the measures contained with the aforementioned guidance must not be seen as a long-term solution for 'at risk' buildings and do not negate the need for urgent remediation of the building by Responsible Persons.

77 On 5 July 2019, the LFC and the NFCC sent a joint letter to the MHCLG and to the Home Office setting out their joint concerns at the slow pace of change to improve building safety in high rise residential premises following the Grenfell Tower fire. Within that letter it is stated:

"We must reiterate our professional opinion, that if buildings are not designed, constructed and maintained in a safe condition, fire and rescue services cannot accurately predict the development or lessen the impact of a fire in circumstances similar to those at Grenfell Tower fire. This leads to the very real risk of another incident involving a similarly large loss of life."

78 The letter also addressed concerns about the arrangements for 'waking watches' being in place in some buildings for over two years and cautioned the Government against them being regarded as a long-term solution for buildings that were deemed to be 'at risk'. The letter points to the expectation that when developing the NFCC guidance those

responsible for the buildings would remove the non-compliant cladding as soon as possible.

The letter states:

"The only wholly effective means to reduce the risk to residents, is the remediation of the building and responsible persons maintaining the active and passive fire safety measures in the building adequately."

79 The letter also stresses and reinforces the fire sector's professional view that the use of automatic fire suppression systems (for example sprinklers) in buildings should be expanded, building on the longstanding, proactive campaigning by the Brigade and the wider fire sector, for example during National Sprinkler Week in May 2019 (Preliminary Report Recommendation 2).

80 The NFCC has subsequently written again to Government in regard to the fire and rescue sector's inability to identify clear and evidenced guidance on how an Incident Commander should manage the change from a building's 'stay put' strategy to an emergency evacuation or mass rescue in a residential high rise building where compartmentation is failing and a simultaneous evacuation has not been undertaken prior to the arrival of first responders.

81 The sector, including the Brigade recognises that any guidance would need to reflect that fire and rescue services cannot communicate with every individual, cannot readily check whether everyone has left their flat and the building without placing firefighters at significant risk; and will be dealing with both firefighting activity, to protect access and egress routes, and mass emergency evacuation via a means of escape not designed to facilitate the immediate evacuation of all residents.

82 The NFCC has proposed that Government establish a proper research programme to address the issues described above. It is suggested that the programme involves the fire sector, the Local Government Association ['LGA'], industry experts and the Health and Safety Executive. The Brigade, given the complexity of the built environment it operates within, fully supports the establishment of such a research programme and will utilise the operational learning identified from the Grenfell Tower fire to support it.

83 The Brigade has already contributed significantly to the revisions to National Operational Guidance to reflect the potential for unexpected compartment breach and unusual or rapid fire spread using its operational learning from the Grenfell Tower fire. It is

anticipated that the Brigade will be a significant contributor to any evacuation research programme, reflecting the high proportion of residential high-rise buildings located in London.

Theme 2 – Operational Pre-Planning

Operational Risk Information

84 The Brigade has recognised that improvements need to be made in the way it gathers, records and disseminates operational risk information and assures the accuracy of that information (GTIRT Preliminary Report Observations 2.2 and 2.3 refers). It noted the evidence in Phase 1 of the Inquiry and the observations contained in the GTIRT Preliminary Report that there was an inconsistent level of understanding of 7(2)d visits amongst staff and that relevant policies and training packages were inconsistent in the guidance provided (Observation 2.5 and Recommendation 3 refers).

85 The Preliminary Report also noted that the Inquiry heard evidence at Phase 1 that the Brigade was fixed with information about the potential hazard of rapid external fire spread in high-rise buildings but this had not been shared organisationally (Observation 2.1 refers). It was also noted the Lakanal House Incident Assurance Review report, appended as Appendix D to the Preliminary Report, found that the Brigade had not fulfilled its intention to undertake premises risk assessments on all residential high-rise premises

86 These issues are all now elements of a new corporate project, involving a number of departments, known as the Operational Risk Information ['ORI'] project, which commenced in April 2018.

87 In advance of the ORI project, the Brigade used its Operational News 34 publication, issued in February 2018, to provide guidance to operational staff to support the effective identification and recording of operational risk information on buildings identified with ACM cladding systems that have failed combustibility tests and do not meet the requirements of building regulations.

88 The ORI project is reviewing and, where necessary will improve the system for the gathering, recording and dissemination of operational risk information. The objectives for the project are identified as:

- Review and rationalise current risk information systems to evaluate the current entries and carry out the necessary interventions to increase the underpinning knowledge and understanding of staff with these systems;
- To create a policy that encompasses understanding and identifying risk and provides a uniform approach to gathering, recording, prioritising and sharing of operational risk information;
- The relevant risk information will be easily available to the right people at the right time in a form that is easy to understand and use;
- Staff will have a better understanding of their role whilst assessing risks with regards to reducing the risks to firefighters and the risks to the public;
- To ensure staff have a better knowledge and understanding of risk and their responsibilities of ensuring the data collected and entered is relevant and accurate.

89 The project is also:

- Co-ordinating the review of the Brigade's policy for the 'Management of Operational Risk Information' ['PN 800'];
- Ensuring that any changes are integrated with the outcomes from the 'Fire Safety Checks' initiative;
- Identifying and planning for any new training requirements; and
- Ensuring that any system related implications are integrated into the current and planned Brigade IT upgrade programmes.

90 The outcomes of the ORI review and any resulting enhanced workflows will be pivotal to the design principles of the next phase of data system refreshes. The Brigade has committed to developing a data infrastructure that will streamline the sharing of critical risk information across the various strands of the organisation, so that operational crews and FSIOs will naturally achieve a shared view of the risks across London (Preliminary Report Recommendation 4).

91 The proposal for a 'One Risk' solution for building risk information to replace the existing fire safety systems (Farynor, HFSV), the Operational Risk Database ['ORD'] and other smaller systems was approved by Commissioner's Board on 31 July 2019. As a minimum, the 'One Risk' solution will hold data related to:

Operational risk

- Station based 72d visits,
- Electronic Premises Information Plate [‘ePIP’],
- Premises Risk Assessment [‘PRA’] outcomes,
- Residential high rise visits (effectively targeted 72d visit)
- Contingency plan

Regulatory fire safety

- Audits
- Enforcement actions
- Consultations, including building control
- Petroleum
- Fire engineering
- Sub-surface railways

Community safety

- Home fire safety visits
- Safe and well visits

92 The ‘One Risk’ solution will also seek to identify and include external data to provide the Brigade with a richer picture of a building’s risk profile. This external data may also assist the Brigade in identifying buildings we should know about but currently do not.

93 The anticipated completion date for the ‘One Risk’ solution is estimated as the end of the 2023/24 financial period and it is proposed to transfer funding previously agreed for other individual IT refreshes, for example Farynor, etc., to this new initiative.

94 At the beginning of the ORI project the following areas were identified as priorities:

- i. Ensuring every residential high-rise premises has an ePIP and, where applicable, a Tactical Plan.
- ii. Reviewing the current PRA and ORD entries to ensure the information recorded is correct, relevant and fit for purpose.
- iii. Rewriting PN800 with the longer term aim of providing a smarter way of inputting information using the forthcoming ‘Appliance Workload App’ with additional support to staff completing the PRA and ORD processes.

95 At the commencement of the project April 2019, the Brigade's iMapping software identified 5822 residential high rise premises of which 1893 had ePIPs equating to 32.5% of the total number identified and 2218 had PRAs completed, equating to 38% of the total. Exemplars of three different ORD entries were communicated to stations and Borough Commanders by the Central Operations team to enhance the completion and accuracy of PRAs.

96 At the end of August 2019 the completion rate had increased to 2308 residential high-rise premises with ePIPs (39.6%) and 2660 with PRAs (45%), a 7.1% and 7% increase respectively. Progress will continue to be monitored by the project team.

97 All Boroughs have provided a projection of when they anticipate all residential high-rise premises (>18 m or >5 floors) within their boundaries (as identified on iMapping) will have a PRA, ePIP provided and, if required, a Tactical Plan recorded on ORD. It is anticipated that this work, Brigade wide, will be completed by the end of February 2021.

98 All stations have confirmed their review of existing ORD entries, as identified in para 94 (ii), has been completed.

99 The review of PN 800 and necessary revisions to the PRA process is complex and will take some time to complete. The review of PN 800 and associated policies within the ORI project will inform the gathering, recording and dissemination of operational risk information and the focus and format of 7.2(d) visits undertaken by station based staff. Once complete, station based staff will receive training on any changes implemented as a result of the ORI project outcomes (Preliminary Report Recommendation 3).

Theme 3 – Command and Control

Human Factors

100 The Preliminary Report identified in Observation 3.1 that the scale and rapidity of the Grenfell Tower fire, combined with human factors such as acute stress, impacted on the ability of responders to maintain situational awareness.

101 This work is necessarily broad in scope and naturally complex because of the variability of individual human behaviours. As such, the work is broken down into elements to be delivered by three Heads of Service.

102 The Assistant Director – People Services will consider recruitment and selection processes to identify factors that may improve or enhance health and safety, e.g. personal resilience, emotional intelligence, decision-making ability, and the ability to provide clear and effective instruction.

103 The Assistant Commissioner – Operational Policy and Assurance will consider the design and format of operational policy / procedures and assess the extant suite of policies to ensure they adequately cover the concepts of risk perception, risk appetite, personal responsibility and the moral imperative. The work will also include a training gap analysis for staff who draft, edit and authorise operational policy and procedures to ensure they have the necessary knowledge to draft policies and procedures that present clear and unambiguous safe systems of work. In addition, the current operational assurance processes will be reviewed to ensure they adequately address the observation and recording of safety behaviours and behavioural performance so this can be included and considered as part of the operational improvement process.

104 Assistant Director – Training and Professional Development will undertake a confirmation exercise to assess to what extent the principles of operational competence by rank / role are delivered within the Brigade's existing suite of training solutions. In addition the exercise will assess to what extent risk perception and personal responsibility is embedded within the Brigade's training provision.

Incident Command

105 The Brigade has an established portfolio of training for Level 1 and Level 2 incident commanders that includes development and maintenance of skills training. A number of CBT packages are also available on 'Big Learning' to support maintenance of competence.

106 To support officers to deliver safe and effective incident command at incidents, the current Level 1 and Level 2 incident command training courses are being reviewed to ensure all relevant learning from the Grenfell Tower fire is incorporated. This work is expected to be completed by April 2020. A new command team exercise has also been added to the Brigade's training portfolio which addresses high-rise incidents and demonstrates the structures required to manage fire, lobby and search sectors.

107 The Brigade has noted that the provision of training for Level 3 and Level 4 incident commanders is less comprehensive and is in the process of enhancing the training provided for these levels of incident commander.

108 A Level 3 advanced incident command course is currently being developed incorporating the feedback from the six Level 3 incident command confirmation courses delivered in 2018/19 to Deputy Assistant Commissioners ['DAC'] and those Group Managers ['GM'] eligible to undertake duties on the DAC operational rota. This course will be implemented during the financial year 2020/21.

109 The implementation of the Level 3 course will be followed by the introduction of a Level 4 strategic command course to complement the multi-agency strategic courses already attended by Assistant Commissioners ['AC'] and DACs, such as the Multi-Agency Gold Incident Command ['MAGIC'] course, delivered by the College of Policing, and the Chemical, Biological, Radiological and Nuclear ['CBRN'] Strategic Commanders course, delivered by the multi-agency National CBRN Centre.

110 The improvements to incident command training identified above have been prioritised by GTIB within Commission 1 and progress is being monitored through the GTIB governance arrangements.

111 Since the fire, the Brigade has utilised its Operational News publication to reinforce its policies and procedures relating to the delivery of effective incident command. Operational News 36, published in February 2019 reinforced the requirements relating to the provision of effective briefings at incidents and the use of the Decision Making Model ['DMM'] as the framework to construct and deliver those briefings. This edition also reminded operational staff of the criticality of effective communications at incidents, particularly the use of correctly formatted and timely messages to ensure situational awareness amongst those attending or monitoring the incident.

112 Operational News 37, published in August 2019 contained a number of articles relevant to incident command and fires in residential high rise buildings. It reinforced the importance of the role of the Senior Fire Safety Officer within the incident command team to provide advice and assistance to the incident commander to support the development and implementation of an effective tactical plan appropriate to the building.

113 This edition also provided guidance on the application and recording of 'operational discretion' by incident commanders at incidents that are extremely unusual, not reasonably foreseeable and where professional judgement might need to be applied because strictly following an operational procedure would be a barrier to resolving an incident. The article directs staff to undertake mandatory training in relation to the Brigade's 'Recording decisions at incidents' policy ['PN 828'] in response to Preliminary Report Recommendation 7.

114 The guidance related to 'operational discretion' provided in Operational News 37 is particularly pertinent following the Grenfell Tower fire when strict adherence to the Brigade's policies and procedures would have prevented the deployment of firefighters into the building to undertake firefighting and search and rescue, due to the established policy position of not deploying firefighters into fire situations without adequate firefighting media; a circumstance that occurred due to the limited capacity of the dry rising main within the premises.

115 Operational News 37 also addressed the issue of rapid or abnormal fire spread, as experienced at Grenfell Tower, and provides advice and guidance to incident commanders on undertaking emergency evacuation or mass rescue, if the circumstances of the incident dictate such a course of action may be necessary. The guidance is interim, pending the publication of a revised Brigade high-rise firefighting policy ['PN 633'] and any outcomes of evacuation research programme proposed by NFCC to Government last month. The article also provides incident commanders with advice on tackling rapid external fire spread and highlights the hazards and risks present during such operations.

116 Finally, Operational News 37 reinforces to operational staff, including incident commanders, those current agreed procedures for dealing with incidents involving FSG calls. The article provides guidance if the incident involves multiple FSG calls and the actions arising if the incident commander identifies a requirement to undertake a emergency evacuation of the building or a mass rescue operation. This guidance is also interim, pending the publication of a revised FSG policy ['PN 790'] following a number of exercises undertaken by the Brigade to develop and test improvements to FSG procedures.

117 The revisions to the Brigade's high-rise firefighting, fire survival guidance and associated policies and implementation of any required training intervention are captured

within the previously mentioned Commission 1 and progress is being monitored by the GTIB.

Independent Review of Training

118 Following the Grenfell Tower fire and as the Brigade's outsourced training arrangements have been in place for a number of years, the LFC commissioned an independent review of training by Ribband Star Consultancy Limited, which commenced on 25 February 2019. A final report was presented to Commissioner's Board on 9 October 2019, attached as Annex D, and includes a number of observations and recommendations to improve or enhance the provision of training; a number of which relate to incident command training. The report notes that a number of areas identified as improvement opportunities are already being considered or addressed by the Brigade.

119 In relation to incident command training, the report notes that Level 1 and Level 2 commanders receive incident command training from the Brigade's training provider, Babcock Training Limited ['BTL'] using a system known as X-VR to simulate an operational incident. It is reported that this training receives positive feedback from candidates but it has been noted that there can be some delay in delivering the training to newly promoted officers or those acting up into a new role. All individuals acting up into the CM role are risk assessed by their WM to ensure their suitability to undertake the role and this is quality assured by the relevant SM. It has been agreed after a review of the Schedule of Training Requirements (SOTR) that training capacity will be freed up to accommodate additional Level 1 and 2 Incident Command beginning on the 11th November 2019. This schedule will ensure all of those identified as requiring training will attend the required course before the end of the financial year 19/20.

120 The training review also notes that, historically, ad hoc training has been undertaken by the four senior officer operational rota groups, often involving officers coming together during duty weekends to train as a team. Naturally, as senior officers, this training often focusses directly or indirectly on incident command knowledge and skills and is seen as beneficial by the report author. However, the report rightly notes that the training is not centrally co-ordinated, structured, or consistently coordinated and therefore difficult to evidence.

DaMOP

121 The independent training report acknowledges that as part of its improvements to the DaMOP system for station based staff the Brigade has decided to expand the system to include senior officers, which will address the aforementioned point and provide further formality and structure to their maintenance of competence requirements.

122 Phase 1 of the DaMOP project was implemented in July 2019 and provides all station-based staff with a new competency framework that identifies the knowledge and skills required for to maintain their role related competence. This includes incident command skills for Level 1 incident commanders.

123 Phase 2 of the project, which includes the competency framework for senior officers, is due to be implemented in mid-2020. The DaMOP system for senior officers, like the system for station-based staff, is based on the principle of training modules being assigned to an officer's diary. Officers will have access to the relevant training materials to carry out this training and will have the flexibility to complete each module within a specified date range. On completion of each module, the officer's Individual Training Record ['ITR'] will be automatically updated to reflect the progress made and ensure comprehensive and accurate records are available for assurance or external scrutiny purposes.

124 The training review report recommends that the Brigade does not ignore the fact that group training is hugely beneficial and suggests the existing ad hoc group training taking place could be supported by the development of consolidation exercises to compliment the theoretical input covered in the senior officer DaMOP modules. It further suggests the group training could be improved by designating one officer per rota group as a 'Training Lead' to ensure that exercises take place in line with direction set by the Training and Professional Development department. Preliminary discussions have taken place with internal stakeholders around the implementation of "Training Leads" and the possible consolidation of theoretical knowledge and experience in to exercises for senior officers.

Incident Command Revalidation

125 The training review notes, and the Brigade has already acknowledged, the importance of ensuring incident commanders have the time and opportunity to engage in incident command 'practice and development' and the importance for the Brigade to be able to assure incident command competence.

126 The first stage of the Brigade's incident command revalidation project, focussing on Level 1 incident commanders, will be implemented in quarter 4 of 2019/20, and require attendance on a command revalidation course every two years. Revalidation courses for incident command levels 2, 3 and 4 are also under development and will be implemented in the 2020/21 financial year.

127 The process of incident command revalidation will:

- Ensure that consistent standards of maintenance of competence are applied to all incident commanders;
- Provide assurance that officers are performing incident command at the required level;
- Provide an auditable trail of incident command skills and development; and
- Encourage continuous improvement through the provision of professional development opportunities.

128 In preparation for the implementation of the incident command revalidation project, the Brigade launched the 'Incident Command Log' system in June 2019. The electronic system enables senior officers to log the number of hours spent performing an incident command role each month.

129 Officers will be able to log both real life operational incidents and exercise simulations and record the type of role carried out during the event being recorded. In addition, the logs provide a repository for documents relating to other continuous professional development ['CPD'] activities, creating a portfolio of evidence related to command competence.

130 In September 2017, the Brigade and the London region of the Fire Brigades Union reached an agreement to change from a role based to a rank based structure. This agreement brings with it many changes that will impact on all areas of the Brigade, most notably the operational side of the organisation. It will deliver a better station-based structure which ensures more officer availability, better stability of officers on Watches and increased appliance availability at key times during each shift.

131 The implementation of the Brigade's 'Role-to-Rank' ['R2R'] project in October 2019 will deliver access to development and training courses for Level 1 commanders before promotion, mitigating the risk identified in paragraph 119 and ensuring officers are

adequately prepared to take on additional incident command responsibilities or assume them for the first time in their careers.

132 The project outcomes will also provide enhanced incident command training for Leading Firefighters (currently known as Crew Managers) and Station Officers (currently Watch Manager B). Leading Firefighters will be able to attend the Sub-Officer two-day Level 1 incident command booster course to enable acting up into the Sub-Officer rank.

133 The R2R project will also formalise minimum timescales before becoming eligible for promotion to the next rank, requiring Level 1 commanders to undertake nine months in a development phase with 12 months application of knowledge and skills in their substantive rank prior to any further promotion application.

134 The R2R project will also introduce Station Officers, formerly Watch Manager B, undertaking the monitoring officer function at four-pump fires, and consequently reduce the attendance time for a monitoring officer from 17 minutes to six minutes on average for this scale of incident. In addition, a Station Manager will be mobilised to carry out assurance of the incident unless required to undertake the monitoring officer role or take over as the incident commander.

Situational Awareness

135 The Brigade is continuing with its drone trial and its use at a number of recent large incidents has assisted with providing incident commanders with effective situational awareness. In total, the drone capability has been deployed to 85 incidents, at the time of writing, ranging from fires to special service incidents such as floods.

136 At a 25-pump fire in Walthamstow the operations commander used the images to identify where to deploy crews to intercept the fire as it spread through the roof of the shopping centre. It is believed that the information the drone provided along with the resulting tactical plan may have significantly contributed to saving the Asda supermarket. At a 15-pump fire on Westbourne Grove in August 2019 a drone was used extensively to identify fire spread in voids using its thermal imagery camera. The images from the camera enabled officers to identify where to direct jets on the outside of the building as well as priority areas for the on-site 'Cold Cut Cobra' crew to deploy using the cold cutting lance technology.

137 The Brigade is also currently investigating and reviewing the '999 Eye' system, offered by Capita, which provides 'on scene eyes' for Control room staff and other responding or monitoring officers by enabling a caller with a smart phone to stream live footage from the incident direct from their phone's camera to enhance the situational awareness of emergency responders. The system also assists with situational awareness by identifying the callers location through GPS coordinates. The system maintains an open audio link whilst streaming images offering significant insight into a callers situation when receiving fire survival guidance.

138 Adoption of the '999 Eye' system would complement the increased situational awareness already provided in Brigade Control through the installation of the National Police Air Service ['NPAS'] 'heli-tele' downlink facility installed at the Stratford fall back control room following the Grenfell Tower fire as part of measures to ensure that the facilities at Stratford replicate those provided at the primary control room at Merton.

139 Brigade Control is also now utilising the 'what3words' application to help pinpoint the location of individuals involved in or reporting incidents, thereby increasing their situational awareness and enabling resources to be mobilised to the correct location.

Theme 4 – Operations

External firefighting

140 As stated in the GTIRT Preliminary Report (paragraphs 210, 211 refers), the Brigade made an interim change to its Pre Determined Attendance ['PDA'] for high-rise buildings on 22 June 2017 in response to the increased risk presented by high-rise buildings identified following the Grenfell Tower fire, particularly those buildings clad in ACM and other materials that fail to meet the requirements of building regulations. This change incorporated an increase to five fire engines, one aerial appliance and the standard officer complement for a five-pump fire to any high-rise fire related incident.

141 The Brigade made a further interim revision on 10 August 2017. From this date when Brigade Control receives multiple calls (four calls or more) to a residential high-rise premise the PDA now includes eight fire engines and one aerial appliance. Where the fire is reported to Brigade Control as involving the outside of a clad building the PDA is further increased to ten fire engines and one aerial appliance (if the aerial appliance has not already been

despatched). When this increase in resources is made, the standard officer complement for an eight and ten-pump fire is also mobilised.

142 The interim changes identified above continue to remain in place as the Brigade considers that the risk related to high-rise buildings and their residents remains significant due to the slow pace of remediation of 'at risk' buildings. The LFC in conjunction with the NFCC have communicated their concerns around the pace of change to improve building safety and the risk presented to residents in a letter to the Secretaries of State for the Home Office and the Ministry of Housing, Communities and Local Government on 5 July 2019.

143 The Preliminary Report also detailed the Brigade's replacement of its aerial appliance fleet and the inclusion of three 64-metre extended height turntable ladders to complement the new state of the art 32-metre articulating head turntable ladders.

144 In December 2018, Commissioner's Board approved a report (LFC-0093) recommending that the 11 aerial appliances locations remained unchanged and approving the inclusion of three extended height appliances to the fleet. The extended height aerials are planned to be located at Dagenham, Old Kent Road and Wimbledon fire stations.

145 The delivery of these new appliances remains on course to begin in January 2020 for the 32-metre variant and July 2020 for the 64-metre model. Once the appliances begin to be received into the Brigade, training on the new vehicles and their enhanced capabilities can commence.

146 In advance of any policy or procedural changes contained within ongoing review of PN 633, the Brigade has provided interim guidance for operational staff on external firefighting in its Operational News 37 publication, issued in August 2019. The article on Rapid or Abnormal Fire Spread provides clarification on the capabilities of existing Brigade equipment that could be utilised to attack any external fire spread and reinforces existing guidance on the hazards present when tackling external fires.

Internal firefighting, search and rescue

147 Observation 4.2 of the Preliminary Report noted that extensive breaches of compartmentation at Grenfell Tower resulted in simultaneous serious fires on multiple floors from the fourth to the 23rd floor. Observation 4.3 noted that the extensive nature of

the compartmentation failure and the resulting fire spread internally was beyond the experience of the Brigade and any other UK fire and rescue service.

148 Recommendation 9 within the Preliminary Report suggests that the Brigade considers to what extent recognition that a building is behaving unpredictably is addressed in policy and training. Since shortly after the Grenfell Tower fire, the Brigade has been reviewing PN 633 and the associated policies and progress is now being monitored by GTIB through Commission 1. The revised PN 633 has been through Heads of Service consultation and is expected to be published in April 2020. A training solution will be developed and implemented to coincide with the publication of the revised PN 633 and associated policies.

149 The Operational News 37 article on Rapid or Abnormal Fire Spread, previously described in paragraph 146 provides interim guidance for operational staff, ahead of the publication of the revised PN 633. It particularly provides advice on actions to be considered if emergency evacuation or mass rescue is to be undertaken, such as methods to alert residents of the need to evacuate, protection of the escape route, the use of Fire Escape Hoods to protect occupants and the use of a systematic approach to clearing the building.

150 The Preliminary Report noted that the Brigade was undertaking research into the practical water pressures and flow rates that can be achieved at the maximum height of dry rising mains, particularly those premises built when dry risers were permissible up to 60 metres. That research has now been completed and demonstrated that whilst there is some loss of capacity, there remains an adequate pressure and volume of water to effectively deploy two main jets in accordance with policy requirements for compartment firefighting up to heights of 60 metres.

151 However, this does not negate the issue arising when situations such as that experienced at Grenfell Tower, when multiple floors were involved in fire, requiring the deployment of more firefighting jets than the capacity of a dry rising main can deliver. The capacity of a dry rising main as articulated in building regulations is predicated on the expectation of a single flat fire.

152 The impact of the compartmentation failures and the resulting fire spread on Grenfell Tower's single means of escape was noted in Observation 4.4 and described the challenging conditions these circumstances created for anyone seeking to evacuate from the building and for the operational crews attempting to effect rescues.

153 Shortly after the Grenfell Tower fire, the Brigade began investigating the use of Fire Escape Hoods to mitigate the risk of smoke inhalation for occupants attempting to escape or being rescued via means of escape that may become or is compromised by the products of combustion. The hoods were introduced in November 2018, following extensive research, and provide up to 15 minutes protection for the wearer from the four main fire gases.

154 The hoods, which are attached to every BA set, have now been used to assist in the rescue of 25 members of the public at the time of writing. The Brigade is now investigating whether additional fire escape hoods could be provided in designated grab packs on frontline appliances and taken into the building by those teams tasked to protect the stairwell to be used on occupants in the event an evacuation was triggered or persons were self evacuating in advance of any formal declaration of emergency evacuation.

Fire Survival Guidance

155 Preliminary Report Observation 4.5 noted that the volume of FSG information significantly exceeded the expectations of Brigade policy and training. The report advised that the Brigade was reviewing its FSG policy ['PN 790'] and this work is continuing and is being monitored by GTIB through Commission 1.

156 Six exercises have been undertaken to test the interface between Control, the Command Unit and the Bridgehead and the transfer of information. The outcomes of the exercises are being evaluated to identify what improvements to extant processes can be made and these will be captured within revisions to PN 790, due to be published in April 2020.

157 It is envisaged that the Brigade's Command Unit replacement project may offer further improvements by utilising new technology. Following a project board in June 2019, the Brigade has decided to separate the procurement of the vehicles and the command support operating software. The Brigade will procure the command support software and this procurement process will commence before the end of 2019 with the contract awarded in 2020. The Brigade's vehicle and equipment partner, Babcock Critical Services Limited ['BCS'] will undertake the procurement of the vehicles. This process commenced in August 2019 and it is anticipated that orders will be placed by April 2020.

158 In advance of the improvements identified above, the Brigade has reinforced the current processes and provided interim advice in Operational News 37, published in August 2019. This article covers maintaining communications with Control to provide timely updates, the use of Control Information Forms to ensure accurate recording and dissemination of FSG information. The article also addresses the actions that operational staff should take if approached with FSG information at the incident ground, an issue described in Observation 4.6 within the Preliminary Report.

159 The Level 1 and 2 Incident Command course portfolio previously referenced in this report now includes an element that reinforces knowledge and understanding of the FSG Coordinator role, and reinforces the relationship between the Search Co-ordinator, Control and the Incident Commander.

160 Observation 4.7 highlighted that a lack of visible markings to identify floors caused difficulties for crews deployed for firefighting, and search and rescue operations. The Brigade and the fire sector is continuing to request that the government address this issue through revisions to building regulations, principally Approved Document B.

Breathing Apparatus

161 The final observation in the 'Operations' section of the Preliminary Report noted that some elements of BA operations were not fully aligned to the Brigade's operational procedures as set out in its operational BA policy ['PN 466'].

162 As previously reported, the Brigades internal investigation team has engaged extensively with the National Operational Learning [NOL] Secretariat to reinforce its own understanding and to support the identification of the degradation factors that may cause existing control measures not to perform as expected. The resulting NOL report containing 42 recommendations, including 29 specifically related to National Operational Guidance for BA have been submitted, considered and approved by NOL User Group ['NOLUG']. Revisions to the National Operational Guidance for BA are expected to be published during October 2019 and will be considered by the Brigade in relation to any necessary changes to PN 466.

163 The Brigade has recently replaced its bi-annual two day BA course and the bi-annual half day confirmation of BA skills course. From April 2019 it has been delivering a new annual two day firefighting course; designed to increase firefighter awareness and

understanding of tactical ventilation, scene survey, weight of attack and the importance of correct BA procedures.

164 The first year of delivery of the course will focus on teaching advanced firefighting skills. In the second year from April 2020, courses will be delivered at venues which will enable staff to practically apply the techniques introduced in the 2019/20 training period.

165 The Level 1 and 2 Incident Command course portfolio previously referenced in this report now includes an element addressing the management of a functional BA sector, including the effective resourcing and management of BA logistics to support the operational requirements of an incident.

166 The NOL report highlighted that many of the control measures that did not perform as expected, did so because of human factors, rather than ineffective guidance, operational policy and procedures. During the barrier failure analysis process and the identification of degradation factors, there was one degradation factor which was more prominent than any other, this being high moral pressure.

167 As previously stated in this report GTIB has commissioned work from three Heads of Service related to human factors and the operational learning identified above will inform that work to reduce the chance of a reoccurrence.

168 The GTIRT analysis of BA and telemetry data continues and a more detailed analysis of the effectiveness of extended duration breathing apparatus ['EDBA'] in a multi-storey high-rise fire has commenced recently. Initial findings, to be verified, suggest that the use of EDBA did not offer significant advantage in terms of working duration compared with standard duration breathing apparatus ['SDBA'] at Grenfell Tower due the additional physiological burden associated with the heavier equipment, which is exacerbated by the action of climbing stairs.

169 This appears to bear out the findings of the Building Disaster Advisory Group research¹ undertaken in 2004 for the Office of the Deputy Prime Minister which concluded the following for the trials involving committing EDBA wearers into high rise buildings:

¹ Physiological Assessment of Firefighting, Search and Rescue in the Built Environment, ODPM, December 2004

"As well as feeling hot and fatigued by the time they reached the 28th floor, the physiological data indicated that the lead team would not be fit to commit to the fire compartment."

170 The outcomes of this analysis will be shared with the NFCC Respiratory Protective Equipment ['RPE'] Group and manufacturers to inform the development of operational procedures and BA equipment in the future.

171 The Brigade's SAI 287 into the safety events at Grenfell Tower is also investigating a number of events related to BA operations including the removal of personal facemasks to provide air to residents seeking to evacuate the building via the compromised stairwell, leading to exposure of the products of combustion.

172 The Brigade has worked extensively with Imperial College to establish an independent long term respiratory health study for staff who attended the Grenfell Tower incident. This study is being funded by the COLT Foundation, has been approved by the NHS Ethics Committee and has the support of the Fire Brigades Union.

173 The study, the largest of its kind to date, into the potential long-term effects of firefighting is due to start this autumn. All staff who attended the fire, will be invited to take part and a control group made up of staff who did not attend the fire will be recruited for comparison purposes. Staff who agree to participate will be invited to attend an appointment at the Royal Brompton Hospital in South Kensington, to take part in a detailed confidential health survey that will include a full check of their heart and lungs. These tests will be far more in-depth than those undertaken during routine periodic medicals.

Theme 5 – Brigade Control

174 As previously noted in paragraph 138 the Brigade has completed actions to upgrade the facilities at Stratford so they replicate those provided in the London Operations Centre at Merton including the installation of an NPAS helicopter downlink receiver and ensuring the electronic Dynamic Cover Tool application is also available at Stratford in response to learning identified from the Grenfell Tower fire.

175 The GTIRT Preliminary Report observed from the Inquiry Phase 1 evidence and its own investigations that Brigade Control and its policies and procedures were overwhelmed by the scale and rapidity of the Grenfell Tower incident. This resulted in FSG information not

always being gathered and shared in accordance with Appendix 3 of the Brigade's Emergency Call Management policy [PN 539] and a loss of situational awareness within the Control room, compounded by a lack of updates from the incident ground.

176 The scale of the Grenfell Tower incident also challenged the existing mutual aid arrangements between fire and rescue service control rooms, leading in an inability to exchange information effectively.

177 The incident also revealed some technical issues not previously encountered by the Brigade including the potential for 'call collection forms' to be overwritten, no automated system to link NICE voice records to Vision call records and system limitations in locating telephone numbers, in the case of a large number of duplicate calls, to enable control operators to re-contact callers.

178 At the beginning of July 2019 the Brigade restructured the management of Brigade Control, removing the Principal Operations Manager role and appointing a new Assistant Commissioner [AC] to head its Control and Mobilising function and provide a greater level of operational understanding within the senior management team.

179 The new AC is in the process of developing a Brigade Control Improvement Plan to deliver more effective leadership, robust governance and performance management, a culture of excellence and new training and competency framework with the overarching aim of producing an effective and high performing Control and Mobilising department which serves as an exemplar across the fire and rescue service.

180 Many of the structural and cultural improvements identified as required are inextricably linked to the operational learning related to the Grenfell Tower fire, in particular the issues around training and competency and the need for the Control and Mobilising function to be more closely aligned to the corporate centre of the Brigade, rather than separate and distinct as it has become over time.

181 Whilst the Control Improvement Plan will deliver genuine change and improvement over the medium and longer term, GTIB has prioritised a number of Control-related issues arising from the Grenfell Tower fire operational learning and has directed the AC Control and Mobilising to progress those immediate improvements within Commission 3.

182 Predominately, those immediate improvements relate to training and include a review of all training materials, continuing to support the revisions to the Brigade's FSG procedures, and effectively delivering and recording FSG training once the revised PN 790 is published. An Operations Manager has been seconded into People Services to progress the competency framework for all levels of Control staff and will enable Control to be incorporated into Phase 2 of the DaMOP roll-out in the latter half of 2020.

183 Incorporating Control into DaMOP will not only deliver a more effective competency framework but will support the more effective recording of training; an issue identified during the Brigade's Lakanal House Incident Assurance Review and recorded in the resulting report, dated 7 August 2018. DaMOP training will be scheduled and recorded centrally in Brigade Diary, replacing the interim measure instigated in late 2018 for Control following the aforementioned Lakanal House Incident Assurance Review report.

184 Brigade Control senior managers are and will continue to work with colleagues in NFCC to develop national protocols for receiving and passing FSG call information between fire service and other emergency service control rooms. It is envisaged that these protocols will be captured within the foundation guidance for Control rooms being developed by the National Operational Guidance team in the NFCC Central Programme Office.

185 In respect of the technical issues identified from the Grenfell Tower operational learning, some issues are being addressed, such as the recording of the 'critical line' in the future, which has been completed. However, some issues can only be fully addressed during the scheduled replacement of the Brigade's mobilising system. The project to identify the user requirements and technical specifications for the new mobilising system has commenced and this learning will inform this work to ensure these issues are incorporated in the final technical specifications as far as is feasible.

186 The GTIRT Preliminary Report also observed the immediate and ongoing psychological impact on Control staff resulting from the Grenfell Tower fire. This was also noted in the independent review of the Brigade's counselling and wellbeing provision during and after the incident by Dr Noreen Tehrani, who commented specifically on the level of trauma observed in Control room staff on duty that night.

187 Within GTIB Commission 3, Brigade Control senior managers will be identifying what training and personal development opportunities can be offered to Control staff to increase

their personal resilience. This will also be addressed in a broader context within GTIB Commission 4; examining the extent to which human factors are addressed in policy and training across the Brigade and Commission 5 which is addressing the specific recommendations made in Dr Tehrani's report including for example, consideration for the greater use of mandatory 'treat and screen' following major incidents.

Theme 6 – Communications

Radio communications

188 Like all incidents, large or small, effective communications are key to controlling an incident and bringing it to safe resolution. Observation 6.1 within the Preliminary Report notes that as the incident escalated the volume of radio traffic exceeded the capacity of the radio channels in use at the incident, notably Channel 1 and Channel 6.

189 This issue has occurred previously and the Coroner following the Lakanal House Inquest recommended that the Brigade considered whether it would be beneficial to consider the use of additional BA and personal radio channels at major incidents. The Brigade concluded at that time that the risks associated with using more than one BA radio channel during an incident would outweigh the benefits that this operational practice would afford and maintains a similar position at this time.

190 The Brigade has conducted testing at Grenfell Tower since the fire, which indicated that BA communications issues were predominately caused by the volume of radio traffic but accepts that the tests confirmed some very limited signal propagation issues associated with Channel 6, used for BA communications.

191 As part of the scheduled incident ground and BA radio replacement, the project team are currently considering whether the removal of the intrinsic safety requirement for BA radios is required given the other control measures in place. Removing the requirement for intrinsic safety would increase the output of those radios and reduce the potential for the loss of signal and any impact on BA communications.

192 The Preliminary Report also noted in Observation 6.2 that there was evidence of a lack of knowledge and understanding of the tactics and associated equipment that may have mitigated some of the communication issues. As noted in the report, the Brigade issued two mandatory communications training packages via Operational News 36 in

February 2019 to address this issue. A level two evaluation to confirm understanding follows the publication of all Operational News editions and the results of the Operational News 36 evaluation is expected to be reported to the Operational Professionalism Board in December 2019.

193 The report also noted that a number of senior officers were unable to book in attendance at the Grenfell Tower incident due to the unprecedented volume of traffic being communicated via the Airwave main scheme radio channel in use. The Brigade has confirmed that officers handheld Airwave radios have the functionality to book in via a data message and Capita continue to scope the work and costs to add this capability to the Brigades' mobilising system.

Communication of FSG information

194 Observation 6.4 of the Preliminary Report noted that there was a lack of information provided to Brigade Control from the incident ground, particularly in relation to progress with FSG calls, leading to a lack of situational awareness in Control.

195 This issue forms part of the Brigade's ongoing activities to deliver improvements to its FSG policies and procedures, which are expected to deliver a revised PN 790 and associated training solution by the end of 2019. As previously stated in this report, progress in delivering this outcome is being monitored by GTIB through Commission 1.

196 Similarly, the issues noted in Observation 6.5 relating to the dissemination of FSG information across the incident ground are being addressed in the revisions to PN 790 and monitored by GTIB accordingly. Interim guidance regarding the transfer of FSG information and the use of Control Information Forms to support this activity has been communicated in Operational News 37 and operational staff are mandated to complete the training associated with this article.

Communication with residents

197 A key line of enquiry during Phase 1 of the Inquiry proceedings was the initiation of a full evacuation of the building. A key element within that line of enquiry was the ability of the Brigade to communicate effectively with residents trapped within the building to precipitate an emergency evacuation when the premises does not, nor is required by

building regulations, to provide a central alarm system or other integrated communications systems.

198 The Brigade maintains that this is not an issue that it can resolve unilaterally as the challenge of overcoming the fundamental design principles of the buildings constructed with a 'stay put' strategy in mind are considerable.

199 In advance of the publication of the revised PN 633, the Brigade has provided interim advice in Operational News 37 which identifies a number of methods of communicating with residents to initiate an emergency evacuation and reinforces the need to appraise Brigade Control of the situation immediately to ensure appropriate advice is given to callers. The methods identified all have their limitations as most, with the exception of physically knocking on doors and Control communicating with callers, do not enable two-way communication to confirm understanding of the instructions provided.

200 It is for this reason the NFCC have called upon the Government to instigate a research programme to consider and develop procedures to support an emergency evacuation or a mass rescue from a residential high-rise building whilst not placing firefighters and / or members of the public at an intolerable level of risk.

201 In the interim, the Brigade continues to support Responsible Persons to implement the NFCC simultaneous evacuation guidance in buildings identified as 'at risk' and monitor those buildings to ensure 'waking watches' and other interim control measures are maintained effectively until the building is remediated. As identified in paragraphs 75–77, the Brigade in conjunction with NFCC has expressed its concerns to Government about the slow pace of change with regard to building safety and the use of interim measures such as the NFCC simultaneous evacuation guidance as a long term solution or alternative to the remediation of buildings fitted with ACM or similar cladding.

Firefighter Emergency

202 Recommendation 12 in the Preliminary Report in response to Observation 6.7 stated the Brigade should consider whether any improvement measures were required in relation to communicating a 'Firefighter Emergency' in accordance with PN 496. The scheduled three-yearly review was completed and the policy republished on the 27 September 2019. The operational learning from the Grenfell Tower fire was considered and the policy was

considered to be currently sufficient but it will stay under review , pending Inquiry Phase 1 and Phase 2 outcomes. .

Transfer and recording of FSG information from Control

203 Observation 6.8 of the Preliminary Report noted that from 02:06hrs FSG information was passed from Control to the incident via a mobile phone to mobile phone link resulting in a lack of evidence to support the Brigade's post-incident investigation. Operational News 37, published in August 2019, reinforces the need to communicate FSG information via the main scheme radio, potentially using main scheme channel 1 (M2FH FLON-OPS-01) as an alternative to keep the main scheme channel in use clear for other messages.

Theme 7 – Operational Equipment

Command Support System

204 The Brigade accepts the evidence adduced during Phase 1 of the Inquiry that the Command Support Software ['CSS'] provided on Command Units did not work adequately on the night of the Grenfell Tower fire and further accepts that there have been issues historically with the system.

205 The Brigade is currently in the process of installing new servers on all Command Units, following an extensive research and testing programme, enabling the installation of a later version of the CSS software and providing for 4G connectivity, as the current 3G connectivity is acknowledged as a key factor in the historical issues associated with CSS. The hardware and software refresh to the Command Unit fleet is scheduled to be completed in March 2020.

206 As detailed in the Preliminary Report, the Brigade installed two Windows 10 laptops with 4G connectivity on each Command Unit in January 2019 as an interim measure pending the completion of the Command Units hardware refresh project. These laptops will remain on the Command Units post-March 2020 to provide additional resilience and enable the CSS system to be operated remotely from the Command Unit if required.

207 As previously referenced in this report, the Command Unit replacement project is underway and will deliver a new fleet of Command Units utilising the latest technology to support its command, control and communication functions at operational incidents.

Positive Pressure Ventilation capability

208 As reported in the Preliminary Report, the Brigade has implemented a mobilising protocol for the existing Positive Pressure Ventilation ['PPV'] capability. In regard to recommendation 13 and the need to consider making the organisation more aware of the Brigade's current PPV capability, this recommendation will be addressed as part of the PPV project instigated by the Brigade which will initially roll out a PPV capability at ten strategic locations across the Brigade as a pilot to a potential wider use of PPV within the Brigade more generally.

Recording of BA tests

209 Observation 7.3 noted that there were some difficulties during the post incident investigation attributing what BA set had been worn during the incident and by whom. It was noted during this investigation that, on occasion, some BA logbooks had not been completed correctly and a small number had not been completed at all.

210 In 2018, the Brigade introduced an enhanced operational assurance function with compliance against Service Standards being assured by newly instigated Operational Assurance Officers. These officers visit stations and provide assurance against Service Standard 6, which addresses the systems required to achieve operational readiness. Assurance activities around operational readiness include checks that records including BA logbooks are being completed in accordance with Brigade requirements.

Thermal image cameras

211 The Preliminary Report noted as Observation 7.4 that there were a number of inconsistencies with the timestamps of images saved on the Thermal Image Cameras and there is no automatic update facility on the equipment so the time has to be changed manually. The timestamp is currently checked once a year during the scheduled annual service of the equipment by Babcock Critical Services.

212 It was previously reported that the issue had been communicated to the Brigade's FLEET department and Babcock Critical Services for a resolution. Engagement between those parties and the equipment manufacturers has concluded that there is no immediate solution for the current equipment.

213 The current equipment employed by the Brigade is due for a scheduled replacement in 2020 and therefore the technical specification being developed for the replacement Thermal Image Cameras will seek to avoid this issue in the future.

Conclusion

214 The Brigade has recognised from the outset the scale and breadth of the organisational learning opportunities that would arise from the Grenfell Tower incident, as demonstrated by the instigation of a dedicated team by the LFC immediately after the fire and the ongoing organisational support for that team.

215 The LFC also recognised that the team would need to work independently of the Brigade's usual governance to assist in effectively identifying all available organisational learning and provide an unfettered evaluation of the Brigade's response to the fire.

216 Like all organisations, the Brigade has finite resources and does not have an unlimited capacity to develop and implement changes to policies, procedures, equipment and training. This is particularly so when one considers the potential scale of improvement opportunities arising from an event such as Grenfell Tower fire and other events such as the terrorist attacks in 2017, in addition to what might be termed business as usual improvements and enhancements to the service the Brigade provides to London.

217 Recognising this, the Brigade has implemented effective governance through the establishment of GTIB, chaired by the LFC, which ensures improvements are organised, prioritised and delivered effectively and receive assurance that the improvements are delivered in a sustainable manner and embedded across the organisation. That Board has been effective since its inception in prioritising areas of improvements and allocating sufficient resources to progress and ultimately deliver those improvements.

218 It is noted that the Inquiry has yet to publish its report at the time of writing and the report and any urgent recommendations contained therein will have to be considered and may influence previous GTIB prioritisation decisions and/or any requirement to allocate or fund additional resources to address these matters.

219 The outcomes of the GTIRT operational response analysis and SAI 287 will inevitably provide further organisational learning and as such the role of GTIB will become ever more crucial as these work streams develop and report their findings.

220 There is an understandable interest from many parties in the improvements the Brigade has and will make going forward but the timing of these, particularly changes to operational policies and procedures, should be seen in the context of the significant, and as yet not fully explored, challenges presented by a building fire on the scale of, and in a similar building to Grenfell Tower.

221 It would be simplistic to say that the Brigade could immediately revise its high-rise firefighting and fire survival guidance policies and procedures to address the challenges presented by the fire at Grenfell Tower. To do so fails to recognise the significant challenge of overcoming the design principles of such buildings whilst maintaining the safety of firefighters to a tolerable level.

222 For example, the challenges of firefighting on multiple floors when the firefighting facilities are limited on the expectation of a single dwelling fire are not simple to overcome. The challenge of communicating with residents to alert them of the need to evacuate is considerable without integrated communication systems, operated automatically or otherwise, and to do so almost inevitably requires firefighters to be deployed above the fire, potentially without firefighting media due to the aforementioned limitations of the building's firefighting facilities.

223 Similarly, the challenge of tackling external fire spread on high-rise buildings, rapid or otherwise, is hugely problematic and for this very reason, the building regulations state the exterior walls of high-rise buildings must adequately resist the spread of fire across the exterior surface.

224 These and other challenges are complex and no single service has yet been able to comprehensively address such matters hence the NFCC has requested the Government to establish a research programme to address these operational challenges, involving fire and rescue services nationally, industry experts, representative bodies and the Health and Safety Executive in recognition of fire and rescue services' obligations under health and safety legislation.

225 This work must sit alongside the Government's building safety programme, implemented after Dame Judith Hackitt's review to address the shortcomings of a regulatory regime designed to keep occupiers of residential high-rise buildings and emergency service responders safe in the event of an outbreak of fire.

226 It is noted that some of the changes being implemented by the Brigade are interim in nature, particularly those related to evacuation, and have been provided through guidance in Operational News publications rather than embedded in policy changes. However, it is recognised this is due to the complexity of the issues articulated in the previous paragraphs and the implications for firefighter safety in trying to overcome the failures in the active and passive fire safety measures in buildings.

227 In respect of the GTIRT Preliminary Report, the vast majority of the observations and recommendations contained therein have or are being addressed (Annex C refers) and it is notable that the Brigade has been able to achieve this whilst continuing to provide significant assistance to the Grenfell Tower Inquiry and the MPS investigation, in addition to delivering as other significant organisational changes such as the R2R project.

228 Urgent recommendations directed at the Brigade, if made by the Inquiry Chair, will place further pressures on the Brigade's resources and the Brigade may not be able to deliver all required improvements within existing budgets. However, I am confident that it has the governance arrangements in place to effectively address such matters, if it feels they are appropriate and are not already being progressed.

Appendices

- Annex A GTIRT Preliminary Report including appendices, dated 2 April 2019.
- Annex B LFB Report 'Actions since the Grenfell Tower fire', dated 24 October 2018.
- Annex C Table cross referencing improvement activities instigated against Preliminary Report observations and recommendations.
- Annex D Independent Review of Training – Final Report, dated 11 September 2019.