



**GREATER
MANCHESTER**
FIRE AND RESCUE SERVICE

The Cube

Incident Report and Key Observations
regarding the fire which occurred on

15 November 2019

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**Warning: this document contains images
that some readers may find distressing.**



Image 1: The Cube – 15th November 2019

FOREWORD

On 15 November 2019 a fire broke out at The Cube, student accommodation in Bolton town centre. The speed with which the fire took hold and the devastating impact it had on the building was truly shocking. We would like to introduce this report by expressing our appreciation for the actions of all those who responded to the fire. The incident demonstrated the great courage and effective decision making of our firefighters and officers in the face of extremely testing circumstances.

As well as our own colleagues, residents of The Cube displayed courage, integrity and community spirit as they found themselves involved in a major incident. Partners from North West Fire Control, Greater Manchester Police, North West Ambulance Service, Bolton Council, and the University of Bolton also responded with courage and commitment to support operational firefighting, strategic decision making, and the evacuation and relocation of residents.

The incident highlights the risks within the built environment and the national pattern of buildings failing in fires. To deal with this threat, Greater Manchester Fire and Rescue Service implemented a new procedure at the incident, a procedure that requires more resources be sent to a fire than was previously planned or budgeted for.

Whilst we will offer learning and areas of reflection within this report, we are very proud that the overall response was a clear example of the high standards and professionalism that exist across Greater Manchester. Thanks to the quick and effective decision-making of firefighters and officers on the night, and the actions of many of the students themselves, there was thankfully no loss of life.



Baroness Beverley Hughes
Deputy Mayor for Policing and Crime
Greater Manchester Combined Authority



Jim Wallace
Chief Fire Officer
Greater Manchester Fire and Rescue Service

INTRODUCTION

1. Greater Manchester Fire and Rescue Service (GMFRS) is one of the largest Fire and Rescue Services (FRS) in the United Kingdom with 41 fire stations, 35 of which are crewed on a wholetime basis. GMFRS covers an area of approximately 500 square miles and serves a culturally diverse population of 2.8 million people.
2. From modern inner-city developments to traditional mill towns, to areas of moorland and open countryside, Greater Manchester is made up of ten very different districts; Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Stockport, Tameside, Trafford and Wigan. The FRS is part of the Greater Manchester Combined Authority (GMCA)¹.
3. On 15 November 2019 a fire occurred at 'The Cube', a multi-occupied residential building in Bolton, Greater Manchester. Rapid and unexpected fire spread was evident from the outset, severely affecting the building which featured a High Pressure Laminate (HPL) external wall cladding system.
4. A subsequent detailed investigation has determined a discarded cigarette as the most probable cause of fire.
5. Despite life being evidently at risk from the very intense and unpredictable fire, no serious injuries were reported and all 217 residents were accounted for.
6. The fire did, however, severely disrupt the studies and lives of a large number of residents, predominantly students at the University of Bolton. The loss of work, personal belongings and documents, and in the case of overseas students, passports and visa documentation added to the immediate impact of being involved in a very serious fire.

¹Greater Manchester Combined Authority: greatermanchester-ca.gov.uk

- 7.** Since 2018, GMFRS, the Greater Manchester High Rise Task Force (GMHRTF) and industry experts had been warning that HPL external wall systems, made of wood-based layers impregnated with resin and pressed together under high temperatures, posed a significant risk in relation to external fire spread.
- 8.** The purpose of this report is to provide an outline of the fire at The Cube and allow GMFRS to offer constructive learning outcomes identified from an analysis of its own operational response to the incident and the wider organisational support mechanisms. GMFRS feels duty bound to provide this summary to all interested parties and stakeholders, including residents of The Cube and the wider public.
- 9.** This report also serves as an opportunity specifically for FRSs and other responders to reflect on operational preparedness and the provision of service delivery, and where identified as necessary to implement or adapt GMFRS's own reflection and analysis into any local arrangements.
- 10.** The fire at The Cube was not the first where a building has been seen to 'fail' under fire conditions, in contrast with traditional knowledge and understanding of fire behaviour in the built environment. Such incidents have presented challenges to members of the public, FRSs and other key responding and responsible agencies. References to a number of these incidents are included within this report.
- 11.** In presenting this report, GMFRS appreciates that not all readers will be familiar with FRS operational procedures, equipment and terminology. Therefore, abbreviations will be explained within the report and footnotes used to explain terminology and concepts.

SCOPE

- 12.** This report is produced following an internal Strategic Incident Review (SIR) and Fire Investigation (FI) carried out by GMFRS following the fire at The Cube.
- 13.** The report will offer background information on the building and GMFRS's pre-planning and collation of operational risk information.
- 14.** The report will offer facts and a timeline relating to the mobilisation of resources via North West Fire Control (NWFC)².
- 15.** The report will detail GMFRS's operational and strategic response to the incident. It will detail the high-level organisational learning that has been identified thus far, and aims to share this openly for the benefit of other FRSs and stakeholders.

Out of Scope

- 16.** This report will not detail the findings or conclusions of GMFRS's FI Report³; specifically it will not offer an explanation of the means or mechanisms of fire spread, nor will it consider compliance with the Regulatory Reform (Fire Safety) Order 2005 or other regulations.
- 17.** This report will not therefore, consider the materials used within the external wall construction and what if any role materials played in the development and spread of fire.
- 18.** The report does not aim to offer detail on multi-agency partners' or other organisations' responses to the fire although some information is referenced where applicable.

²North West Fire Control is a public sector company set up exclusively by Fire and Rescue Services in the North West to jointly handle all 999 emergency calls and be responsible for mobilising firefighters and fire engines to incidents in Greater Manchester, Cumbria, Lancashire and Cheshire.

³GMFRS's Fire Investigation Report into the fire at The Cube will be published shortly following release of this report.

Information Sources

19. The information offered in the report has been obtained from witness accounts from GMFRS personnel, and photographic evidence including such images obtained from open source material within the public domain.
20. Data sources used to produce this report are primarily from analysis of GMFRS electronic records, data supplied by NWFC's mobilising system, contemporaneous notes and decision logs and witness accounts including the debriefing of individuals and teams who attended the scene or supported the incident remotely.

KEY OBSERVATIONS

21. Specifically for readers of this report, a number of Key Observations are highlighted throughout where GMFRS feel there is value in sharing areas of reflection. These Key Observations are reflective of learning further validated by positive application prior, during and post the fire at The Cube, but also reflection on where GMFRS itself will seek improvement.
22. The report will offer at its close, a summary of actions identified for GMFRS based on the Key Observations offered within this report and gathered as part of GMFRS's own investigations and analysis into the fire.
23. Where applicable, Key Observations and associated actions will be linked to other report recommendations where GMFRS feel this highlights an opportunity for increased learning. It is apparent that a number of observations in respect of The Cube are not new, and hence, there are existing recommendations in place which remain valid. Where applicable these have been openly and directly replicated or referenced for the purpose of enforcing prior opportunities for learning and improvement previously and / or independently identified.

EXECUTIVE SUMMARY

- 24.** As with all emergency incidents, the importance of extracting any learning is paramount to allow the cyclical approach of review and improvement. Following an internal SIR of The Cube incident, work is on-going within GMFRS to identify further learning to support internal improvement.
- 25.** At 20:29 hours on Friday 15 November 2019 NWFC received a 999 call from a mobile phone in which the caller reported a fire at 'The Cube 85-93 Bradshawgate, Bolton'.
- 26.** The incident was subsequently declared a Major Incident³ and at its peak had an attendance of 27 fire engines and special appliances⁴. This number was exceeded whilst additional fire engines were mobilised to relieve firefighters who had been working at the scene.
- 27.** Two residents, trapped in their flats by fire, heat and smoke, were rescued by firefighters from the exterior of the building, one from the sixth floor window by a high reach aerial appliance (AA). The second rescue took place from a second floor window by ladder.
- 28.** With clear evidence that the building was failing to contain the fire in accordance with standard expectations, a full and immediate resident evacuation was instigated, testing for the first time under real conditions, GMFRS's recently developed and introduced procedures for such a scenario.
- 29.** At the peak of operational activity 45 of 50 available GMFRS fire engines, and all on duty supervisory officers who were available to form an incident command team, were attending this or other concurrent operational incidents. Simultaneous incidents attended by GMFRS included a gas leak, vehicle fire and two domestic property fires where persons were reported to be at immediate risk.

³Major Incident: An event or situation with a range of serious consequences which requires special arrangements to be implemented by one or more emergency responder agency.

⁴Special Appliance: a fire appliance other than a standard pumping appliance (fire engine).

30. The highest number of supervisory officers involved in supporting the response to The Cube, either at the scene or at remote locations was 14 between the hours of 02:15 and 04:00. The incident was also supported by two Principal Officers (POs) at the rank of Brigade Manager and two Assistant Principal Officers (APOs) at the rank of Area Manager (AM).
31. At midnight, a total of 19 supervisory officers were committed to incidents across Greater Manchester.
32. Resources from Cheshire and Lancashire FRS were utilised under existing mutual aid agreements and from Merseyside and West Yorkshire FRS via National Resilience arrangements, resulting in 18 fire engines from other FRSs brought into Greater Manchester to support GMFRS. In addition to FRS resources, the incident attracted a multi-agency response from both Category One and Category Two responders⁵.
33. The incident was open for a total of 15 days to support a full and comprehensive fire investigation, with GMFRS resources finally leaving the scene on 30th November 2019.
34. Prior to the fire at The Cube, GMFRS had undertaken a significant amount of work in direct response to, and subsequent recommendations arising from the Grenfell Tower fire. A number of these areas are referenced within the body of this report.

Key Observation 1

The additional resources deployed at this fire, to support the evacuation of a multi-occupied residential building, support wider tactical and strategic multi-agency collaboration and provide safe systems of work through the initial emergency phase of the incident were significant. Against a backdrop to maintain effective concurrent fire cover across Greater Manchester, GMFRS experienced depletion of a number of key resources, requiring staff to be recalled to duty, and mutual aid to be called upon.

⁵Category One responders are identified in the Civil Contingencies Act (2004) and are the core responders including 'blue light' emergency services and others. Category Two responders are key co-operating responders that act in support of the Category One responders and include utility providers and transport organisations.



Image 2: The Cube – 15th November 2019

BACKGROUND

- 35.** On Wednesday 14 June 2017 a fire in Grenfell Tower, North Kensington, London, resulted in extensive fire spread around the building. Whilst 227 people evacuated, escaped or were rescued from the building, the fire claimed the lives of 72 residents.
- 36.** The GMHRTF was established immediately after the fire at Grenfell Tower by Andy Burnham, the Mayor of Greater Manchester. The Task Force is led by Paul Dennett, Salford City Mayor supported by GMFRS and includes all ten Local Authorities, representation on behalf of all social landlords, Greater Manchester Civil Contingencies Resilience Unit, Universities and other agencies who can offer support to primarily ensure the safety of residents living in high rise residential buildings (HRRBs) and that they receive the right and timely fire safety advice.
- 37.** The key objectives of the Task Force are;
- Ensuring all services in Greater Manchester can respond in the event of a large scale incident at a high rise building
 - Providing assurance to all residents that their homes are safe as quickly as possible
- 38.** In direct response to the fire at Grenfell Tower, GMFRS immediately commenced a review of all activity relating to HRRBs, initiating changes to working practices, inspection routines and amending operational response arrangements.
- 39.** Prior to the fire at Grenfell Tower and indeed since, there have been a number of major fires where buildings have not behaved as they should, with rapid fire spread in contrast with the understood principles of building design and the principles of compartmentation⁶ in respect of containing spread of fire;

⁶Compartmentation is a vital part of the fire safety design of a building and seeks to divide large spaces into smaller, more manageable ones should a fire occur. Fire compartmentation is also used in order to create a safe, protected means of escape for the building occupants.

Fires pre-Grenfell Tower

Lakanal House, Camberwell, London

- 40.** The Lakanal House fire occurred in a tower block on 3 July 2009. The fire resulted in the loss of six lives. 15 residents and a firefighter were injured and a further 40 residents were evacuated and / or assisted to safety. Along with loss of life and injuries, over 90 families had to vacate their homes as a result of the fire.
- 41.** A number of recommendations were made by the Coroner⁷ following the Lakanal incident, the first of which was to improve the dissemination of fire safety information to ensure residents living in high rise buildings have a clear understanding of what they should do in case of fire.

Wharfside, Wigan

- 42.** In the early hours of Sunday 15 June 2015, GMFRS responded to a fire involving a six storey timber framed building, on Heritage Way in Wigan. The Wharfside fire was caused by a barbeque on a balcony of the top floor. The wooden-framed structure allowed the fire to quickly spread to affect a significant part of the building. People living in 120 flats were evacuated, with many spending the night in a rescue centre or a local hotel. Over 100 firefighters were needed to deal with the fire with 32 fire engines and two aerial appliances in use at the peak of the incident. Extensive demolition and reconstruction works were required to address significant damage to 50 flats within the building complex.

⁷Lakanal House Coroner Inquest: lambeth.gov.uk

Grenfell Tower, North Kensington, London

- 43.** In the early hours of Wednesday 14 June 2017 a fire broke out in the kitchen of Flat 16, Grenfell Tower. The fire spread to the external Aluminum Composite Material (ACM) cladding system resulting in extensive fire spread around all sides of the building.
- 44.** The Grenfell Tower (Public) Inquiry⁸ (GTI) was announced shortly after the fire and commenced hearing evidence in June 2018 with two planned phases. Phase 1 of the Inquiry focused on what happened on 14 June 2017, including where and how the fire started and spread. Phase 2 of the Inquiry is focused on the events leading up to the fire including the refurbishment of the building, the regulatory framework, the preparedness of the London Fire Brigade (LFB) and actions taken by the Government.
- 45.** The GTI published its report following Phase 1 in October 2019 and this contains wide ranging recommendations which impact on FRSs, housing providers and government.

Fires post-Grenfell Tower

Light Aparthotel, Manchester

- 46.** On 30 December 2017, three people were treated for smoke inhalation and one person was taken to hospital after a fire broke out at The Light Aparthotel in Manchester city centre's Northern Quarter. It started in a flat on the ninth floor of the 12 storey block and spread externally up the 10th and 11th floors via wooden balconies.

De Pass Gardens, Barking, London

- 47.** On 9 June 2019 a fire occurred at a newly built six storey residential building. 20 flats were completely destroyed as fire spread via timber balconies.

⁸Grenfell Tower Inquiry: grenfelltowerinquiry.org.uk

Premier Inn, Bristol

- 48.** On 17 July 2019 a fire totally destroyed a Premier Inn Hotel which included timber framed construction.

Beechmere Care Home, Crewe, Cheshire

- 49.** On 8 August 2019, 150 residents of a care home were evacuated from the building, which included timber framed construction. Early recognition that the building was not behaving in accordance with the expectations of the FRS resulted in an immediate evacuation being ordered. The entire building was destroyed.

Sherbrooke Way, Worcester Park, London

- 50.** On 9 September 2019 a fire completely destroyed a housing block consisting of 23 homes. The building was constructed using a timber frame.
- 51.** These fires illustrate that there are significant fire risks from shortcomings in building construction, which are not solely dependent on height. These fires highlight the ongoing concerns surrounding potential for fire spread in multi-occupied residential buildings including high rise.

GMFRS PREPAREDNESS

52. In direct response to the fire at Grenfell Tower, GMFRS immediately commenced local actions to assure itself of preparedness and operational resilience with regard to fire in HRRBs. Following the Grenfell Tower fire and within the almost two and half years until the fire at The Cube, GMFRS had achieved the following key milestones;

✓	Inspection of all high rise buildings in Greater Manchester.
✓	Ongoing engagement with housing providers and managing agents.
✓	Review of site-specific operational plans for HRRBs.
✓	Support to, and coordination of the GMHRTF.
✓	Provided smoke hoods to all fire engines in GMFRS to support the evacuation / rescue of residents through areas of the building affected by smoke.
✓	Provided smoke curtains to all fire engines in GMFRS to support the protection of means of escape within multi-occupied residential buildings and control of air flow into a fire compartment.
✓	Developed, trained and tested firefighters in newly developed High Rise Immediate Resident Evacuation (HIRE).
✓	Amended high rise firefighting procedures to include the implementation of Stairwell Protection Teams, and the safe working systems for extended working above a floor involved in fire.
✓	Contributed to the development and delivery of local resilience arrangements and workshops, focussed on evacuation, in each of the ten Greater Manchester boroughs.
✓	Delivered training to firefighters in recognising the risk of abnormal fire spread in buildings.
✓	Developed and delivered multiple large scale multi-agency high rise exercises at GMFRS's dedicated operational training centre in Bury.
✓	Supported detailed, evidence based responses to Government consultations.
✓	Influenced the National Fire Chiefs Council (NFCC) as a lead contributor to the Building Safety Team.

Key Observation 2

GMFRS have seen the benefit of directing training with regards to rapid or unexpected fire spread in multi-occupied residential buildings.

Actions taken by GMFRS were in direct response to the fire at Grenfell Tower, emerging evidence from the inquiry and GMFRS's ongoing interventions. The importance of this is reflected in GTI paragraphs 33.10b;

- That all fire and rescue services ensure that their personnel at all levels understand the risk of fire taking hold in the external walls of high-rise buildings and know how to recognise it when it occurs.

These actions have been subsequently reinforced within NFCC's Information Note: 'Buildings that Fail in Fires' (December 2019);

- Consider the prevalence and significance of incidents where rapid or unexpected fire spread has occurred when prioritising risk, this may include instances of firespread involving timber frame construction and external fire spread
- Ensure operational personnel have an adequate understanding of building construction to identify potential failures in fire safety precautions
- Ensure operational personnel are aware of the signs and symptoms of a building that is failing in fire

Key Observation 3

GMFRS has invested in a dedicated high rise training facility which opened in 2017, and have made use of this to develop, test and train for amendments to high rise standard operating procedures, including in particular, the development of evacuation procedures, deployment of stairwell protection teams, and the use of smoke curtains to protect means of escape.

GMFRS have made this facility, located in Bury, available to neighbouring FRSs to carry out their own training.

- 53.** GMFRS inspected over 500 HRRBs in 2017 and has been working with housing providers and managing agents since, to ensure that all external wall cladding systems were identified and the risk of external fire spread assessed along with assessments of other fire safety features in the buildings.
- 54.** In May 2018, GMFRS created a dedicated High Rise Team to deal with the ongoing workload following the inspections of HRRBs. This team provides information and advice to NFCC, other FRSs and continues to work with housing providers and managing agents and undertakes assurance in relation to HRRBs.
- 55.** Where necessary, where it was identified that there were significant fire safety failings in a building and hence necessary to change the evacuation strategy, GMFRS have provided advice. Referred to as 'interim measures', where a risk is identified that means that the building can no longer support a 'stay put'⁹ strategy, GMFRS advised and supported building managers and owners as to how an evacuation strategy could be supported in line with national guidance and continue to carry out regular assurance visits of the interim measures to ensure these arrangements remain in place.
- 56.** GMFRS has created a system of Fire Safety Alerts¹⁰ to share the advice notes issued by the Government with housing providers and managing agents and also provided bespoke information letters which can be distributed to residents for example in relation to fire safety on balconies.
- 57.** GMFRS has worked to support residents by hosting and attending meetings to discuss fire safety concerns in their building, arranging and supporting the quarterly GMFRTF High Rise Residents' Forum and supporting social landlords at events to promote the installation of sprinklers. This is in addition to the prevention advice available to residents through a dedicated section on the manchesterfire.gov.uk website and the offer of 'Safe and Well' visits to provide bespoke advice on fire safety in the home.

⁹A 'stay put' policy is essential in the management of fire safety in multi-occupied residential buildings; residents not in an area directly impacted by fire or smoke are generally advised to stay inside their flat with doors and windows shut. This is policy managed by the building owner or manager and relies on the principles of compartmentation to be effective.

¹⁰Fire Safety Alerts: manchesterfire.gov.uk

- 58.** The High Rise Team developed and delivered training on external fire spread to firefighters and supervisory officers to support familiarisation visits to buildings with interim measures.
- 59.** GMFRS is embedded in the work being carried out by NFCC and others to inform the national response to the Grenfell Tower fire and the subsequent GTI and this is delivered in a number of ways. The High Rise Team have built effective relationships with the team at NFCC working with the Ministry for Housing, Communities and Local Government (MHCLG) on the response and proposed the creation of a group of Metropolitan FRSs to share information and good practice. This has been implemented and the High Rise Team now participates in regular conference calls coordinated by NFCC.
- 60.** At the inception of the High Rise Team, 73 buildings were identified as having interim measures, the majority of which were as a result of ACM cladding. All of these buildings were visited by the end of July 2018 to assure the changes in the evacuation strategy, with appropriate advice offered to the responsible persons. In addition, there were 295 'Action Plans' that had been agreed following the initial inspections.
- 61.** By September 2018, the number of HRRBs with interim measures had been reduced to 56, as a result of remediation work by social landlords. Since then the work of the High Rise Team has seen an increase in the number of buildings adopting interim measures as information has emerged about the safety of the buildings as Action Plans were followed up.
- 62.** Since 2017, over 100 HRRBs in Greater Manchester have needed to change the evacuation strategy as result of fire safety deficiencies – this amounts to approximately 20% of the high rise building stock.
- 63.** The number of buildings affected is anticipated to increase as housing providers and managing agents continue to receive the results of surveys and specialist reports and further risks continue to be identified. In addition, since the publication of the Consolidated Advice Note by MHCLG in January 2020, buildings under 18 metres are now expected to undertake similar investigations.

THE CUBE BUILDING



Illustration 1: The Cube – Bradshawgate aspect (courtesy of KRI Property Group)

Premises Information

- 64.** The Cube building is a privately owned and operated multi-occupied residential building consisting of 221 units (bedroom and bathroom) with shared communal kitchen and social areas. It opened in 2015 and offered luxury studio and en-suite cluster flats, primarily marketed to students at the University of Bolton.



Illustration 2: The Cube – Southern aspect (courtesy of KRI Property Group)

- 65.** The Cube is separated into two parts; Phase 1, overlooking Bradshawgate, was an existing office building refitted and refurbished as student accommodation with the addition of two floors onto the existing structure. Phase 2 is purpose built, and stands behind Phase 1, separated by a decked terrace / open courtyard area accessible from the internal common area, above a small car park.



Illustration 3: The Cube – Northern aspect (courtesy of KRI Property Group)

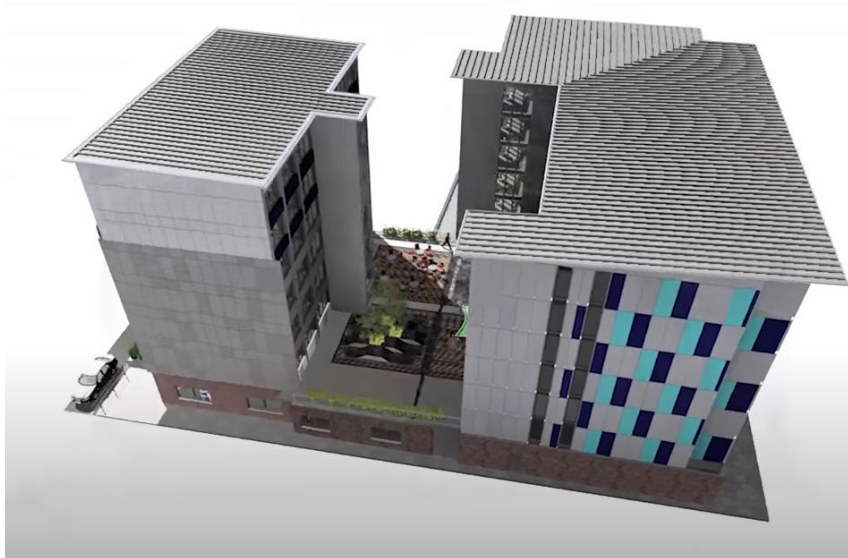


Illustration 4: The Cube – Southern aspect (courtesy of KRI Property Group)



Illustration 5: The Cube – Northern aspect (courtesy of KRI Property Group)

- 66.** Phase 2 is a seven storey block, rectangular in shape, the inside aspect provides the deck access which overlooks the podium between the two phases, the decks at each level are the access routes to the individual flats. Both Phases are clad with HPL. Phase 1 is classified as a high rise building and Phase 2 is recorded as being under 18 metres and therefore not classified as a high rise building. As The Cube is student accommodation it is fitted with a fire alarm system and operates a simultaneous evacuation strategy.
- 67.** The Cube was not fitted with a fire suppression system, e.g. sprinklers.

Preparedness Activity Relevant to The Cube

- 68.** GMFRS inspected the building in 2017 following the fire at Grenfell Tower. It was established that the building did not have ACM cladding. GMFRS subsequently requested the fire risk assessment be reviewed and the materials used in the external wall system identified and assessed. This assessment was shared with GMFRS and in 2018 work was undertaken to both buildings which obtained Building Control approval. Prior to the fire a further follow up visit had been undertaken and further information requested about materials used in the construction of the building.

Key Observation 4

It was reported subsequent to the fire that the some residents of The Cube did not immediately respond to the fire alarm as ‘..it goes off all the time..’

Where the fire safety arrangements for a premises include evacuation it is essential that all occupants of the building understand the actions to take and evacuate when the alarm is raised. This is a key challenge across HRRBs with interim measures and student accommodation and FRS and housing providers need to consider how action should be communicated and how frequently evacuation drills should be carried out and how a failure to evacuate in a drill should be followed up.

Location and access



Map 1: The Cube

- 69.** The Cube building is located at 85-93 Bradshawgate, Bolton. The front elevation sits on the A575 at Bradshawgate in Bolton town centre.
- 70.** The nearest GMFRS fire station is Bolton Central Community Fire Station which is located on Moor Lane, Bolton, and approximately 0.7 mile by road from The Cube.
- 71.** Access to the front of the building (west facing) is via Bradshawgate) with rear access (east facing) from Silverwell Lane.
- 72.** Road access is severely limited at the rear and both sides of the premises. The north side access is via a narrow access road with bollard restriction. Access to the south side face is via a pathway with no vehicle access possible.
- 73.** The Cube complex is alongside a further multi-occupied residential building, 'The Picture House', separated only by the pathway to its south.

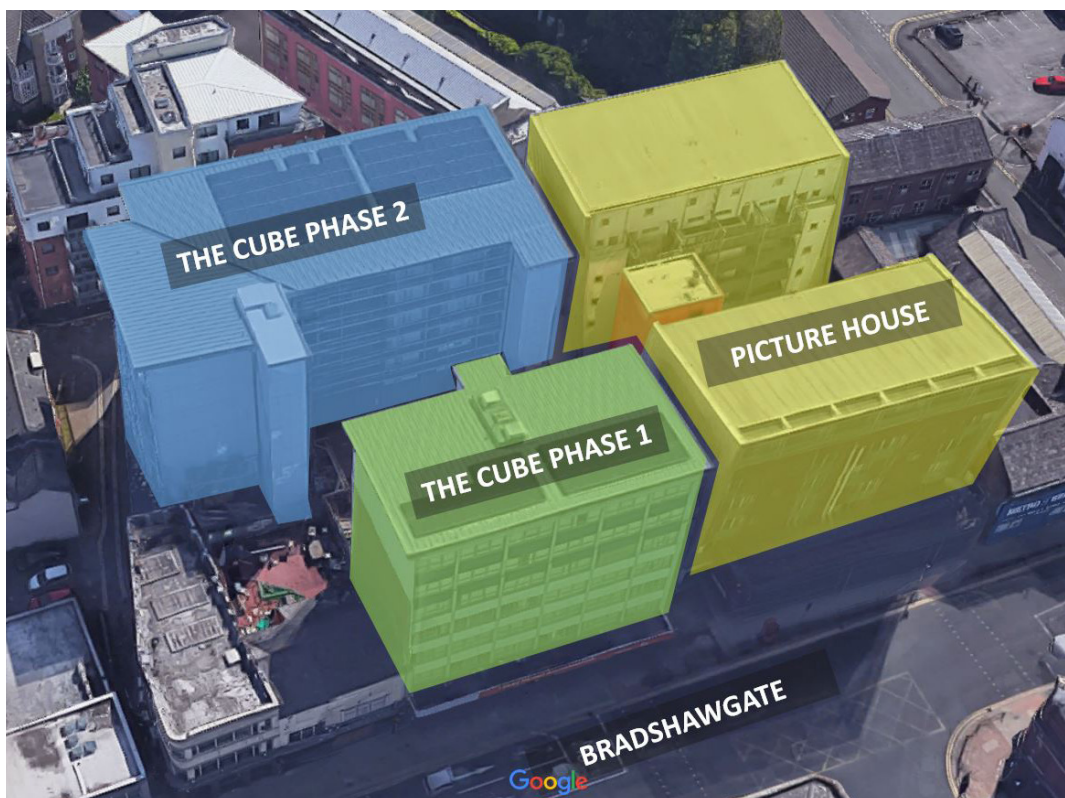


Image 3: The Cube – Bradshawgate aspect: Phase 1 and 2 and proximity to The Picture House

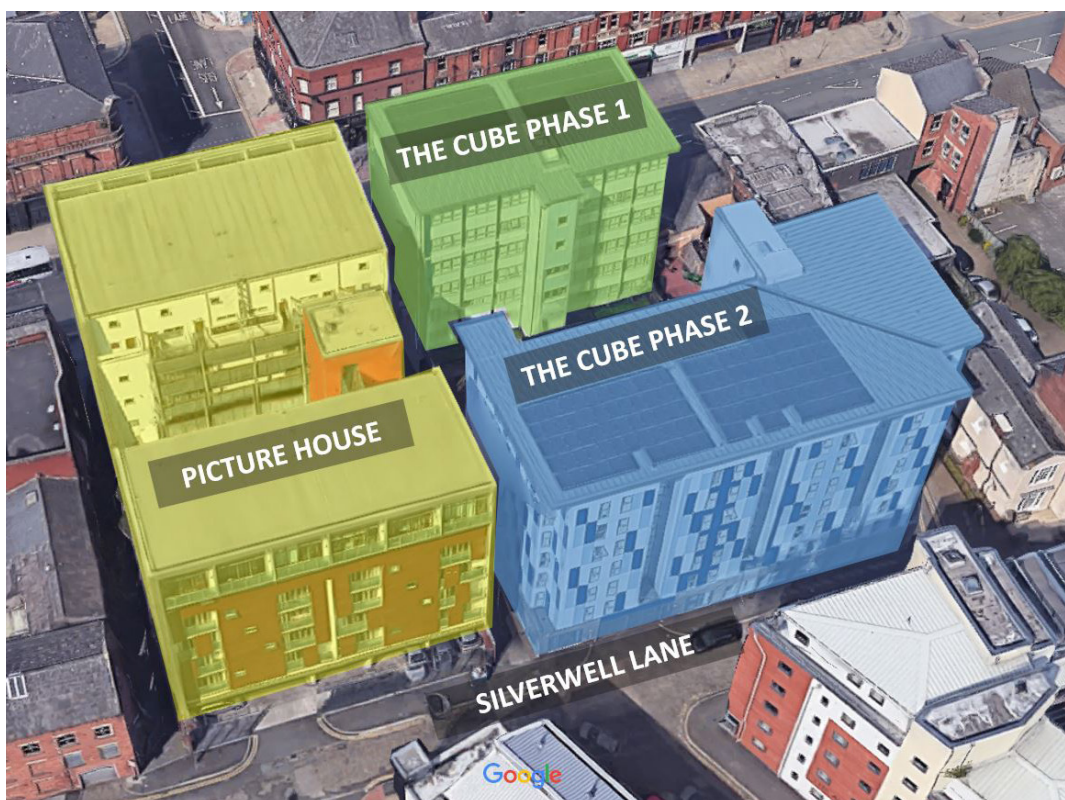
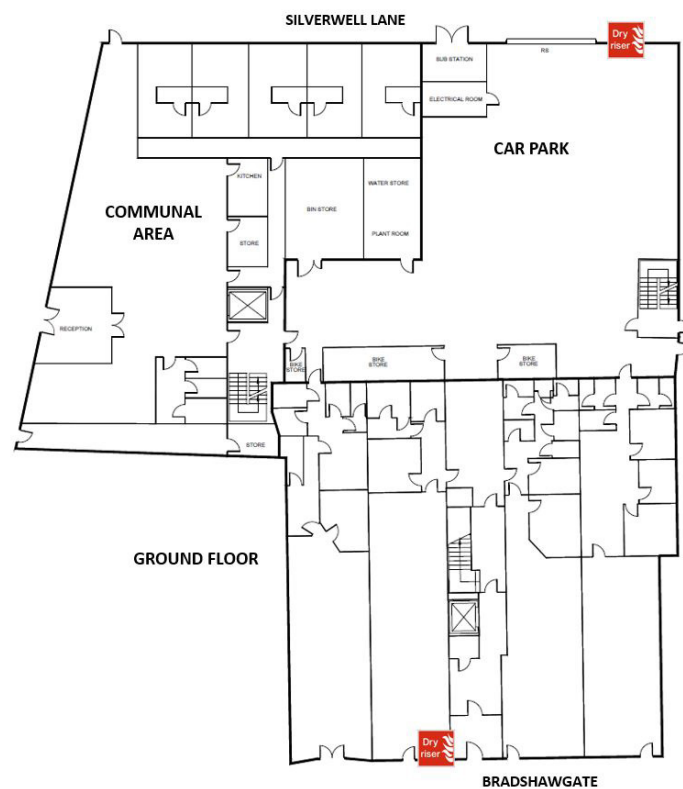
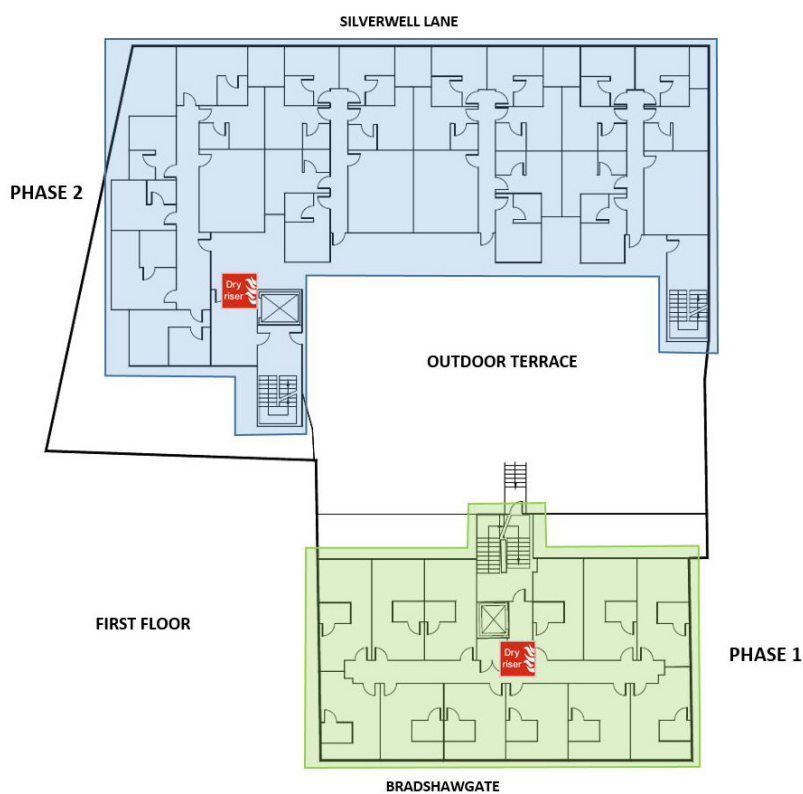


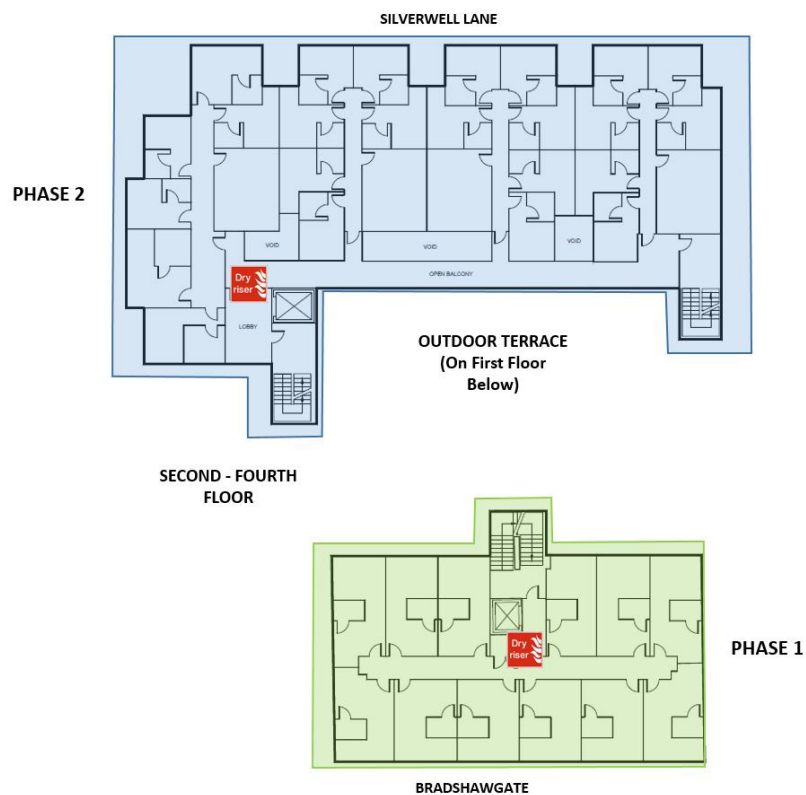
Image 4: The Cube – Silverwell Lane aspect: Phase 1 and 2 and proximity to The Picture House



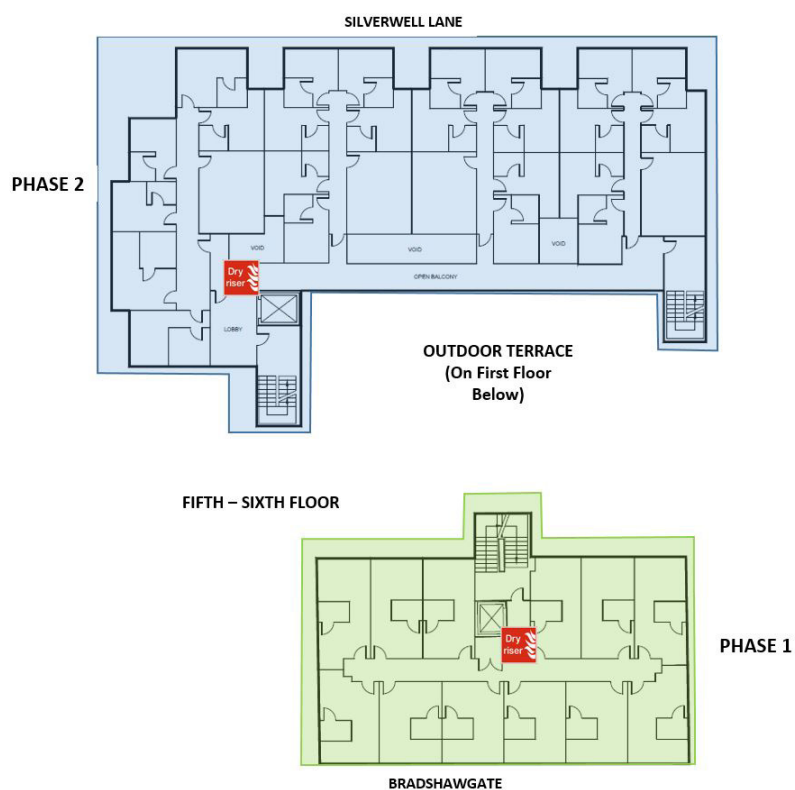
Drawing 1: The Cube – Ground Floor, detailing riser inlets at street level



Drawing 2: The Cube – First Floor, detailing Phases 1 and 2, outdoor terrace and riser outlets



Drawing 3: The Cube – Second to Fourth Floor, detailing Phases 1 and 2, and riser outlets



Drawing 4 The Cube – Fifth to Sixth Floor, detailing Phases 1 and 2, and riser outlets

Pre-planning

74. GMFRS records information for operational firefighting purposes within an Operational Information System (OIS) available for recall via a Mobile Data Terminal (MDT) fitted to every fire engine. The level of information recorded about any premises is determined by the premises type and an assessment of the risk perceived.
75. The last inspection date by operational crews was recorded on 12th September 2019, approximately two months before the fire.
76. The OIS record contained information across all of the required sections within the standard template and offered a level of detail commensurate with other records held on buildings of this type at the time of the incident.
77. One standard element of the OIS records for high rise buildings in Greater Manchester is the development of a 'High Rise Plaque' which forms part of the record and is available via the MDT of each fire engine.

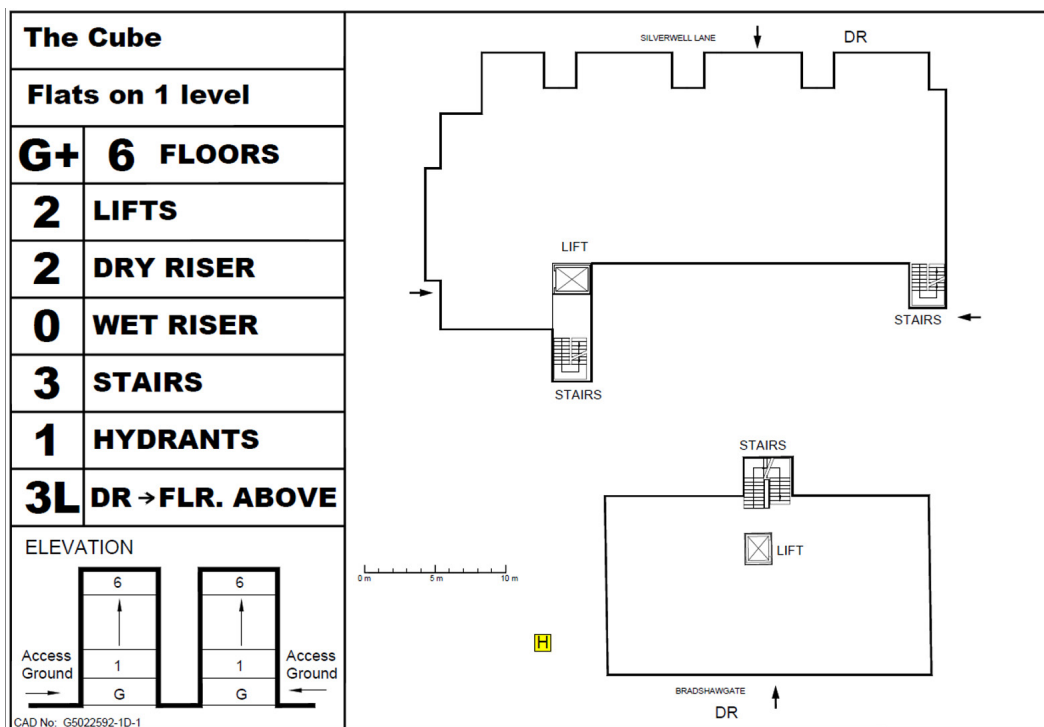


Diagram 1: The Cube – High Rise Plaque

- 78.** There was no evidence gathered to suggest the OIS record was utilised to assist in decision making or operational planning by the IC of the fire in the initial phases. This is partly due to the dynamic nature of the incident and limited information when confronting unforeseen fire development and compromised 'protected' areas.
- 79.** As the incident progressed, the OIS record was accessed to support tactical planning and development of situational awareness both at the incident scene and remotely.
- 80.** Whilst an inspection of the premises was completed and recorded, in carrying out review and debrief of the incident, feedback from the last inspecting officer highlighted an improved quality of inspection could have been undertaken. This would have offered crews a more concentrated and detailed understanding of the premises, its fixed installations capability and location and a better observation of building materials, construction and layout.

Key Observation 5

The importance of the timely gathering of operational risk information is key to firefighters' understanding of the risk a building may pose, the layout features and firefighting systems, and hence, the subsequent application of this knowledge in case of an incident at the premises. Access to some aspects of The Cube building was severely hampered for FRS appliances, in particular high reach aerial appliances. Learning in respect of the gathering of operational risk information was recorded by the Coroner in response to the Lakanal House Fire in a Rule 43 letter to the FRS, in order to provide:

- *'..guidance as to matters which should be noted by crews making familiarisation visits and visits pursuant to section 7(2)(d) Fire and Rescue Services Act 2004, including the gathering of information regarding flats or maisonettes with unusual layouts and access for aerial ladder platforms and other specialist vehicles'*

Response Standard

- 81.** The response standard, as determined by GMFRS Risk Model 2019/20 is determined as 'Category One' for this area. The response time under category one is defined as **less than 5 minutes** for the first fire engine to arrive¹¹.

The five fire engines allocated as part of the pre-determined attendance (PDA) were mobilised at 20:31 hours. The first engine was in attendance within **3 minutes 17 seconds**.

- 82.** The only special appliance on the PDA was the high reach AA¹², a Turntable Ladder (TTL), which was mobilised as the nearest such resource from Stretford Community Fire Station (travel distance of 12.3 miles) and arrived with a response time of **14 minutes 17 seconds**.

¹¹ The response time reflects the time of arrival at an incident for the first appliance GMFRS sends, from the moment it is mobilised. This excludes time taken for call handling.

¹² GMFRS has two types of high reach aerial appliances available: Hydraulic Platform Vehicles (HPVs) and Turntable Ladders (TTLs). Either can be mobilised as the nearest aerial appliance to an incident.

SUMMARY INCIDENT TIMELINE

- 83.** The following offers a summary of the chronological sequence of events relevant to the incident.

At **20:29** hours on 15th November 2019 NWFC received a call from a private mobile phone in which the caller reported a fire at 'The Cube'.

NWFC mobilised a PDA of five fire engines and a high reach AA with its supporting fire engine. Fire engines from Bolton Central, Bolton North, Farnworth and Stretford Fire Stations proceeded to the incident. GMFRS had its first fire engine on scene at **20:34** hrs, within 3 minutes 17 seconds of mobilisation.

At **20:35** hours, based on further information reported in a further 999 call NWFC sent a message to all responding resources stating "fire contained in flat 52 on floor number six, building is evacuating".

At **20:36** hours, with further resources still en route, NWFC received a 999 call from outside the premises in which the caller stated "appears to be three flats on fire and most people not evacuating".

At **20:39** hours NWFC shared the additional information to all fire engines via the main scheme radio, but only one fire appliance acknowledged receipt of this message.

Key Observation 6

The initial firefighters who attended the fire at The Cube were faced with a rapidly developing incident. Traditionally, communication routes are reliant upon a firefighter attending to the radio fitted to the fire engine, whilst often also engaged in critical activity such as securing water supplies or supporting other time critical tasks.

The successful passage of information between NWFC and the Incident Commander in the early stages was hindered in part due to the total involvement of all firefighters in the immediacy of the situation they faced upon arrival.

At **20:42** hours the Incident Commander (IC) sent an assistance message¹³ to 'Make Pumps¹⁴ Eight' to increase resources from the five fire engines and AA at the scene. Three further fire engines were mobilised by NWFC.

At **20:45** hours a message was sent from the incident ground to NWFC that the High Rise Immediate Residents Evacuation (HIRE) procedure was being implemented, prompting NWFC to initiate the action plan for HIRE.

Key Observation 7

GMFRS had introduced a procedure for full evacuation of a HRRB prior to the fire at The Cube. Firefighters and supervisory officers who attended the fire had received training in these new policies, including practical application at large scale exercises. This was developed in response to GTI paragraph 33.22b;

- *That fire and rescue services develop policies for partial and total evacuation of high-rise residential buildings and training to support them.*

¹³An 'Assistance Message' is a standard priority message from an incident ground in which the IC is requesting additional resources further to those already mobilised or in attendance.

¹⁴Pump: common terminology to denote a standard fire engine.

Key Observation 8

The initial IC recognised that there was abnormal fire behaviour, with signs of rapid external fire spread.

The importance of this knowledge and understanding is made clear in GTI 33.10.b;

- *FRSs should ensure that their personnel at all levels understand the risk of fire taking hold in the external walls of high-rise buildings and know how to recognise it when it occurs.*

At **20:46** hours the IC sent an assistance message to NWFC declaring the incident status as 'persons reported'¹⁵.

At **20:50** hours NWFC contacted North West Ambulance Service (NWAS) to inform them that a building fire and HIRE procedure was in progress and this constituted a Major Incident for GMFRS. NWFC attempted to pass the same information to Greater Manchester Police (GMP) but this took three attempts until successful contact was made.

Key Observation 9

The IC did not need to separately declare a Major Incident. This was an automatic and predetermined response on his behalf by NWFC upon receipt of the HIRE message.

Key Observation 10

Whilst NWFC, on behalf of GMFRS, undertake daily testing of interoperability communications on the Airwave IC1 (Incident / Silver Command) talkgroup, a delay was observed on this occasion with passage of critical information to other emergency control rooms for the purpose of sharing the Major Incident declaration.

¹⁵Persons Reported: A term used where persons are confirmed or believed to be in need of rescue from fire.

At **20:54** hours the initial IC sent an informative message to NWFC stating “fire involving all six floors of high rise premises. Breathing Apparatus (BA) crews withdrawn, two jets in use, TTL undertaking rescue of persons with evacuation sector¹⁶ and cordons established”.

At **20:55** hours GMP control room was informed of the incident. GMP informed NWFC that were receiving a call from an occupier in the adjacent building, ‘The Picture House’, who was trapped by smoke and unable to leave the premises.

At **20:56** hours NWFC mobilised a further full PDA of five fire engines and an AA with a support fire appliance to The Picture House, Bradshawgate, Bolton.

At **20:57** hours the fire engine acting as contact point on behalf of the IC was informed by NWFC that ‘fire survival guidance’ (FSG¹⁷) was being given to the occupier in flat 61 at The Cube, with the occupier reporting smoke coming into their apartment. NWFC were informed from the incident ground that firefighters were in contact with the occupier of flat 61. The occupier was subsequently rescued by a firefighter on the AA (a TTL with 32 metres¹⁸ maximum reach) from a sixth floor window.

¹⁶In FRS incident command, a ‘sector’ is a means for categorising areas of the incident ground. This may be geographical (e.g. front of building, rear of building, etc.) or functional (e.g. water sector, evacuation sector, etc.)

¹⁷The concept of FSG is based on information received via 999 calls to FRS control rooms, stating location and situation of occupants still in the building. The control room operator will attempt to advise the caller with regards to their safety, and share the callers’ location with the Incident Commander (or Evacuation Officer if one is designated).

¹⁸ GMFRS has both 32 metre and 42 metre TTLs available.

Key Observation 11

The traditional route of critical information between the control room and the IC relies on intermediaries, often a firefighter nominated to stay close to the radio affixed to the fire engine. GMFRS personnel below the rank of Station Manager who might be expected to undertake the role of IC, do not routinely have access to a portable radio system that they can take with them to the scene of operations.



Image 5: Appliance CCTV (TTL) showing 32 metre ladder extended to sixth floor of The Cube to effect a rescue

Following the rescue from the sixth floor another occupier was reported and located by crews by a window at the rear of the building on the second floor. The resident was subsequently rescued by crews using a short extension ladder.

At **21:00** hours the Duty Group Manager (DGM) opened the Command Support Room (CSR) at GMFRS Headquarters.

At **21:01** hours an assistance message was sent from the IC at The Cube for 'Make Pumps 20'. A further 12 fire engines were mobilised by NWFC.

At **21:04** hours NWFC contacted the fire control rooms at Staffordshire and West Midlands FRSs and LFB, commonly known as 'buddy' control rooms under arrangements for providing resilience, informing them, that should they receive any calls for The Cube, to instruct residents to evacuate the premises immediately and disregard any stay put policy.

Key Observation 12

The early sharing of information between FRS control rooms appears to have provided clarity for those 'buddy' control rooms in case of them receiving 999 calls to The Cube and providing FSG on behalf of NWFC.

At **21:05** hours a further assistance message was sent to 'Make Aerial Appliances Two'. A further high reach AA (HPV) was mobilised by NWFC.

In addition to the 20 fire engines now requested, additional supporting special appliances were mobilised as part of the 'make up' action plan, consisting of a Command Unit, Air Unit (Drone), Breathing Apparatus Unit, an additional Command Unit dedicated to coordinating the evacuation and a Technical Response Unit.

Key Observation 13

The use of GMFRS's Air Unit was highlighted in incident command debriefs as hugely beneficial to the IC in developing improved situational awareness. Its ability to utilise thermal scanning to identify areas of concern and stream live pictures for the IC to consider was invaluable. The information supplied was able to be used to confirm or amend the tactical plan and firefighting strategy.

At **21:12** hours a supervisory officer, at the rank of Station Manager (SM), who had been mobilised as part of the initial PDA, took charge of the incident following a brief scene assessment.

In addition to the mobilisation of the SM, a further six supervisory officers were mobilised by NWFC as part of the 'make up' action plans requesting eight and, subsequently, 20 pumps. These additional functional roles consisted of a Group Manager (GM) and Area Manager (AM) for Incident Command, Hazardous Materials and Environmental Protection Officer, Command Support Officer, Evacuation Officer and an Operational Assurance Officer.

At **21:23** hours NWAS staff attended to the female casualty who had been rescued by TTL from the sixth floor at the rear of the building.

At **21:24** hours NWS contacted GMP via the designated Airwave¹⁹ emergency channel 'PGMP-IC1' to inform them of resources deployed and that there was currently an unknown number of potential casualties at the incident.

Key Observation 14

Whilst GMFRS, NWFC, NWS and GMP undertake weekly testing of interoperability communications on the Airwave ES1, ES2 & ES3 (Bronze Command) talkgroups, this is limited to a small cadre of staff.

In undertaking debriefing with multi-agency partners, it was recognised that the opportunity to use common interoperability 'sharing' talk groups (radio channels) at the incident was not used.

At **21:25** hours a further assistance message was sent to 'Make Hose Layers Two'. As no Hose Laying Lorry (HLL) had yet been mobilised by NWFC, one was mobilised. No further HLL resource was available due to alternate crewing arrangements within GMFRS.

In accordance with the action plans, NWFC contacted the Environment Agency and Local Authority Forward Incident Officer to inform them of the incident.

At **21:37** hours the AM, who was mobilised as part of the action plan for 'make pumps 12+', arrived in attendance and undertook a scene assessment.

At **21:52** hours NWFC were informed to disregard the previous request for an additional HLL due to its unavailability. A request to mobilise a High Volume Pump (HVP) as a replacement resource was given.

¹⁹The 'Airwave' network is the dedicated and secure digital radio network used by the emergency services, and allows a degree of interoperability through common 'talkgroups' (channels).

At **21:53** hours the AM took charge of the incident. A revision of functional roles within the incident command structure was undertaken. The IC recognised that one of the functional officers mobilised was a qualified Fire Safety Enforcement Officer (FSEO) and reassigned him to provide tactical advice to the incident command team. It was recognised that not all the expected resources were in attendance, due to one action plan superseding the previous prior to full completion. On review of the actions completed so far, a BA Sector Commander was mobilised via NWFC.

Key Observation 15

The application of 'action plans' at NWFC and the change of incident type from a high rise building fire to one that now required HIRE procedures to be employed, impacted upon mobilisation of a number of resources. Specifically supervisory officers and special appliances.

Key Observation 16

The benefit of a FSEO at the incident cannot be over emphasised. The IC was supported with technical advice on building construction. The presence of an FSEO also enabled the prompt consideration and subsequent service of prohibition notices under Article 31 of the Fire Safety Order.

At **22:21** hours GMP and NWAS control rooms requested further information from NWFC. They were informed that this was a major incident (in accordance with GMFRS HIRE procedure) but no 'METHANE'²⁰ message had yet been received from the incident scene.

²⁰A METHANE message is the recognised common model for passing incident information between services and their control rooms: [jesip.org.uk](https://www.jesip.org.uk)

Key Observation 17

A multi-agency debrief recognised the understanding of, and passing of, METHANE messages is not always consistent across blue light control room operators.

At **22:27** hours NWFC was asked if the HVP had been mobilised. As both HVP crews were in attendance at the incident, NWFC requested a crew be released to return to collect the HVP.



Image 6: The Cube – 15th November 2019

At **22:34** hours the IC sent an informative²¹ message to NWFC stating “fire involving high rise student accommodation, several floors well alight, primary search unable to be completed due to severity of fire, building is six storeys in height approximately 30 metres by 30 metres. Unknown numbers of persons accounted for at this time. BA crews now withdrawn, two Aerials and multiple jets in use in offensive²² mode. RVP now established at junction of Bradshawgate and Trinity Way”. NWFC asked if the type of cladding is known at this time and it is stated this is ‘high pressure laminate’.

At approximately **22:45** hours a Strategic Coordinating Group (SCG) was convened at the nearest GMP station in Bolton. The Duty PO requested a second PO (an Assistant Chief Fire Officer (ACFO) who had made himself available from off-duty) to attend, with the support of a National Inter-Agency Liaison Officer (NILO) to offer tactical advice and logistical support.

At **22:52** hours the first of a number of standby fire engines were requested from neighbouring FRSs as part of mutual aid arrangements.

At **22:57** hours a ‘METHANE’ message was sent from the incident ground to NWFC and subsequently shared with emergency service partners.

At **23:10** hours the Duty PO attended the incident and carried out a scene assessment and reviewed the tactical plan. Given that the AM IC had full control and an effective operational plan in place, the Duty PO opted not to take charge of the incident.

²¹An ‘Informative Message’ is a standard message from an incident ground in which the IC provides an incident update in order to record key actions and progress.

²²The communication of the tactical mode is a way of recording a decision by the IC on the completion of the risk assessment and determination of the incident plan. It indicates the decision by the commander to deploy crews within the hazard area (tactical mode: offensive) or not (tactical mode: defensive).

By **23:39** hours further operational activity included four established location sectors and a functional BA sector, the deployment of safety officers, inner cordon gateway control and a water strategy developed with an appointed functional water officer overseeing the water plan. The incident still had undetermined numbers of persons unaccounted for.

Firefighting activity at this time involved searches being carried out on the ground and first floors with multiple hand held water jets and large capacity water monitors in use from the TTL and AAs.

At **00:16** hours an updated 'METHANE' message was sent from the incident ground. Primary searches were now completed on the ground, first, second and third floors with five further flats searched on fourth and fifth floors where access was possible.

A number of multi-agency activities occurred at this time with an environmental impact assessment carried out in conjunction with Public Health England, and Environment Agency and United Utilities assisting with the water strategy by augmenting the supply with water bowzers.

Key Observation

A multi-agency debrief recognised the effectiveness of application of Joint Emergency Interoperability Principles (JESIP) in the management of the incident;

- Commanders were easily identifiable
- A shared awareness of hazards and risks
- Colocation and communication with commanders occurred
- Good structured briefings with contribution and support from partners
- Effective use of GMFRS Command Unit as focal point for command activity

At approximately **00:42** hours, in addition to mutual aid support, a request went to FRS National Resilience to support GMFRS, and eight additional fire appliances were provided from other FRSs.

At **01:34** hours a request for relief crews was sent to NWFC. This consisted of 10 fire engines and three AAs with relevant supporting appliances.

From **02:00** hours relief duty procedures were implemented with officers and crews mobilised to the incident to undertake relief duties.

By **03:10** hours the relief crews and officers had been implemented and a GM was now in place as IC. Four sectors remained in offensive mode with firefighting and operational activity still on-going.

At **07:17** hours a six fire engine relief was requested with a three officer command structure consisting of an IC (GM), Operations Commander (SM) and Command Support Officer (SM).

At **07:21** hours a Fire Investigation Officer was mobilised to the incident to start initial investigations.

It was not until the afternoon of Saturday 16th November that all residents of The Cube were formally accounted for.

- 84.** The incident continued with GMFRS involved in damping down and fire investigation with fire appliances leaving the scene at approximately midday on 18th November. The incident was on-going with investigations for a further 15 days.

POST INCIDENT

- 85.** The incident attracted local, regional and national media attention over the following days. Local politicians, leaders and Government officials, including the Prime Minister, visited the scene.
- 86.** It was anticipated that given the extensive media coverage during the incident, that there could be increased anxiety for residents in other HRRBs, and therefore proactive reassurance messaging was initiated through GMFRS social media channels.
- 87.** Due to the nature and complexity of the incident it attracted further interest from a range of external partners and organisations, such as 10 Downing Street, Home Office, Ministry of Housing, Communities and Local Government (MHCLG), NFCC, and Building Research Establishment (BRE). Further work is continuing with an aim to fully complete fire investigation and fire development research.
- 88.** GMFRS's Corporate Leadership Team (CLT) initiated a SIR to be carried out by the Operational Assurance Team.
- 89.** Video footage of the incident from news and social media platforms, GMFRS Air Unit (drone) and Closed Circuit Television (CCTV) from GMFRS fire engines was collated.
- 90.** Through December 2019 and January 2020 an Incident Command Review, Strategic Debrief and Multi-Agency Debrief were conducted. Concurrently, a full FI process was undertaken.

OPERATIONAL RESPONSE TO THE CUBE

Initial Actions

- 91.** NWFC received the first call from a mobile telephone reporting a fire in The Cube at 20:29 hours. The initial call reported a fire on the fourth floor.
- 92.** NWFC activated the action plan for a high rise building fire which proposed a PDA of five fire engines and an AA.
- 93.** On arrival the initial Incident Commander (IC) could see no visible smoke or flames. He was met by a person at the fire alarm panel who was able to provide information as to the location of the fire and on confirming an evacuation of residents was underway, asked the person to leave the building and started to proceed to the fourth floor to investigate the fire.
- 94.** Whilst the evacuation of residents continued, firefighters arrived at level four via the north stairwell, guided by the residents. Their initial impression was that the fire had spread from within one of the accommodation units on the fourth floor. Firefighters identified the rising firefighting main (dry riser) installed to the building, connected to it and started to lay hose ready to fight the fire from access in the north stairwell.
- 95.** The simultaneous images below were captured on The Cube's CCTV, showing fire development on the fifth and fourth floors at 20:38 hours, 10 minutes after the first 999 call.



Image 8: Internal CCTV 20:38hrs – 15th November 2019

- 96.** The IC left the north stairwell to gain better situational awareness and observed the fire developing both above and below what he initially believed to be the level of the fire. He instructed crews to re-deploy to the second floor to set up a bridgehead²³ below the lowest affected floor.
- 97.** Firefighters quickly ascertained that on charging the dry riser on Bradshawgate, on Phase 1 of The Cube, no water was available at the riser outlet(s) within the north stairwell located in Phase 2. A firefighter was tasked to relocate the fire appliance to the rear side of phase two building to connect to a further dry riser and charge with water.

²³A 'bridgehead' is an additional command and control position within a building or structure, for example in a high rise, positioned two floors below the 'fire floor', from where operational tactics and resources can be controlled and deployed.

Key Observation 19

The Cube was fitted with separate dry rising mains to Phase 1 (accessed at the front of the building) and Phase 2 (to the rear). These mains were independent to each other and not interconnected. This is critical information that was not available on the site specific risk information available to the IC (albeit the information that was available was not accessed).

- 98.** Smoke entered the north stairwell and made the environment untenable, compromising the safety of firefighters operating in the area and a withdrawal was instructed. Firefighters withdrew to the base of the stairwell.
- 99.** With firefighters now unable to safely operate from within the protected stairwell and deploy firefighting hose lines, a positive pressure ventilation fan was set up at the base of the stairwell to attempt to disperse the smoke and allow access. Concurrently with this, a number of handheld hose-reels were deployed from external areas including from the open terrace / decking area.
- 100.** The IC left the north stairwell to gain better situational awareness and observed the fire developing both above and below what he initially believed to be the level of the fire. He instructed crews to re-deploy to the second floor to set up a bridgehead below the lowest affected floor.
- 101.** The IC continued his dynamic risk assessment and tasking through short briefings whilst he strived to gain situational awareness against very dynamic and demanding initial stages of the incident. Meanwhile simultaneous actions were being carried out by other officers and firefighters to ensure firefighting was employed and efforts were made to locate and evacuate residents.

- 102.** Within the first 30 minutes two rescues were performed. One female resident was rescued from a sixth floor window with the aid of the 32 metre TTL. It should be noted that almost immediately following the rescue of this resident by the high reach appliance, the flat she was rescued from became engulfed in smoke and fire, and was subsequently destroyed.
- 103.** Shortly following this rescue a further resident was located as trapped on the second floor. Firefighters pitched a short extension ladder to access a first floor flat roof section. A further section of ladder was pitched from the first floor flat roof within a recessed atrium to access the second floor window. The resident was rescued from the window and led down to safety via the pitched ladders.

Command and Control

Levels of Command

- 104.** GMFRS employ an incident command system in accordance with FRS National Operational Guidance (NOG) with levels of command as follows;
- » Incidents involving 1-3 fire appliances²⁴ – Crew Manager (CM) / Watch Manager (WM) in charge
 - » Incidents involving 4-7 fire appliances – SM in charge
 - » Incidents involving 8-11 fire appliances – GM in charge
 - » Incidents involving 12+ fire appliances – AM in charge
- 105.** Action plans at NWFC initiate the level of command required either within the initial PDA or as part of a 'make-up' action plan.
- 106.** Command at the incident was initially taken by the officer-in-charge of the first fire engine to arrive, who held the rank of WM.
- 107.** GMFRS's SIR found the initial operational command was effective and efficient. Review of incident logs, Standard Operating Procedures (SOP), HIRE procedures and the Incident Command review debrief, evidenced that decision making was decisive and robust, against a backdrop of a highly stressful and rapidly escalating situation.

²⁴For incidents involving 'life risk' the nearest SM or GM will be mobilised

- 108.** A basic Incident Command Structure (ICS) was implemented in the initial stages of the incident. This consisted of the IC and a sector commander and a nominated 'evacuation officer'.
- 109.** In addition to the fire appliances sent within the PDA a supervisory officer (SM) was mobilised as IC consummate with GMFRS level of command for the resources required and life risk incident type.
- 110.** The implemented ICS (tactical level) had a number of anomalies. These were partly due to mobilising issues created by the conflict of initiated NWFC action plans and partly due to re-allocation of roles due to nature of the incident.
- 111.** On arrival the SM, on assessing the incident status, dynamic nature and escalation of the incident, took charge as IC after undertaking a partial scene assessment.
- 112.** The assistance messages sent for 'make pumps 8' and 'make pumps 20' initiated the relevant action plans and a GM and AM were mobilised to the incident.
- 113.** Due to the incident status and level of command required, the AM took charge of the incident following a handover from the SM.
- 114.** GMFRS designates a Duty PO to hold responsibility for the Service. The Duty PO may undertake the role of strategic commander (otherwise known as Gold command) at their discretion.
- 115.** At approximately 22:10 hours the Duty PO (an ACFO), contacted the duty NILO to request contact be made with GMP Force Duty Officer, with a view to opening 'Gold' command at GMP's Force Command Module to establish an SCG.
- 116.** The Duty PO, following initial attendance at the CSR, attended the incident to gain situational awareness and carried out a scene assessment and review of the tactical plan.

Command Support Room

- 117.** GMFRS has the availability of a Command Support Room (CSR), a single location established away from the incident ground, from which support can be provided to assist service delivery. Routinely this is established in a dedicated facility at GMFRS's Headquarters in order to support ICs at operational incidents or initiating Business Continuity Management (BCM) arrangements.
- 118.** The CSR is activated on response to a number of triggers, including large scale fire incidents.
- 119.** To support this, GMFRS nominate on a daily basis a Duty GM to undertake the role of Command Support Room Officer (CSRO). One AM is nominated as the APO (GMFRS Tactical / Silver Commander).
- 120.** On notification of the developing fire at The Cube the DGM attended Fire Service Headquarters and opened the CSR to give additional command support to the incident command team at the scene.
- 121.** On becoming aware of the incident, the ACFO Director of Protection made himself immediately available and attended Fire Service Headquarters, recognising the national and political interest that would quickly emerge given the visual images that were circulating in the media. As the Deputy Chair of the GMHRTF, the Director of Protection was able to provide that immediate sector knowledge and support to the Duty PO, the IC and wider stakeholders.
- 122.** With the Duty PO and Duty APO in attendance at the incident, a recall to duty was initiated for additional supervisory officer support resulting in a second APO (AM) and number of supervisory officers (SMs and GMs) recalling from off-duty.
- 123.** The Director of Protection contacted the off duty Head of Protection, who subsequently also attended the CSR, and was able to immediately provide information and access to data and background on The Cube, whilst supporting wider requests for information which materialised throughout the night.

- 124.** The Head of Protection was also made available to support staff in relation to fire protection issues and potential for further developments and early initiation of post incident work, including fire investigation and prohibition.
- 125.** The availability of the Head of Protection in remotely supporting this information was commended by partners from the MHCLG and recognised as good practice. This was due to the enabling of MHCLG colleagues, via strategic briefings within the SCG, to disseminate information at the earliest opportunity to Government Ministers.

Key Observation 20

The immediate requests and demand for data, information and status of The Cube from a local, regional, political and ministerial perspective was significant. The benefit of access to technical specialists remotely supporting the incident cannot be overemphasised.

Decision Making

- 126.** The initial IC was undoubtedly faced with a very challenging and dynamic incident.
- 127.** This report supports and commends the quick decision making that was undertaken by the initial IC and supporting fire appliance commanders in the early stages of the incident.
- 128.** The IC recognised that the building was reacting in a way that was not in accordance with his expectations and the early request for assistance for both an immediate evacuation and additional resources was a key decision and fundamental element of GMFRS's operational response and undoubtedly served to reduce harm to those involved.
- 129.** The inability to undertake a roll call due to the use of the premises, or to effectively confirm occupation levels and residents' whereabouts, affected decision making and prioritisation of search areas.

Key Observation 21

The Cube is student accommodation and therefore the residents' details were known by the accommodation provider and in many cases, the University of Bolton. However, as with all residential accommodation there is no mechanism for recording occupation levels and any visitors who may be present. This poses a challenge in terms of accounting for all persons, and planning and undertaking searches.

Collaboration with representatives from the housing provider and the University of Bolton was able to provide assurance against role call results, tracking residents and accounting for all involved, although this took many hours to confirm.

It is recognised that this level of information is not available for many multi-occupied residential buildings and therefore it could take much longer to confirm all persons accounted for.

- 130.** The situation that was presented to the IC in relation to a compromised protected stairwell and lack of access to floors to fight the fire internally also hindered decisions relating to firefighting tactical options.
- 131.** Another key decision made in the initial stages of the incident was the appointing of an appliance commander to undertake the role of an 'Evacuation Officer' to oversee and coordinate the logistics and information of the residents' evacuation.
- 132.** The SM, who took over as IC at the command level defined by FRS NOG as Intermediate Tactical Command, was in charge of the incident for approximately 40 minutes.
- 133.** During this time the IC attempted to gain situational awareness, receive a handover from the initial IC and subsequently gave a briefing to the oncoming IC (AM). Due to these tasks and actions this gave little time to formulate and progress any further tactical

plan. However, despite limited time for decision making there was a review of the OIS, nomination of a CM to undertake a review of water supplies, positioning of the AA and formally sectorising the incident and appointing sector commanders.

- 134.** As the PDA which had been mobilised to the further incident reported at The Picture House arrived, decisions were made by the SM to search the top two floors of The Picture House. He further instructed firefighters to utilise the balcony areas to direct firefighting jets onto the fire affecting The Cube next door.
- 135.** The AM, who arrived to undertake the command level defined by NOG as Advanced Tactical Command, took charge of the incident following a scene assessment and briefing from the previous IC.
- 136.** It is notable that a number of those involved in activity in support of the incident, were instrumental in the work of the High Rise Team, and / or had undertaken practical testing of amended high rise and evacuation procedures and received input in recognising the signs of abnormal fire spread.
- 137.** In particular, the AM IC had lead on service-wide improvements with respect to high rise firefighting capability and was fundamental in the development of Stairwell Protection Teams, purchase of smoke hoods and smoke curtains, and the implementation of the HIRE procedures.
- 138.** The learning from these experiences and workloads were hugely beneficial to both the individual commanders and GMFRS colleagues at the incident.
- 139.** A key decision made by the IC at this time was to prioritise the protection of the adjacent buildings and to continue to deploy jets from a balcony area of the adjacent building (The Picture House) to stop radiated heat and hence, fire spread to other buildings.

- 140.** A further fundamental decision was to re-establish BA procedures and progress searches of the ground and first floor to locate residents and complete primary searches of each area of accommodation.
- 141.** The role of the GMFRS Strategic Commander, also referred to as 'Gold Commander', may be undertaken by the nominated Duty PO as defined within GMFRS procedure.
- 142.** With the on duty PO mobilised to the incident, the recalled-to-duty PO was nominated to Chair the Strategic Coordination Group at GMP Bolton Headquarters on behalf of GMFRS. The on duty APO undertook the role of IC at the scene, with a recalled-to-duty APO (AM) attending the CSR.
- 143.** A subsequent Tactical Coordination Group was chaired by the recalled-to-duty APO (AM). With an almost depleted officer cadre, no further GMFRS support was available for TCG.

Decision Logging and Contemporaneous Notes

- 144.** Under GMFRS policy and procedure for Incident Command, GMFRS has a guidance note 'Incident Command – Decision Logs'. The guidance note also offers guidance on contemporaneous notes. All GMFRS supervisory officers are issued with a Policy and Decision log book and personnel expected to take charge of a fire engine and all other officers, are issued with a contemporaneous note book.
- 145.** With the full attendance of resources in place, the IC (AM) utilised the GM, who was mobilised as part of the action plan for 'Make Pumps 8', as an appointed loggist due to his recognition of the requirement of decision logging. Whilst a decision log was maintained and comprehensive, this was not in accordance with GMFRS policy and procedure.

- 146.** A decision log was kept in the CSR and provided as information to support the review. This held some information around requests for support from both mutual aid and National Resilience but was limited in information or clarity in who decided actions or not, and the supporting rationale to support the decision.
- 147.** The SIR carried out by GMFRS recognised that whilst decision logs and contemporaneous notes were completed by a number of key roles, application of existing guidance was not consistent across all areas.

Key Observation 22

Decision logging and the completion of contemporaneous notes by individuals at the scene or supporting in remote roles was not consistent, and hence, not fully effective.

FIREFIGHTING

Summary of Fire Spread

148. Firefighters attending the scene were faced with rapidly developing and unpredictable fire spread. Burning debris falling from the sixth floor, collected within the recessed façade of the building at ground level, developing further seats of fire. This was particularly noticeable in the atrium area between the north stairwell and the accommodation. The fire then spread upwards, causing large amounts of radiant heat from roof level.

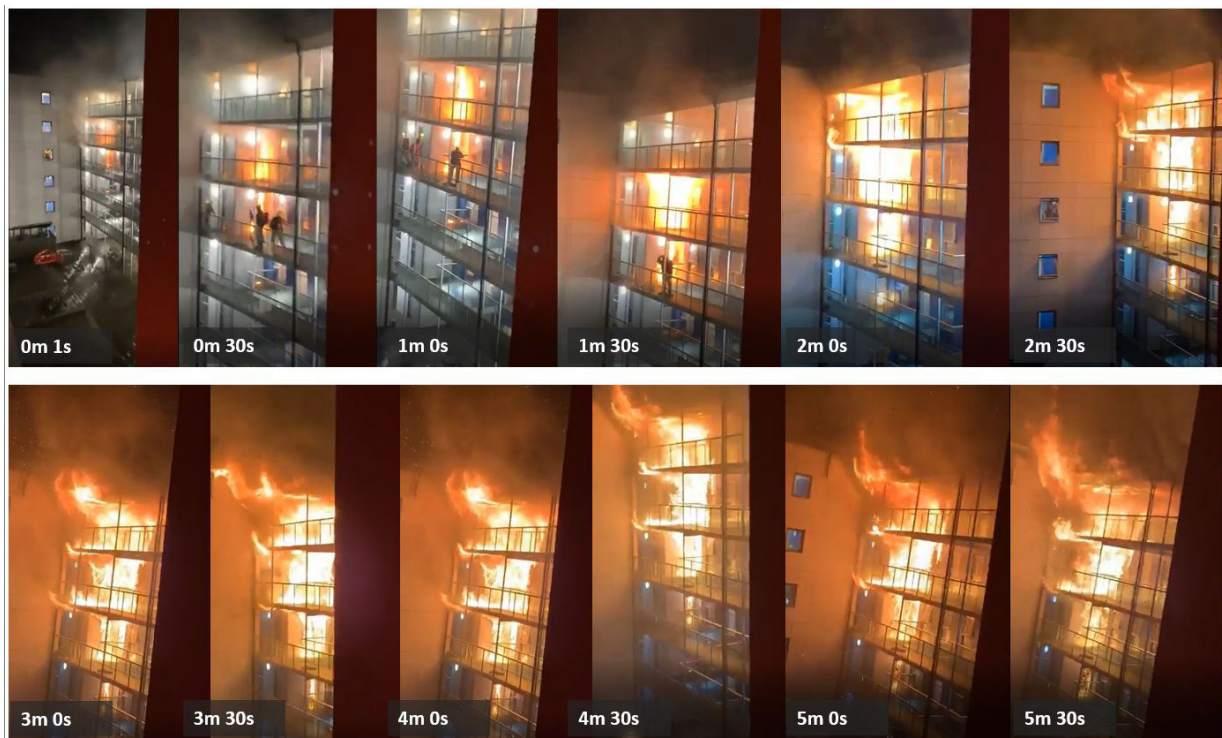


Image 8: The Cube - collation of still images taken from video footage recorded within 10 minutes of initial 999 call - 15th November, 2019

149. Fire spread through the accommodation block and lift lobby, with subsequent failure of glass partition walls. Significant fire damage was observed throughout the decking outside the flat entrance doors.

- 150.** The fire spread laterally across the upper aspect of the building to involve the entirety of the roof. Further seats of fire developed at the rear of the building as burning debris fell into recesses at floor level. Again, fire spread the height of the building with smoke, heat and fire entering flats on each level as windows failed.
- 151.** With the additional resources in attendance, the building was surrounded with firefighting jets of water from ground level from within the open courtyard / terrace area and from the Silverwell Lane aspect, from neighbouring buildings, and from high reach AAs.



Image 9: The Cube – Phase 2 – 15th November 2019

- 152.** Below level six, the internal compartmentation appeared to be largely effective in checking the spread of fire. Level six, however, was fully engulfed in flames and completely destroyed.
- 153.** Efforts to prevent fire spread by radiant heat to adjoining buildings was successful, despite their close proximity to some aspects of The Cube.
- 154.** The use and deployment of GMFRS's Air Unit (Drone), particularly with the thermal imaging capability, assisted the IC with assessment of fire spread and the deployment of assets for direct firefighting and protection of neighbouring buildings.
- 155.** Whilst it was confirmed that full searches had not been completed due to the severity of fire damage and unsafe structures, the remainder of the night activity consisted of lower level operational intervention. As the incident declined from the dynamic developing stages to a steady state, multi-agency briefings and updates to partners continued.

EVACUATION

High Rise Immediate Resident Evacuation (HIRE)

- 156.** Within this report, reference is made to the HIRE procedures. Prior to the fire at The Cube, and in response to the Grenfell Tower fire GMFRS had developed, tested and implemented the HIRE procedure for the management of emergency evacuation of a high rise building where the decision to move from 'stay put' to evacuate was required.

Evacuation of The Cube

- 157.** The recognition early into the incident that the building was failing to contain the fire, multiple fire spread patterns and the loss of integrity of the protected stairwells resulted in the IC realising the need for an immediate and full evacuation of The Cube.
- 158.** NWFC's subsequent and clear change of advice to callers from stay put to evacuate, it is considered, contributed to the reduction of injury and allowed all persons to safely leave the building.
- 159.** The Evacuation Officer coordinated the evacuation plan supported by a dedicated team on the Evacuation Command Unit, which became the intended focal point for management of information for evacuated persons.
- 160.** Staff from the University of Bolton (despite having no legal obligation to do so, or responsibility for the building) worked with representatives from Bolton Council (including the Forward Incident Officer), GMP and NWAS to collate information on residents either accounted or unaccounted for.

- 161.** With the fire occurring on a Friday evening, so close to a town centre, tracking occupants was not easy. For a number of hours, it was unsure if those unaccounted for from severely damaged areas of the building and hence unable to be searched, remained in situ.
- 162.** The Evacuation Command Unit provided the method and mechanics for tracking where residents had been located, and to where they had be relocated, to a point early into the following day where all persons were accounted for. It is key to note that this activity went far beyond the initial emergency stages of firefighting.

Immediate Building Evacuation (IBE)

- 163.** Following the fire at The Cube and the implementation of HIRE outside the training environment and based on further feedback, GMFRS has since adapted this procedure to allow it to be extended to any multi-occupied residential building, amending the procedure to 'Immediate Building Evacuation' (IBE), as summarised below.
- 164.** If it is determined by an IC that a building which would be expected to have a stay put strategy in place, requires immediate evacuation due to the building not behaving as would be expected, the IC can send an IBE message to NWFC. This is embedded in standard operating procedures and is summarised as follows:
- If evacuation required
 - » Send IBE 'Assistance' message to NWFC
 - » Inform NWFC how many additional pumps required
 - » Send METHANE Message after IBE message has been sent
 - NWFC will
 - » Mobilise additional resource including Evacuation Officer and Evacuation Command Unit with support fire engine
 - » Change FSG to "Evacuate"
 - » Create a second incident for Evacuation Command Unit
 - » Automatically declare a Major Incident and inform other agencies

- 165.** Once IBE has been initiated all occupants of the building are assumed as at risk and evacuation is commenced. A dedicated Evacuation Officer supported by a Command Unit mobilised specifically for the coordination of the evacuation will develop and implement the evacuation process which is implemented in each area of the incident by the Sector Commanders.

WELFARE

- 166.** Following the incident GMFRS recognised that the scene faced by the initial attending crews was clearly of an extreme nature. Aware of the Grenfell Tower fire and the impact of that incident, anxiety levels were reported as high by some firefighters and officers who attended the scene.
- 167.** It is clear also that some personnel, particularly those who attended in the early stages of the incident, subsequently left the scene not clear as to whether there was a loss of life yet to be determined. Many left the incident assuming that there was still residents inside the building, in areas that had been involved in fire, subject to severe structural damage and therefore unable to be safely searched.

Key Observation

Some personnel left the incident scene, many remaining on duty for the remainder of the shift, with the thought of the potential mass fatalities as yet not discounted. This had the potential to impact on health and wellbeing of individuals. It is of note that had the incident resulted in fatalities confirmed, critical incident debriefs and associated welfare procedures would have automatically been initiated.

AFTERWORD

- 168.** GMFRS has agreed proposals to develop a structure and supporting mechanisms to lead on the coordination of its response to identified risks and learning in respect of the built environment. The emerging capability will seek to build on the existing coordinated and collaborative approach by GMFRS, to implement further measures to support the coordination, analysis and routes for mitigation of significant learning identified.
- 169.** In September 2019, the Minister for Crime, Policing and Fire established a new Protection Board, which aims to strengthen protection activities across FRSs in England and increase the pace of inspection activity across HRRBs. The Protection Board has recommended MHCLG provide funding distributed to each FRS to support this work.
- 170.** It is clear that the current shortcomings in the built environment represent a significant risk to GMFRS and therefore also GMCA. The GMFRS Corporate Risk Register identifies that GMFRS may not be able to effectively influence the legislative and policy context in which it operates utilising current resources and structures. The risk register also identifies that there are opportunities to develop best practice advice and guidance to enhance safety in residential buildings which will better equip GMFRS to ensure the safety of the public and firefighters.
- 171.** GMFRS's large scale 'Built Environment Project' will encompass all aspects of work related to the built environment to coordinate and support these improvements within Greater Manchester.

172. This coordinated approach will:

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- ✓ Ensure GMFRS's response to identified risks and learning in respect of the built environment;
 - ✓ Support the analysis and routes for mitigation of the significant learning identified through, principally the GTI, The Cube and Her Majesty's Inspectorate of Constabulary and Fire & Rescue Services (HMICFRS) reports;
 - ✓ Enhance understanding of the current built environment risk across all areas of Greater Manchester and GMFRS;
 - ✓ Identify if GMFRS are prepared to manage that risk;
 - ✓ Put structures in place to monitor current and future risks;
 - ✓ Develop assurance processes to respond to built environment risk;
 - ✓ Ensure monitoring of built environment risk is effective;
 - ✓ Ensure increased awareness of the built environment is provided to all our staff;
 - ✓ Ensure personnel are prepared to respond to risk;
 - ✓ Work effectively with our partners to reduce risk;
 - ✓ Record and report to stakeholders on progression of any risk mitigation activity.
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KEY OBSERVATIONS AND ACTIONS

Key observation	Actions by GMFRS	
Key Observation 1 The additional resources deployed at this fire, to support the evacuation of a multi-occupied residential building, support wider tactical and strategic multi-agency collaboration and provide safe systems of work through the initial emergency phase of the incident were significant. Against a backdrop to maintain effective concurrent fire cover across Greater Manchester, GMFRS experienced depletion of a number of key resources, requiring staff to be recalled to duty, and mutual aid to be called upon.	1a	GMFRS operational planning assumptions were reviewed in detail as part of its Fire Cover Review of 2019 to ensure that the service can suitably resource incidents of a foreseeable scale. GMFRS will reflect upon this review to assure that all aspects of a large scale multi-agency response to an incident, particularly beyond that required to form the immediate incident command team can be provided and sustained.

Key observation	Actions by GMFRS	
<p>Key Observation 2</p> <p>GMFRS have seen the benefit of directing training with regards to rapid or unexpected fire spread in multi-occupied residential buildings.</p> <p>Actions taken by GMFRS were in direct response to the fire at Grenfell Tower, emerging evidence from the inquiry and GMFRS's ongoing interventions. The importance of this is reflected in GTI paragraphs 33.10b;</p> <ul style="list-style-type: none"> • <i>That all fire and rescue services ensure that their personnel at all levels understand the risk of fire taking hold in the external walls of high-rise buildings and know how to recognise it when it occurs.</i> • <i>These actions have been subsequently reinforced within NFCC's Information Note: 'Buildings that Fail in Fires' (December 2019);</i> • <i>Consider the prevalence and significance of incidents where rapid or unexpected fire spread has occurred when prioritising risk, this may include instances of firespread involving timber frame construction and external fire spread</i> • <i>Ensure operational personnel have an adequate understanding of building construction to identify potential failures in fire safety precautions</i> • <i>Ensure operational personnel are aware of the signs and symptoms of a building that is failing in fire.</i> 	2a	GMFRS has taken measures to ensure all firefighters and those staff expected to undertake a command and control role understand and recognise the risks of rapid and unexpected fire spread with the built environment. GMFRS will develop further opportunities to enhance, embed and routinely assure itself of the knowledge, skills and understanding of its staff in this area.
	2b	GMFRS will further develop its firefighters and those staff expected to undertake a command and control role, by increasing training in the principles of building construction and fire protection, in order to identify potential failures, and to inform effective firefighting tactics should a fire occur.

<p>These actions have been subsequently reinforced within NFCC's Information Note: 'Buildings that Fail in Fires' (December 2019);</p> <ul style="list-style-type: none"> • <i>Consider the prevalence and significance of incidents where rapid or unexpected fire spread has occurred when prioritising risk, this may include instances of firespread involving timber frame construction and external fire spread</i> • <i>Ensure operational personnel have an adequate understanding of building construction to identify potential failures in fire safety precautions</i> • <i>Ensure operational personnel are aware of the signs and symptoms of a building that is failing in fire.</i> 	2c	<p>GMFRS will work with NWFC partners to explore opportunities for fire control room operators to identify and capture information which might identify unexpected or rapid fire spread from the very first stages of an incident, using a technological solution if appropriate, and the means of sharing this information direct to the IC and other attending resources.</p>
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Key observation	Actions by GMFRS	
<p>Key Observation 3</p> <p>GMFRS has invested in a dedicated high rise training facility which opened in 2017, and have made use of this to develop, test and train for amendment to high rise standard operating procedures, including in particular, the development of evacuation procedures, deployment of stairwell protection teams, and the use of smoke curtains to protect means of escape.</p> <p>GMFRS have made this facility, located in Bury, available to neighbouring FRSs to carry out their own training.</p>	3a	<p>GMFRS has initiated a schedule of realistic firefighting exercises to simulate firefighting within, and where required, full evacuation of a multi-occupied residential building.</p>
	3b	<p>GMFRS will further expand the opportunities for incorporating multi-agency partners into a schedule of exercising to include full evacuation of a multi-occupied residential building.</p>
	3c	<p>GMFRS has made its high rise training facility available for other regional FRSs and agencies to support realistic training. We will seek to expand these opportunities where possible.</p>

Key observation	Actions by GMFRS	
<p>Key Observation 4</p> <p>It was reported subsequent to the fire that the some residents of The Cube did not immediately respond to the fire alarm as '<i>..it goes off all the time..</i>'. This perception has the potential to delay an appropriate response, and hence the ability to safely move to a place of safety.</p>	4a	GMFRS is working with GMHRTF to initiate a media campaign to encourage appropriate response to a fire alarm sounding in a multi-occupied residential building.
	4b	<p>GMFRS in undertaking a fundamental review of fire prevention messaging for residents of flats.</p> <p>This is reinforced by GMHRTF's High Rise Residents' Survey of January 2020 in which occupiers of HRRBs reported</p> <ul style="list-style-type: none"> • 70% of residents thought they were either 'not very likely' or 'not at all likely' to have a fire • When asked, 1/3 of residents didn't know the evacuation strategy for their building. <p>Other residents said they would like to receive information via emails, text messages, meetings, online videos and social media.</p>
	4c	GMFRS will work with GMHRTF to support the production of guidance on managing evacuation strategies in multi-occupied residential buildings which were intended to have a 'stay put' strategy, which should include the frequency and nature of evacuation drills.

Key observation	Actions by GMFRS	
<p>Key Observation 5</p> <p>The importance of the timely gathering of operational risk information is key to firefighters' understanding of the risk a building may pose, the layout features and firefighting systems, and hence, the subsequent application of this knowledge in case of an incident at the premises.</p> <p>Access to some aspects of The Cube building was severely hampered for FRS appliances, in particular high reach aerial appliances.</p> <p>Learning in respect of the gathering of operational risk information was recorded by the Coroner in response to the Lakanal House Fire in a Rule 43 letter to the FRS, in order to provide:</p> <ul style="list-style-type: none"> <i>'..guidance as to matters which should be noted by crews making familiarisation visits and visits pursuant to section 7(2) (d) Fire and Rescue Services Act 2004, including the gathering of information regarding flats or maisonettes with unusual layouts and access for aerial ladder platforms and other specialist vehicles'</i> 	5a	GMFRS is undertaking a full review into the identification of buildings that warrant the collation of operational risk information, and the associated guidance, training and assurance required in relation to gathering that information in a timely manner.
	5b	<p>GMFRS will ensure that all officers of Crew, Watch and Station Manager are trained in carrying out the collation of operational risk information relating to the inspection of high-rise buildings.</p> <p>It was reported by the Chairman of the GTI that '...crews who visited Grenfell Tower during its refurbishment were not trained to carry out the inspections properly.</p> <p>This recommendation is reinforced by GTI 33.11b;</p> <ul style="list-style-type: none"> <i>'That the LFB ensure that all officers of the rank of Crew Manager and above are trained in carrying out the requirements of PN633 relating to the inspection of high-rise buildings.'</i>

	<p>5c</p> <p>GMFRS is working with partners and stakeholders including GMHRTF to identify buildings that may present additional risk, including those with:</p> <ul style="list-style-type: none">• Higher risk timber frame structures, such as sheltered housing, where there is evidence that the passive fire safety measures such as cavity barriers and fire stopping may not support the evacuation strategy• External elements that may be flammable or contribute to fire loading• Restricted evacuation routes or evacuation strategies that may be compromised by a failure in compartmentation or firestopping• Modern methods of construction such as timber frame or steel structures.• Extensive alterations made including in older buildings where multiple compartment breaches may have occurred. <p>This recommendation is reflective of NFCC's Information Note: 'Buildings that Fails in Fires' (December 2019)</p>
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Key observation	Actions by GMFRS	
<p>Key Observation 6</p> <p>The initial firefighters who attended the fire at The Cube were faced with a rapidly developing incident. Traditionally, communication routes are reliant upon a firefighter attending to the radio fitted to the fire engine, whilst often also engaged in critical activity such as securing water supplies or supporting other time critical tasks.</p> <p>The successful passage of information between NWFC and the IC in the early stages was hindered in part due to the total involvement of all firefighters in the immediacy of the situation they faced upon arrival.</p>	6a	<p>GMFRS will ensure that all officers who may be expected to act as incident commanders (i.e. all those above the rank of Crew Manager) receive training directed to the specific requirements of communication with the control room</p> <p>This is fully reflective of GTI 33.14b</p>
	6b	<p>GMFRS will work with NWFC to develop and provide a dedicated communication link between the senior officer in the control room and the incident commander.</p> <p>This is fully reflective of GTI 33.14d</p>

Key observation	Actions by GMFRS	
<p>Key Observation 7</p> <p>GMFRS had introduced a procedure for full evacuation of a HRRB prior to the fire at The Cube. Firefighters and supervisory officers who attended the fire had received training in these new policies, including practical application at large scale exercises. This was developed in response to GTI paragraph 33.22b;</p> <ul style="list-style-type: none"> <i>That fire and rescue services develop policies for partial and total evacuation of high-rise residential buildings and training to support them.</i> 	7a	<p>GMFRS will continue to revise and reflect on the efficiency and familiarity with the procedures for Immediate Building Evacuation, sharing learning with the FRS sector via the FRS National Operation Learning (NOL) portal.</p>

Key observation	Actions by GMFRS	
<p>Key Observation 8</p> <p>The initial IC recognised that there was abnormal fire behaviour, with signs of rapid external fire spread.</p> <p>The importance of this knowledge and understanding is made clear in GTI 33.10.b;</p> <ul style="list-style-type: none"> FRSs should ensure that their personnel at all levels understand the risk of fire taking hold in the external walls of high-rise buildings and know how to recognise it when it occurs 	8a	See actions 2a, 2b, 2c.

Key observation	Actions by GMFRS	
<p>Key Observation 9</p> <p>The IC did not need to separately declare a Major Incident. This was an automatic and predetermined response on his behalf by NWFC upon receipt of the HIRE message.</p>	9a	<p>GMFRS will continue to work with NWFC and emergency service partners to ensure that on declaration of a Major Incident, clear lines of communication are established as soon as possible between the control rooms of the individual emergency services involved.</p> <p>This is reflective of GTI 33.21b</p>

Key observation	Actions by GMFRS	
<p>Key Observation 10</p> <p>Whilst NWFC, on behalf of GMFRS, undertake daily testing of interoperability communications on the Airwave IC1 (Incident / Silver Command), a delay was observed on this occasion with passage of critical information to other emergency control rooms for the purpose of sharing the Major Incident declaration.</p>	10a	GMFRS will work with NWFC and emergency service partners to review and assure the effectiveness of communications between their respective emergency control rooms.

Key observation	Actions by GMFRS	
Key Observation 11 The traditional route of critical information between the control room and the IC relies on intermediaries, often a firefighter nominated to stay close to the radio affixed to the fire engine. GMFRS personnel below the rank of Station Manager who might be expected to undertake the role of IC, do not routinely have access to a portable radio system that they can take with them to the scene of operations	11a	GMFRS will work with NWFC to develop and provide a communication system to enable direct communication between the control room and the incident commander and improve the means of communication between the incident commander and the bridgehead. This is reflective of GTI 33.19

Key observation	Actions by GMFRS	
Key Observation 12 The early sharing of information between FRS control rooms appears to have provided clarity for those 'buddy' control rooms in case of them receiving 999 calls to The Cube and providing FSG on behalf of NWFC.	12a	GMFRS will work with NWFC to assure that control room staff receive regular training directed specifically to handling such a change of advice and conveying it effectively to callers. This is reflective of GTI 33.15f

Key observation	Actions by GMFRS	
Key Observation 13 The use of GMFRS's Air Unit was highlighted in incident command debriefs as hugely beneficial to the IC in developing improved situational awareness. Its ability to utilise thermal scanning to identify areas of concern and stream live pictures for the IC to consider was invaluable. The information supplied was able to be used to confirm or amend the tactical plan and firefighting strategy.	13a	GMFRS will train all supervisory officers in the use and deployment of the Air Unit to assist with the development of tactical firefighting plans.

Key observation	Actions by GMFRS	
Key Observation 14 Whilst GMFRS, NWFC, NWAS and GMP undertake weekly testing of interoperability communications on the Airwave ES1, ES2 & ES3 (Bronze Command) talkgroups, this is limited to a small cadre of staff. In undertaking debriefing with multi-agency partners, it was recognised that the opportunity to use common interoperability 'sharing' talk groups (radio channels) at the incident was not used.	14a	GMFRS will work with emergency service partners and Greater Manchester Resilience Forum to develop formal inter-agency guidance and protocols for communications interoperability via the Airwave talkgroups
	14b	GMFRS will train all supervisory officers, persons who may undertake the role of IC and persons who may need to communicate with other agencies on their behalf, in the use of Airwave interoperability talkgroups.

Key observation	Actions by GMFRS	
Key Observation 15 The application of 'action plans' at NWFC and the change of incident type from a high rise building fire to one that now required HIRE procedures to be employed, impacted upon mobilisation of a number of resources, specifically supervisory officers and special appliances.	15a	GMFRS will work with NWFC to mitigate against the risk of conflict between incident specific mobilisation action plans when an incident changes type.

Key observation	Actions by GMFRS	
Key Observation 16 The benefit of a FSEO at the incident cannot be over emphasised. The IC was supported with technical advice on building construction. The presence of an FSEO also enabled the prompt consideration and subsequent service of prohibition notices under Article 31 of the Fire Safety Order.	16a	GMFRS will ensure arrangements are in place to mobilise an FSEO to provide technical advice in a tactical role to incident commanders where required.

Key observation	Actions by GMFRS	
Key Observation 17 Multi-agency debrief recognised the understanding of, and passing of, METHANE messages is not always consistent across blue light control room operators.	17a	GMFRS will work with emergency service partners to ensure that a METHANE message is sent as soon as possible by the emergency service declaring a Major Incident. This is reflective of GTI 33.31d

Key observation	Actions by GMFRS	
Key Observation 18 Multi-agency debrief recognised the effectiveness of application of Joint Emergency Interoperability principles (JESIP) in management of the incident; <ul style="list-style-type: none"> • Commanders were easily identifiable • A shared awareness of hazards and risks • Colocation and communication with commanders occurred • Good structured briefings with contribution and support from partners • Effective use of GMFRS Command Unit as focal point for command activity 	18a	GMFRS will work with emergency service partners and other responders to develop a schedule of multi-agency exercising to practice the principles of the JESIP doctrine.

Key observation	Actions by GMFRS	
Key Observation 19 Multi-agency debrief recognised the understanding of, and passing of, METHANE messages is not always consistent across blue light control room operators.	19a	See actions 5a, 5b.
	19b	GMFRS is undertaking a review to identify opportunities for improvements in the collation of operational risk information and develop potential IC's awareness of the benefit of referring to such information for the purpose of developing firefighting plans.

Key observation	Actions by GMFRS	
Key Observation 20 The immediate requests and demand for data, information and status of The Cube from a local, regional, political and ministerial perspective was significant. The benefit of access to technical specialists remotely supporting the incident cannot be overemphasised.	20a	GMFRS is reviewing the resilience of arrangements to resource the CSR or other locations with suitably technically competent persons to support the gathering of information relating to buildings in support of an ongoing incident.

Key observation	Actions by GMFRS	
Key Observation 21 The Cube is student accommodation and therefore the residents' details were known by the accommodation provider and in many cases, the University of Bolton. However, as with all residential accommodation there is no mechanism for recording occupation levels and any visitors who may be present. This poses a challenge in terms of accounting for all persons, and planning and undertaking searches. Collaboration with representatives from the housing provider and the University of Bolton was able to provide assurance against role call results, tracking residents and accounting for all involved, although this took many hours to confirm. It is recognised that this level of information is not available for many multi-occupied residential buildings and therefore it could take much longer to confirm all persons accounted for.	21a	GMFRS will continue to work with emergency service partners and other responders to develop a schedule of multi-agency exercising to practice the principles of the JESIP doctrine.
	21b	GMFRS will continue to review and further refine the procedures and methods employed within the Evacuation Command Unit in respect of coordinating large scale evacuations.
	21c	GMFRS will work with emergency service partners, local authority and responders to develop a schedule of multi-agency exercising to practice the management of large scale evacuations.
	21d	GMFRS will explore with partners the use of technology to account for the number of persons present with a multi-occupied residential building.

Key observation	Actions by GMFRS	
Key Observation 22 Decision logging and the completion of contemporaneous notes by individuals at the scene or supporting in remote roles was not consistent, and hence, not fully effective.	22a	GMFRS will consider how it can most effectively raise awareness of and reinforce the requirements of recording decisions at incidents. This is reflective of Recommendation 7 of London Fire Brigade's Grenfell Tower Investigation and Review Team Preliminary Report;
	22b	GMFRS will seek to develop a method of information and decision sharing and secure storage, between IC, NWFC, Command Units and CSR.

Key observation	Actions by GMFRS	
Key Observation 23 Some personnel left the incident scene, many remaining on duty for the remainder of the shift, with the thought of the potential mass fatalities as yet not discounted. This had the potential to impact on health and wellbeing of individuals. It is of note that had the incident resulted in fatalities conformed, critical incident debriefs and associated welfare procedures would have automatically been initiated.	23a	GMFRS will ensure that post-incident welfare checks and access to employee assistance is available to all personnel, regardless of the outcome of an incident.

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