LONDON FIRE BRIGADE

Appendix Four

Detailed report: Layer three, Extraordinary risks and reasonable- worst-case scenarios, including London Risk Register.

OFFICIAL
23 February 2026

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1 Introduction, scope and approach

Layer three of the Assessment of Risk (AoR) is an assessment of rare, extraordinary or, "reasonable worst-case," scenarios which may not occur with sufficient frequency to appear in LFB incident data or are yet to have occurred. These scenarios are plausible reasonable-worst-case scenarios rather than predictions of events that are likely to come to pass.

Reasonable worst-case scenario (RWCS) risks are assessed against a range of impacts e.g. human welfare, behavioural impact, economic, infrastructure, environmental and security. These risks are taken directly from the London Risk Assessment (LRA), formally London Risk Register, produced by the London Resilience Forum (LRF). The risks for which LFB is the lead are scored using input from LFB subject matter experts but also include input from partners. Risks on which other partners lead are scored in a similar way. This gives the Brigade and the London Resilience Forum a shared partner-wide perspective on risks. This register includes risks that LFB will not have to respond to but may be affected by and for which it may need continuity plans.

Also included but presented independently of the LRA are highlighted risks that do not appear as separate items in the LRA (although they may be aggregated into a wider category) or in recent incident data, but are highlighted through cross departmental engagement. Risks from this section may progress to the LRA as separate items through the London Resilience Forum. Input from Operational Policy and Assurance Department is a key component in identifying risks for inclusion here through Operational, National, Joint and International Learning.

2 Objectives

The purpose of Layer three is to allow the Brigade to:

- plan and prepare for response to low frequency but high impact events.
- plan for combinations of events leading to a high overall demand on LFB resources.
- develop an evidence base for prioritised testing and exercising.
- communicate effectively with stakeholders regarding resourcing for low frequency high impact events

3 Limitations

The events and scenarios in this assessment are informed by the National Security Risk Assessment and partnership planning within the London Resilience Forum as well as cross departmental engagement within LFB. However, there is inherent uncertainty associated with assessing low-likelihood, high-impact events.

This assessment does not yet include assessment of cascading risks. There is work within the wider resilience forum regarding cascading risks.

4 Key Findings

Increasingly complex malicious threat picture

- **Malicious acts**. The number of malicious act threats recorded on the London Risk Register increased notably in 2024. A further increase in likelihood and severity of individual malicious threats occurred in 2025. The five risks which have increased from the 2025 assessment to the 2026 assessment all relate to malicious acts. This prevalence of malicious threats on the 2026 London Risk Assessment (LRA), previously London Risk Register, reflects the current partnership assessment of threat level across a spectrum of attack methodologies. LFB will be required to respond directly to incidents involving malicious acts where its capabilities are required or where statutory duties exist.

Critical service disruption

- **Business continuity challenges**. Items on LRA such as R89 High Altitude Electromagnetic Pulse, R50a National Electricity Transmission Failure and R21 Attack on UK electricity Infrastructure are likely to pose business continuity challenges for LFB through critical service disruptions as well as potentially triggering concurrent need for response services.

LFB-lead, High-Risks on LRA

- **Fires in purpose-built high-rise flats.** Fires in purpose-built high-rise flats remain a high risk, reduced from very high, with a reasonable-worst-case scenario scale incident assessed as having between 5% and 25% likelihood of occurring in any 12-month period. On 1st March 2026 there were 949 buildings in London known to LFB over 18 meters high, (high-rise buildings) that had a simultaneous evacuation strategy. These buildings are likely to perform in such a way during a fire that a stay put strategy is untenable.
- **Major fire in care homes and hospitals.** Fires in care homes and hospitals remain a high risk, unchanged from 2025, with a reasonable-worst-case scenario scale incident assessed as having between 1% and 5% likelihood of occurring in any 12-month period.
- **Accident involving high consequence dangerous goods.** Accident involving high consequence dangerous goods remain a high risk, unchanged from 2025 with a reasonable-worst-case scenario scale incident assessed as having between 1% and 5% likelihood of occurring in any 12-month period.
- **Civil Nuclear Accident.** This risk remains unlikely with a less than 0.2% chance of occurring each year. However, due to high consequence this remains a high risk on the assessment.

Climate Related

- **Flooding.** Two separate red risks and one amber risk relating to different types of flooding are recorded in the London Risk Assessment. Although LFB does not hold the statutory duty for flooding, these risks, if actualised, are likely to impose a significant operational demand on LFB as a category one responder with a duty for rescue.
- **High Temperatures and Heatwaves.** Periods of extreme heat remain a very-high risk on the London Risk Assessment. The assessment also includes acute risks such as wildfire that are linked to temperature and climate.

Highlighted Risks

- **Heritage Fires.** Heritage fires are not assessed separately in the London Resilience Forum's LRA, falling within the broader category of R54b Fires in major entertainment and/or public building", assessed as a medium risk. However, they are noted separately in this assessment due to the number and prominence of London's approximately 40,000 listed buildings, buildings of special interest and four UNESCO World Heritage Sites - Westminster Abbey, Palace of Westminster, Royal Botanic Gardens Kew, Maritime Greenwich and the Tower of London.

Although the risks on this register are presented as reasonable-worst-case scenarios (RWCS), they are plausible in any given year. This is a distinction from Layer four of the AoR, where the intent is to look further ahead at risks becoming more concerning in the future. However, in 2026 – 2030 there is significant overlap between these types of assessment. Many RWCS described in the LRA are assessed as becoming increasingly likely or severe in the near future in the Brigade's horizon scan.

5 Extraordinary Risks – London Risk Register 2025 (with updates on public risks from LRR 2026)

Impact						
	5	**R52** Civil Nuclear Accident **R22a** Malicious attack on civil nuclear installations – conventional	**R95** Nuclear attack by a state on the UK mainland or UK overseas interests. **R76** Drought. **R21b** Attack on UK electricity infrastructure – Cyber R12 **N**on-state nuclear attack – urban area R21b **Attack** on UK electricity infrastructure – Cyber **R89** High-Electromagnetic Pulse (HEMP)	**R50a** Failure of National Electricity Transmission System **R14** Biological attack unenclosed urban area	**R78** Pandemic	
	4	**R45**Aviation Crash, **R53** Radiation Release from overseas nuclear site **R56** Accidental Fire or explosion at an onshore major hazard (COMAH) site **R57** Accidental Large Toxic Chemical Release from a COMAH site. **R58** Accidental fire or explosion on an offshore oil or gas installation. **R59** Accidental fire or explosion at an onshore fuel pipeline. **R62** Reservoir/Dam Collapse. **L66** Radioactive incident caused by mishandling of radioactive material	**R48** Loss of Positioning, Navigation and Timing (PNT) Services **L71a** Large Aircraft incident in proximity to Airport **R08** Malicious Aviation Incident **R80a** Major outbreak of foot and mouth disease **R51**Failure of Gas Supply Infrastructure	**R73** High Temperatures and heatwaves **R75**b Fluvial Flooding **R16a** Chemical attack – unenclosed urban area **R16b** Chemical attack – enclosed urban area **R21a** Attack on UK electricity infrastructure – conventional **R22b** Malicious attack on civil nuclear installations – Cyber R07 Malicious Rail Network Attack **R23a** Malicious attack on fuel supply infrastructure – Conventional R**23b** Malicious attack on fuel supply infrastructure – Cyber **R75c** Surface Water Flooding	**L54a** Fires in purpose-built high-rise flats **R64** Food Supply Contamination R**79** Outbreak of an Emerging infectious disease **R71** Severe Space Weather **R74** Low temperatures and snow **R17** Chemical, Biological or Radiological attack on water supply infrastructure R**19** Conventional attack on chemical infrastructure **R40d** Marauding terrorist attack - firearms	**R02** Conventional attack on government **R40b** Land based terrorist attack - improvised explosive device.
	3	**R63** Water Supply Infrastructure **HL22** Building Collapse **HL23** Bridge Collapse	**R47** Disruption of space-based services **R50b** Regional Failure of the Electricity Network **R60** Accidental fire or explosion at an onshore major accident hazard pipeline **R65** Major Fire **HL105** Complex built environments **R10** Strategic hostage taking.	**R40** Rail Accident **R44** Accident involving high consequence dangerous goods **R46** Malicious Drone Incident **R49** Simultaneous loss of all fixed and mobile forms of communication **R80b** Major Outbreak of Animal Disease – Avian Influenza **L19** Groundwater Flooding **R75a** Coastal Flooding **R77** Poor Air Quality **R20a** Attack on UK gas infrastructure – conventional **L54e** Major fire in care homes and hospitals area **R23a** Malicious attack on fuel supply infrastructure – Conventional. **R23b** Malicious attack on fuel supply infrastructure - Cyber	**R67** Volcanic eruption **R72** Storms **R15** Radiological attack – unenclosed urban area **R09** Malicious Maritime Incident **R20b** Attack on UK gas infrastructure – Cyber **R15** Radiological attack – unenclosed urban	**R55b**Technological failure at a UK critical financial market infrastructure **R82** Public Disorder **R84** Industrial action - firefighters **R87** Reception and Integration of British Nationals Arriving from Overseas **R24** Cyber-attack - health and social care system **R04a** Person-borne improvised explosive device **R04c** Marauding attack (low sophistication **R05b** Maritime Terrorist Attack – Marauding Terrorist Firearms attack on a passenger ferry
	2	**R61** Accidental work-related (laboratory) release of a hazardous pathogen **R38** Insolvency affecting fuel supply.	**R54b** Fires in major entertainment and/or public building **R10** Strategic hostage taking **R86** Industrial Action – fuel supply.	**HL10** Local accident on motorways and major trunk roads **R37** Insolvency of Supplier of Critical Services to public sector **L71b** Small aircraft incident in proximity to airport **R26** Cyber-attack - telecommunications systems **R83** Industrial Action – Public Transport	**R36** Major Social Care Provider Failure **R39** Failure of a supplier of CNI Chemicals **R55a** Technological Failure at a Systemically Important Retail Bank **R66** Wildfires **R05a** Maritime Terrorist Attack – Vehicle borne improvised explosive device (VBIED **R13** Anthrax letters **R85** Industrial Action – Prison staff	**R11** Assassination of a high-profile public figure **L54c** Fires involving landfill and waste processing sites.
	1	**R54** Radiation exposure from transported, stolen or lost goods **R80d** Major Outbreak of Animal Disease – African Swine Fever **R80c** Major Outbreak of Animal Disease – African Horse Sickness **R68** Earthquake	**R42** Major Maritime Pollution Incident **R30** Malicious Attack – UK Financial CNI	**R41** Larger Passenger Vessel Accident **R32** Major interference in UK democratic process **HL21** Land Movement **R28** Cyber-attack – government critical systems loss **R29** Cyber-attack– government data breach	**R25** Cyber-attack – transport sector	
		1 - Low	**2 - Medium/Low**	**3 - Medium**	**4 - Medium/High**	**5 - High**
		Likelihood				

6 Highlighted Extraordinary Risks

These are foreseeable risks which are not identified in the last five years of LFB data as being very high or high and are not currently featured as separate items in the London Resilience Forum's London Risk Assessment but are highlighted through cross departmental engagement and as such are considered appropriate to highlight separately as part of the LFB's Assessment of Risk. Risks from this section may, if appropriate, progress to the LRA as separate items through partner engagement in the London Resilience Forum.

Risk	Outcome description	Examples of recent significant incidents that have occurred in London or in other countries
Fire in major heritage buildings *(included in LRA wider category of, R54b Fires in major entertainment and/or public building")*	London has approximately 40,000 Historic listed buildings, buildings of special interest and modern buildings that store historic relics and artefacts. This includes four UNESCO World Heritage Sites - Westminster Abbey, Palace of Westminster, Royal Botanic Gardens Kew, Maritime Greenwich and the Tower of London. LFB responded to almost 7800 incidents in 2024 that involved or were within close proximity of Historic Listed Buildings. Heritage and historic buildings present unique firefighting challenges due to the various unregulated construction methods and building alterations implemented over many years and the potential for rapid fire spread and building failure. Salvage and damage control operations can be complex. A significant fire in a heritage building in London is likely to have large direct and indirect costs to the capital and country including impacts on tourism. A large fire could destroy items of international heritage value. There is likely to be significant moral pressure on firefighters to act to save national heritage in a structure not designed to resist fire spread due to its historic nature leading to significant operational risks.	Cutty Sark Fire – 2007 – Large fire occurred on the Cutty Sark, almost destroying the historic ship. Glasgow School of Art, Glasgow – 2014 – Large fire at the Glasgow School of Art. Morden Mosque fire – 2015 – Large fire damaging 50% of ground floor of Europe's largest mosque. The National Museum of Brazil was destroyed by a large fire in September 2018. Although some items were saved, it is believed that 92.5% of its archive of 20 million items were destroyed in the fire. Notre-Dame de Paris fire – 2019 – Major fire in a historical cathedral in Paris requiring over 400 firefighters to extinguish costing over €1 billion to restore. Somerset House fire, London – August 2024 - the fire damaged parts of the third floor and the roof of the west wing. Woolton Hall Fire, Liverpool - August 2025, Grade I-listed mansion suffered roof collapse and structural damaged after a fire.