

# London Risk Register

Version 11

February 2022

## London Resilience Partnership Risk Register

Version 11 (February 2022) of the London Risk Register is collectively owned by the Category 1 and 2 Responders (as defined by Schedule 1 to the Civil Contingencies Act 2004) within the London Resilience Forum area.

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#### **LONDON RESILIENCE GROUP**

The London Resilience Group is jointly funded and governed by the Greater London Authority, London Local Authorities and the London Fire Commissioner. We are hosted by the London Fire Brigade. Our work, and that of the London Resilience Partnership, is overseen by the London Resilience Forum.

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# 1. Introduction and Background

## 1.1 Introduction

Risk assessment underpins the work of the [London Resilience Forum](#). Assessments within the London Risk Register drive the development of multi-agency capabilities to prevent, mitigate, respond to, and recover from incidents.

Publication of the London Risk Register is designed to assist Local Authorities and businesses develop their own emergency and business continuity arrangements.

Planning is based on 'reasonable worst-case scenarios' informed by historical and scientific data, modelling, and professional expert judgement of both the likelihood and impact of a risk. The inclusion of a risk does not mean it is expected to happen, nor that the impact would be as serious as the description provided.

Each risk is scored for impact and likelihood. Likelihood is expressed as the "annual likelihood of each RWCS occurring, with the assessment valid for two years". Impacts are rated between "Limited" (1) and "Catastrophic" (5). The likelihood and impact scores are combined to give an overall risk rating.

The London Risk Register is designed to provide a summary of the main risks affecting Greater London. The UK [National Risk Register](#) (2020) provides a similar outline of risk for the UK as a whole. Further risk assessments are conducted within each London Borough, providing additional information on locally specific risks and response arrangements.

## 1.2 Risk assessment methodology

This version of the London risk register uses the same methodology as the previous version, published in 2021 using the national risk assessment methodology introduced in the 2019 National Security Risk Assessment (NSRA, available on Resilience Direct). This version assesses threats and non-malicious risks under the same methodology, using the same likelihood and impact scales. To accommodate the new threats and risks in this manner, some changes were made to the risk assessment methodology.

For more detail on the risk assessment methodology see [appendix 1](#).

## 1.3 Understanding the Risk Register

Risks are grouped by theme and presented in order of overall rating within that theme, with the highest risks first. Themes are based on common features and consequences, which makes it easier to understand the risk in context and to consider which risks might influence, or be influenced by, others. Risk themes are accidents and system failures, human and animal disease, societal risks, natural hazards, cyber-attacks, and terrorist threats.

The headings used on the London Risk Register are as follows:

| Risk ID<br>Rating | Sub-category<br>Lead | Outcome Description | Likelihood | Impact | Controls in Place | Last Review<br>Next Review | Change Since<br>last publication |
|-------------------|----------------------|---------------------|------------|--------|-------------------|----------------------------|----------------------------------|
|-------------------|----------------------|---------------------|------------|--------|-------------------|----------------------------|----------------------------------|

**Risk ID:** Unique reference number for each risk. R denotes risk is also a national risk.

**Rating:** Overall risk rating based on likelihood and impact.

**Sub-category:** in some cases risks are sub-categorised for ease of comparison with similar risks.

**Lead:** The organisation responsible for the assessment of the risk in London.

**Outcome Description:** A summary of the reasonable worst case scenario used to inform the assessment.

**Likelihood:** Assessed from 1-5 where 1 is the least likely and 5 more likely. (A table with probabilities associated with each score is available at the end of this document.)

**Impact:** Assessed from 1-5 where 1 is the lowest impact and 5 more impactful.

**Controls in place:** Plans and procedures in place to mitigate this risk

**Last review / next review:** Dates of the last review of that risk, and planned date for the next review.

**Changes since last publication:** Summary of changes to the risks since the last assessment.

## 1.4 Risk Review Schedule

All risks with an overall rating of “Very high” and “High” will be reviewed yearly, other risks will be reviewed every two years; review dates are in the right hand column of the register ([section 3](#)).

New risks will be reviewed the year after they are introduced to capture any new learning and will thereafter be reviewed yearly or every two years, as appropriate.

## 1.5 Controls

Controls specific to the type of incident referred to are listed in the register below. In addition, there are many generic plans, procedures and principles that aid multi-agency working in incident response and national initiatives that are used to aid responders in complex situations. These include:

- [London Emergency Services Liaison Panel](#) (LESLP)
- [Joint Emergency Services Interoperability Principles](#) (JESIP)
- Pan-London emergency response plans and frameworks available on [london.gov.uk](https://www.london.gov.uk) covering generic response procedures, consequence based planning for use in various incidents, and incident-specific plans.

## 2. New risks, removed risks and risks under review

Several risks introduced in the 2019 NSRA were raised to the attention of the London Fire Brigade (LFB) to lead on. The introduction of these risks prompted an in-depth review of LFB-led risks including detailed consideration of the national risks and whether these adequately cover London’s risk profile.

R54 Major Fire was a new risk on the London Risk Register in 2021, the London assessment for this was closely based on the national risk. It was decided that the description of the Reasonable Worst-Case Scenario of this risk was too broad, covering multiple settings which have different risk profiles in London, requiring different responses and therefore different risk assessments.

The London Risk Advisory Group have created four new risks which cover some of the separate

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scenarios described in R54 in more detail. R54 will remain on the London Risk Register for now, to reflect the risk as seen at a national level. New fire risks in London Risk Register version 11 are:

- L54a Fires in purpose built high-risk flats
- L54b Fires in large public and commercial buildings
- L54c Fires involving landfill and waste processing sites
- L54e Major fire in care homes and hospitals

'HL33 Wildfires' has been renamed 'L54d Wildfires in proximity to urban areas' to maintain numbering consistency with other fire risks.

Aviation risks have been re-structured and renamed to cover a wider range of scenarios possible in the vicinity to London's airports than previously captured. The national risk 'R71 Aviation Crash' remains on the LRR, with HL9 Aviation Crash reintroduced as L71a Large aircraft incident in proximity to airport and HL9b

A review of radiological risks found that the national risk 'R66 Radiation release from overseas nuclear accident' was too specific in the description of its RWCS and too large in scope to cover impacts and response actions from domestic radiation risks. A new risk has been introduced to cover local risks to London of the mishandling of radiological risks while in transport or in use:

- L66 Radioactive incident caused by mishandling of radioactive material

Two radiological risks are currently under review:

- R65 Civil Nuclear Accident currently under review as to whether it should be included on the LRR in addition to R66
- R66 Radiation release from overseas nuclear accident appears on the London Risk Register using the national summary assessment and is currently under review alongside R65.

The LFB's risk review also found cause to remove the following risks:

- HL25 Fire or explosion at a flammable gas terminal
- HL7 Industrial explosions and major fires

The RWCS for these are covered under three national risks; two of which were added to the LRR last year (R55 and R57) and also under R61 Fire and explosion at an onshore fuel pipeline which has been included this year to cover industrial fires and explosion scenarios.

There are several risks on the NSRA and the National Risk Register that are not assessed as part of the London Risk Assessment Process and therefore do not appear on the London Risk Register. Some are out of scope of the London Risk Assessment, some are based on scenarios that are not applicable to London (e.g. the RWCS refers to infrastructure that does not exist in London), some risks are not considered by LRFs as the response would be wholly owned by central government.

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## 3. London Risk Register: High-Level Summary Risk Matrix

|        |   |  |   |   |   |   |
|--------|---|--|---|---|---|---|
| Impact | 5 |  | R84 Severe Drought  | R76 National Electricity Transmission, R95 Influenza-type Pandemic, T7 larger Scale CBRN Attacks  |   |   |
|        | 4 | R71 Aviation Crash, R55 Fire or Explosion at a fuel distribution site, R57 Explosion at a high-pressure gas pipeline, R74 Reservoir/Dam Collapse, R66 Radiation Release from overseas  | R77 Gas Supply Infrastructure, R68 High Consequence Dangerous Goods, L54b Fires in large public and commercial buildings  | R83 Surface Water Flooding, R92 Severe Space Weather, L21 Fluvial Flooding  |   |   |
|        | 3 | HL23 Bridge Collapse, HL34 Evacuation of passenger ship, HL22 Building Collapse, R75 Water Supply Infrastructure, R64 Large Toxic Chemical Release, R61 Fire and Explosion at an onshore fuel pipeline, L66 Incident caused by mishandling of radioactive material | R69 Food Supply Contamination, R80 Systemic Financial Crisis, L64 Localised industrial accident involving small toxic release, HL105 Complex Built Environments                   | R91 Low temperatures and heavy Snow, R96 Growth of Anti-Microbial resistance, R97 Emerging Infectious Disease, R85 Poor Air Quality, L19 Groundwater Flooding, HL19 Coastal/Tidal Flooding          | R90 Heatwave, R87 Volcanic Eruption, R54 Major Fire, R63 Accidental Release of a Biological Substance, L54a Fires in purpose built high-rise flats, T2 Attacks on Infrastructure, T3 Attacks on Transport, T6 Medium Scale CBRN Attacks             | R104 Public Disorder  |
|        | 2 | R67 Maritime Pollution, R62 Accidental Release of Biological Pathogen, R103 Insolvency affecting fuel supply   | R78 Disruption to telecoms systems, R98 Animal Disease, R102 Industrial Action (fuel), HL10 Local Accident on Motorways/ Major Trunk Roads, R99 Industrial Action (firefighters), | L54d Wildfires, L54e Major fire in care homes and hospitals, R93 Storms and Gales, HL11 Railway Accident, HL21 Land Movement, R101 Industrial action public transport, L71b Small Aircraft Incident | R105 Influx of British Nationals, R72 Collapse of major government contractor, R73 Major Social care Provider, R79 Technological failure at a retail bank, R100 Industrial action (prison officers), T4 Cyber Attacks T5 Smaller Scale CBRN Attacks | L54c Fires involving landfill and waste processing sites, T1 Attacks on Publically Accessible Locations |
|        | 1 | R70 Radiation exposure from stolen goods, R94 Earthquake   | R29 Cyber-attack SWIFT system   | R43 Undermining democratic activity   |   |   |
|        |   | 1 - Low  | 2 - Medium/Low  | 3 - Medium  | 4 - Medium/High   | 5 - High  |
|        |   | Likelihood   |   |   |   |   |

## 4. London Risk Register

### 4.1 Accidents and system failures

| Risk ID<br>Rating                        | Sub-category<br>Lead                                | Outcome Description  | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|--|---|--|------------|--------|--|----------------------------|
| <b>R76</b><br><b>VERY</b><br><b>HIGH</b> | Systems<br>Failure<br><br>Utilities Sector<br>Panel | <b>National Electricity Transmission</b><br><br>A total national blackout due to the loss of the GB National Electricity Transmission System caused by damage to or technical failure of the transmission network. The technical recovery process (Black Start) could take up to 5 days; however, there is the potential for wide area power disruptions for up to 14 days, potentially affecting millions of consumers. | 3          | 5      | Testing and maintenance regime.<br>London Power Supply Disruption Plan<br>EDF Energy System Emergency Plan.<br>EDF Energy Emergency Communication Plan.<br>EDF Energy Black Start Plan.<br>Business Continuity Plans for Category 1 and 2 Responders, businesses and other key organisations<br>London Power Supply Disruption Plan<br>Major Incident/Emergency Plans for Category 1 and 2 Responders. | Nov 2019<br>Sept 2022      |



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| Risk ID Rating             | Sub-category Lead | Outcome Description  | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|----------------------------|-------------------|--|------------|--------|---|----------------------------|
| <b>R54</b><br><b>HIGH</b>  | Accident<br>LFB   | <b>Major Fire</b><br>A major fire in a building resulting in up to 140 fatalities and 200 casualties, significant damage to the building affected and disruption to local transport services for up to a week.       | 4          | 3      | Regulatory Reform (Fire Safety) Order 2005<br>Fire Safety Approved Document B<br>Fire & Rescue Services Act 2004<br>LFB Guidance Note 29<br>LFB Operational tactical and building plans<br>LFB Urban Search & Rescue Teams (USAR)<br>Fire Service National Resilience Assets<br>LAS Hazardous Area Response Team (HART)<br>Local Authority Dangerous Structures Engineer<br>Casualty Bureau<br>London Frameworks including: <ul style="list-style-type: none"> <li>Strategic Coordination Protocol</li> <li>Mass Fatalities Framework</li> <li>Mass Casualties Framework</li> </ul> Humanitarian Assistance Framework | Sept 2021<br>Sept 2022     |
| <b>L54a</b><br><b>HIGH</b> | Fire<br>LFB       | <b>Fires in purpose built high-rise flats</b><br>Major fire in block of flats containing 80 compartments. Potential for 150-200 fatalities and 200 casualties.   | 4          | 3      | See R54   | Sept 2021<br>Sept 2022     |
| <b>L54b</b><br><b>HIGH</b> | Fire<br>LFB       | <b>Fires in large public and commercial buildings</b><br>Fire in large public building e.g. nightclub, sports stadium, shopping centre, transport hub or other. Potential for up to 50 fatalities and 50 casualties. | 2          | 4      | See R54   | Sept 2021<br>Sept 2022     |

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| Risk ID<br>Rating         | Sub-category<br>Lead                                | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|---------------------------|---|---|------------|--------|--|----------------------------|
|                           |   |   |            |        |  |                            |
| <b>R68</b><br><b>HIGH</b> | HAZMAT<br>LFB                                       | <b>High consequence dangerous goods</b><br>A road or rail tanker containing dangerous goods and/or “high consequence” dangerous goods is involved in an accident leading to fire and an explosion. Up to 200 fatalities and up to 500 people requiring medical treatment. The explosion will cause varying degrees of damage to property and infrastructure depending on their distance from the incident. This risk would result in a toxic plume/gas cloud which would be harmful to the population, resulting in evacuation of the immediate area. | 2          | 4      | Health & Safety at Work etc Act 1974<br>Control of Substances Hazardous to Health Regulations 2002<br>Management of Health & Safety at Work Regulations 1999<br>Reporting of Injuries Diseases and Dangerous Occurrences Regulations | Sept 2021<br>Sept 2022     |
| <b>R77</b><br><b>HIGH</b> | Systems<br>Failure<br><br>Utilities Sector<br>Panel | <b>Gas Supply Infrastructure</b><br>A technical failure or accident in an upstream oil/gas facility, gas import pipeline terminal, or Liquefied Natural Gas (LNG) import reception facility leading to disruption in UK gas supplies.   | 2          | 4      | National Emergency Plan for Fuel   | Nov 2020<br>Sept 2022      |

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| Risk ID<br>Rating             | Sub-category<br>Lead                      | Outcome Description  | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|-------------------------------|---|--|------------|--------|--|----------------------------|
| <b>R63</b><br><b>HIGH</b>     | HAZMAT<br>UKHSA                           | <b>Accidental Release of a Biological Substance</b><br><br>Inadvertent release of a biological agent caused by an unrelated work activity (e.g. Legionella release due to improperly maintained building environmental control systems) that causes up to 7 fatalities and up to 500 people requiring hospital admissions. | 4          | 3      | Health & Safety at Work Act etc 1974<br><br>Control of Substances Hazardous to Health Regulations 2002<br><br>The Notification of Cooling Towers and Evaporative Condenser Regulations 1992 require the notification of wet cooling towers and evaporative condensers to local authorities<br><br>Management of Health & Safety at Work Regulations 1999<br><br>Reporting of Injuries Diseases and Dangerous Occurrences Regulations | Nov 2020<br>Sept 2022      |
| <b>HL105</b><br><b>MEDIUM</b> | Accident<br>Local<br>Authorities          | <b>Complex built environments</b><br><br>Consequences of a major incident affecting large buildings or a complex built environment. Incidents in these facilities/areas have the potential to trigger a complex chain of events that lead to serious consequences for public safety.                                       | 2          | 3      | Health and Safety at Work Act 1974.<br><br>Management of Health & Safety at Work Regulations 1999.<br><br>Fire and Rescue Services Act 2004 & guidance pursuant to the Regulatory Reform (Fire Safety) Order 2005.<br><br>Safety at Sports Grounds Act 1975 and Fire Safety and Safety of Places of Sport Act 1987<br><br>Local building safety systems and practices<br><br>Safety Advisory Groups in place at major sports grounds | Nov 2020<br>Sept 2022      |
| <b>R61</b><br><b>MEDIUM</b>   | Fires &<br>Industrial<br>Accidents<br>LFB | <b>Fire or explosion at an onshore fuel pipeline</b><br><br>Accidental fire or explosion occurs at an onshore fuel pipeline close to a populated area affecting an area around the explosion of up to 1km.   | 1          | 3      | Control of Major Accident Hazard 1999 (COMAH) Regulations.<br><br>The Dangerous Substances and Explosive Atmosphere Regulations 2002<br><br>Petroleum Regulations<br><br>Regulatory Reform (Fire Safety) Order 2005<br><br>Site Operators on-site contingency plans<br><br>Emergency Services specialist resources   | Sept 2021<br>Sept 2023     |

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| Risk ID Rating              | Sub-category Lead               | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|-----------------------------|---------------------------------|---|------------|--------|--|----------------------------|
| <b>R64</b><br><b>MEDIUM</b> | HAZMAT<br>LFB                   | <b>Large Toxic Chemical Release</b><br>Large toxic chemical release caused by release of chlorine or other chemicals. This incident arises from possible mechanical equipment/process failure or corrosion, and not necessarily involving fire or explosion.  | 1          | 3      | Control of Major Accident Hazards Regulations 2005 (COMAH)<br>Regulatory Reform (Fire Safety) Order 2005<br>Emergency Services and other responder specialist resources  | Sept 2021<br>Sept 2023     |
| <b>L66</b><br><b>MEDIUM</b> | HAZMAT<br>LFB                   | <b>Radioactive incident caused by mishandling of radioactive material</b><br>A radioactive substance released in London because of an accident at a site or during transportation of radioactive material.  | 1          | 3      | Radiation Monitoring Equipment deployed in affected areas.<br>London Fire Brigade Mass Decontamination Procedures<br>Scientific Technical Advice Cell (STAC)<br>Scientific Advice to Government in Emergencies (SAGE)<br>Radiation Protection Advisors   | Sept 2021<br>Sept 2022     |
| <b>R69</b><br><b>MEDIUM</b> | HAZMAT<br>Local Authorities (W) | <b>Food Supply Contamination</b><br>A major contamination incident involving a microbiological pathogen in the food chain. This would cause illness, hospitalisation and possible fatalities over a period of time while the source if contaminate is identified, and an overall response time of months. | 2          | 3      | Food Safety Act 1990<br>Imports monitored<br>Local Authority Environmental Health Sampling<br>Public Health England monitoring and surveillance<br>Food Standards Agency plans   | Nov 2020<br>Sept 2022      |
| <b>R55</b><br><b>MEDIUM</b> | Accident<br>LFB                 | <b>Fire or explosion at a fuel distribution site</b><br>Fire or explosion at a fuel distribution site, or at a site storing flammable and/or toxic liquids.   | 1          | 4      | Control of Major Accident Hazard 1999 (COMAH) Regulations.<br>The Dangerous Substances and Explosive Atmosphere Regulations 2002<br>Petroleum Regulations<br>Regulatory Reform (Fire Safety) Order 2005<br>Site Operators on-site contingency plans<br>Emergency Services specialist resources | Sept 2021<br>Sept 2023     |

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| Risk ID<br>Rating            | Sub-category<br>Lead | Outcome Description   | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|------------------------------|----------------------|---|------------|--------|---|----------------------------|
| <b>R57</b><br><b>MEDIUM</b>  | Accident<br>LFB      | <b>Explosion at a high-pressure gas pipeline</b><br><br>Fire or explosion at a gas pipeline following ignition of gas under high pressure. This could result in a crater, destruction of buildings and evacuation of homes, as well as a cloud of gas/vapour. | 1          | 4      | Pipeline Safety Regulations 1996<br><br>Regulatory and industry measures including provision of maps for excavation<br><br>Emergency Services and other responder specialist resources  | Sept 2021<br>Sept 2023     |
| <b>R71</b><br><b>MEDIUM</b>  | Accident<br>LFB      | <b>Aviation crash</b><br><br>The worst-case scenario involves the collision of two commercial aircrafts.  | 1          | 4      | Stringent controls on aircraft entering UK Airspace including the mandatory use of Aircraft Collision Avoidance systems on heavy aircraft.<br><br>Access to UK airspace is heavily regulated<br><br>CAA Maintenance and Flight safety standards exceed ICAO recommendations<br><br>Airline maintenance regimes subject to CAA scrutiny and regulation.<br><br>Strict controls over London Approach. | Sept 2021<br>Sept 2023     |
| <b>L71a</b><br><b>MEDIUM</b> | Accident<br>LFB      | <b>Large aircraft incident in proximity to airport</b><br><br>Aircraft incident in close proximity of the airport boundary with fatalities or serious injuries resulting. Possibility for local structural collapse, HazMat material contamination.           | 2          | 3      | See R71   | Sept 2021<br>Sept 2022     |
| <b>L71b</b><br><b>MEDIUM</b> | Accident<br>LFB      | <b>Small aircraft incident in proximity to airport</b><br><br>Small aircraft incident variation of L71a. Under 20 people directly involved in incident.   | 3          | 2      | See R71   | Sept 2021<br>Sept 2022     |

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| Risk ID Rating               | Sub-category Lead | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|------------------------------|-------------------|---|------------|--------|--|----------------------------|
| <b>L64</b><br><b>MEDIUM</b>  | Accident<br>LFB   | <b>Localised industrial accident involving small toxic release</b><br><br>Localised industrial accident involving small toxic release impacting up to 1km from site causing up to 10 fatalities and up to 100 casualties.   | 2          | 3      | Control of Major Accident Hazards Regulations 2005 (COMAH)<br><br>Regulatory Reform (Fire Safety) Order 2005   | Sept 2021<br>Sept 2023     |
| <b>HL10</b><br><b>MEDIUM</b> | Accident<br>TfL   | <b>Local accident on motorways and major trunk roads</b><br><br>Multiple vehicle incident causing up to 10 fatalities and up to 20 casualties (internal injuries, fractures, possible burns); closure of lanes or carriageway causing major disruption and delay. | 2          | 2      | The Road Traffic Act 1988<br><br>The Road Vehicle (Construction and Use) Regulations 1986<br><br>The Traffic Management Act 2004   | Sept 2021<br>Sept 2023     |
| <b>HL11</b><br><b>MEDIUM</b> | Accident<br>TfL   | <b>Railway Accident</b><br><br>Up to 30 fatalities and up to 100 casualties, (fractures, internal injuries - burns less likely). Possible loss of freight. Major disruption to rail line including possible closure of rail tunnel.                               | 3          | 2      | Railway and Transport Safety Act 2003<br><br>Railways (Access and Management) Regulations 2005<br><br>Railways (Accident Investigation and Reporting) Regulations 2005<br><br>Railways (Licensing of Railway Undertakings) Regulations 2005<br><br>Railways Act 2005<br><br>The Health and Safety (Enforcing Authority for Railways and Other Guided Transport Systems) Regulations 2006<br><br>The Railway Safety Levy Regulations 2006<br><br>The Railways Act 1993<br><br>Transport Act 2000<br><br>Health and Safety at Work etc. Act 1974<br><br>The Railway (Safety Case) Regulations 2000 | Sept 2021<br>Sept 2023     |

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| Risk ID<br>Rating            | Sub-category<br>Lead             | Outcome Description   | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|------------------------------|----------------------------------|---|------------|--------|---|----------------------------|
| <b>HL22</b><br><b>MEDIUM</b> | Accident<br>Local<br>Authorities | <b>Building Collapse</b><br>Collapse of a large building (high-rise block, shopping mall etc). Up to 100 fatalities depending on the size and construction of building, and occupation rates, and 350 casualties. Potential for trapped or missing people. Localised loss of power and other essential services. Local access routes affected due to road closures. | 1          | 3      | Building Control regulations enforced by Local Authorities<br>Construction, renovation, maintenance and demolition standards and enforcement<br>Emergency Services and other responders specialist resources  | Nov 2020<br>Sept 2022      |
| <b>HL23</b><br><b>MEDIUM</b> | Accident<br>Local<br>Authorities | <b>Bridge Collapse</b><br>Roads, access routes and transport infrastructure impassable for considerable length of time. Severe congestion over wide geographical area. Emergency access into/out of large populated areas severely restricted. Potential for trapped or missing people.   | 1          | 3      | Building Control regulations enforced by Local Authorities<br>Regular inspections under the Highways Act 1980<br>Height and weight restrictions and signs reduce the likelihood of an incident  | Nov 2020<br>Sept 2022      |
| <b>HL34</b><br><b>MEDIUM</b> | Accident<br>MCA                  | <b>Evacuation of passenger ship</b><br>Incident involving a passenger vessel in or close to UK waters leading to the ship's evacuation (or partial evacuation). A major incident involving a passenger vessel operating on the tidal Thames within the London Resilience area may result in a major loss of life by drowning.                                       | 1          | 3      | Port of London Act 1968 (as amended)<br>General Directions for Navigating in the Port of London<br>Port of London Thames Byelaws 2012<br>International and national regulation of shipping aimed at preventing accidents by the safe construction and operation of ships by competent crews and shipping operators. These regulations are enforced by Flag States and subject to rigorous Port State Control checks, co-ordinated in European waters MCA (Class V legislation and High-Speed Craft Code)<br>Port Marine Safety Code<br>Port of London Authority Emergency Plans | Nov 2020<br>Sept 2022      |

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| Risk ID<br>Rating           | Sub-category<br>Lead                   | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|-----------------------------|--|---|------------|--------|--|----------------------------|
| <b>R75</b><br><b>MEDIUM</b> | Systems<br>Failure<br><br>Thames Water | <b>Water Supply Infrastructure</b><br><br>Failure of water infrastructure or loss of drinking water caused by the complete and relatively sudden loss of piped water supply or the degradation of the piped supply such that it is unfit for human consumption even after boiling. The RWCS assumes up to 350,000 people affected for between 24 hours and two weeks. | 1          | 3      | Water Industry Act 1991<br><br>Security and Emergency Measures Direction 1998<br><br>Water companies mutual aid arrangements in place  | Nov 2020<br><br>Sept 2022  |
| <b>R78</b><br><b>MEDIUM</b> | Systems<br>Failure<br><br>LFB          | <b>Disruption to or failure of telecommunications systems</b><br><br>Loss of fixed and mobile telecommunications (both voice service and internet access) for up to 100,000 people for up to 72 hours.  | 2          | 2      | Civil Contingencies Act 2004<br><br>Telephone provider demand and network capacity management strategies<br><br>National Emergency Alert for Telecoms  | Nov 2020<br><br>Sept 2022  |
| <b>R79</b><br><b>MEDIUM</b> | Systems<br>Failure                     | <b>Technology Failure at a retail Bank</b><br><br>A technological failure which renders a significant portion of a retail bank's IT inoperable. Immediate effects last for 48-72 hours, with some customers experiencing disruption for several weeks as backlogs are cleared and potentially also some permanent data loss or data corruption.                       | 4          | 2      | Financial services sector plans to deal with a surge in demand for consumer facing financial services<br><br>Communication plans to encourage consumer awareness which can be coordinated between HM Treasury, the Bank of England, and the Financial Conduct Authority<br><br>Collective incident response capability under the Authorities Response Framework<br><br>Business Continuity Management plans for financial service sector firms and their regulators. | Sept 2020<br><br>Sept 2022 |



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| Risk ID<br>Rating           | Sub-category<br>Lead     | Outcome Description  | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|-----------------------------|--------------------------|--|------------|--------|--|----------------------------|
| <b>R74</b><br><b>MEDIUM</b> | Systems<br>Failure<br>EA | <b>Reservoir/Dam Collapse</b><br><br>A reservoir or dam collapses without warning resulting in almost instantaneous flooding. Significant movement of debris (including vehicles) and sediment. Complete destruction of some residential and commercial properties and serious damage of up to 500 properties. Several thousand other properties could be flooded. | 1          | 4      | Reservoirs Act, 1975<br>Water Act, 2003<br>Regular statutory inspections<br>Met Office National Severe Weather Warning Service | Nov 2020<br>Sept 2022      |
| <b>R66</b><br><b>MEDIUM</b> | Accident<br>LFB          | <b>Radiation Release from overseas nuclear accident</b><br><br>A radioactive substance release that affects the UK because of a nuclear accident overseas e.g. at a waste storage facility. UK outcome could include initial food restrictions, potential transport disruptions and impacts to the health system including the presentation of worried well.       | 1          | 4      | REPPIR   | Nov 2020<br>Sept 2022      |

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| Risk ID<br>Rating        | Sub-category<br>Lead | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|--------------------------|----------------------|---|------------|--------|--|----------------------------|
| <b>R62</b><br><b>LOW</b> | HAZMAT<br>UKHSA      | <p><b>Accidental release of a Biological Pathogen</b></p> <p>Biological substance release from a facility where pathogens are handled deliberately (e.g. Hazard Group 3 or 4 pathogen release from containment laboratory). A pathogen is accidentally released from a containment laboratory in an urban area that causes up to 5 fatalities, up to 500 hospital admissions, and a further 1500 nonhospital cases.</p> | 1          | 2      | <p>Animal Health Act 1981</p> <p>Specified Animal Pathogens Order 1998</p> <p>Health &amp; Safety at Work etc Act 1974</p> <p>Control of Substances Hazardous to Health Regulations 2000</p> <p>Management of Health &amp; Safety at Work Regulations 1999</p> <p>Reporting of Injuries Diseases and Dangerous Occurrences Regulations</p> <p>Carriage of Dangerous Goods (Classification, Packaging and Labelling Regulations H12</p> <p>Genetically Modified Organisms (Contained Use) Regulations 2000</p> <p>Regulation, audit and enforcement of legislation by HSE</p> | Nov 2020<br>Sept 2022      |
| <b>R67</b><br><b>LOW</b> | HAZMAT<br>PLA        | <p><b>Maritime Pollution</b></p> <p>A large fully laden oil super tanker sinks in the approach to a port leading to the spillage of 100,000 tonnes of crude oil into the sea polluting up to 200km of coastline. The scenario assumes no loss of access to Liquefied Natural Gas (LNG) terminals or other major port infrastructure.</p>  | 1          | 2      | <p>Dangerous Substances in Harbour Areas Regulations 1987.</p> <p>Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998.</p> <p>Port State Control checks coordinated in European waters</p> <p>All vessels navigating on the tidal Thames required PLA licence</p> <p>PLA Vessel Traffic Service</p> <p>National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (2000)</p> <p>Oil Spill Contingency Plan Guidelines for Ports, Harbours &amp; Oil Handling Facilities</p>                    | 2019<br>2022               |

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| Risk ID<br>Rating        | Sub-category<br>Lead | Outcome Description   | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|--------------------------|----------------------|---|------------|--------|---|----------------------------|
| <b>R70</b><br><b>LOW</b> | HAZMAT<br>LFB        | <b>Radiation exposure from stolen goods</b><br>Incorrect handling of a stolen radioactive source leads to accidental exposure to radioactive material. Three deaths after a month and eight people requiring long term medical supervision. Up to 500 'worried well'. | 1          | 1      | Radioactive Substances Act 1993<br>High Activity Sealed Source Regulations 2005<br>Arrangements for safe handling and disposal of radioactive sources<br>Radiation detectors at high risk sites<br>Environment Agency inspections of all major sources<br>Emergency Services specialist resources | Nov 2020<br>Sept 2022      |

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## 4.2 Human and Animal Diseases

| Risk ID<br>Rating                        | Lead  | Outcome Description   | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|--|-------|---|------------|--------|---|----------------------------|
| <b>R95</b><br><b>VERY</b><br><b>HIGH</b> | UKHSA | <b>Influenza-type pandemic</b><br>A worldwide outbreak of influenza occurs when a novel flu virus emerges with sustained human to human transmission. Up to 50% of the population may experience symptoms, which could lead to up to 750,000 fatalities in total in the UK. Absenteeism would be significant and could reach 20% for 2-3 weeks at the height of the pandemic, either because people are personally ill or caring for someone who is ill, causing significant impact on business continuity. | 3          | 5      | NHS Vaccination Programme (Seasonal and provision for pandemic specific)<br>Specific NHS capacity and response planning<br>Comprehensive surveillance systems   | Sept 2021<br>Sept 2022     |
| <b>R96</b><br><b>HIGH</b>                | UKHSA | <b>The growth and spread of anti-microbial resistance</b><br>The emergence of a pan-resistance, highly virulent bacterial strain causing a number of different pan-resistant bacterial infections to develop that can spread between people. Existing control measures would be overwhelmed, and transmissions would be sustained between health care settings and communities.   | 3          | 3      | Health & Safety at Work etc Act 1974<br>Management of Health & Safety at Work Regulations 1999<br>Health Sector response plans.<br>Regulation and audit by HSE<br>Guidance produced by UKHSA for acute trusts to control spread of CPE<br>The Advisory Committee on Dangerous Pathogens (ACDP)<br>Carriage of Dangerous Goods (Classification, Packaging and Labelling Regulations<br>Genetically Modified Organisms (Contained Use) Regulations 2014 | Sept 2021<br>Sept 2022     |

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| Risk ID<br>Rating           | Lead                   | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|-----------------------------|------------------------|---|------------|--------|--|----------------------------|
| <b>R97</b><br><b>HIGH</b>   | UKHSA                  | <b>Emerging infectious diseases</b><br>Based upon the experience of the outbreak of SARS and more recently, MERS and Ebola, the worst case likely impact of such an outbreak originating outside the UK would be cases occurring amongst returning travellers and their families and close contacts, with spread to health care workers within a hospital setting. However, it is unlikely to present a wider threat to the UK through sustained spread.  | 3          | 3      | NHS Vaccination Programme<br>Specialist capability and capacity planning in NHS trusts<br>Comprehensive surveillance systems and response arrangements | Sept 2021<br>Sept 2022     |
| <b>R98</b><br><b>MEDIUM</b> | Local Authorities (SE) | <b>Outbreak of animal disease</b><br>Disease introduced into a predominantly sheep area and infected animals sold at market or moved to other premises before disease is detected resulting in widely dispersed multiple outbreaks. Assessment based on the need to cull and dispose up to 4 million animals with up to 900 infected premises across UK. Movement of all susceptible livestock prohibited unless licensed. Economic and reputational losses to the agriculture and food chain industry. Loss of disease-free status resulting in EU and third country import bans on livestock and livestock products from susceptible animals. | 2          | 2      | Animal Health Act 1981<br>Animal Health Act 2002<br>Other secondary legislation and EU directives<br>National disease control strategies               | Nov 2020<br>Sept 2022      |

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## 4.3 Societal Risks

| Risk ID<br>Rating            | Sub-category<br>Lead                   | Outcome Description   | Likelihood | Impact | Controls in place   | Last Review<br>Next review |
|------------------------------|--|---|------------|--------|---|----------------------------|
| <b>R104</b><br><b>HIGH</b>   | Humanitarian<br>MPS                    | <b>Public Disorder</b><br>Large scale public disorder at site(s) in a single city, or in multiple cities, occurring concurrently over several days.   | 5          | 3      | Specific riot and public order legislation<br>Riot Compensation Act 2016<br>Public Order Act 1986<br>Police community tension monitoring processes<br>Police community engagement teams<br>Advice and guidance from police regarding legitimate protest from event planners   | Sept 2021<br>Sept 2022     |
| <b>R105</b><br><b>MEDIUM</b> | Humanitarian<br>Local Authorities      | <b>Influx of British Nationals</b><br>Influx of destitute/vulnerable British Nationals who are not normally resident in the UK and cannot be accommodated by family/friends. Up to 10,000 BNs not normally resident in the UK returning to the UK within roughly a month following conventional war, widespread civil unrest, or sustained terrorism campaign against British and other Western nationals. Around 2% of returnees require statutory support including housing, health services and access to welfare. | 4          | 2      | Local authority: Standard social care and emergency housing arrangements. Existing mutual aid agreements in place across London.<br>Heathrow Travel Care – a team of social workers.<br>Other organisations: Full time officer located at Heathrow (alongside Heathrow TravelCare) to consider the issue of repatriation at ports. Position funded by the Foreign & Commonwealth Office.<br>Red Cross and FCO agreement on repatriation; Meet & greet returning passengers at airport, arrange onward transport, supported by the FCO | Nov 2020<br>Sept 2022      |
| <b>R102</b><br><b>MEDIUM</b> | Industrial Action<br>Local Authorities | <b>Industrial action (fuel supply)</b><br>Actual or threatened significant disruption to the distribution of fuel by road due to any cause, including industrial action by fuel tanker drivers. Retail filling stations, depending on the extent of the disruption and their locations and assuming no panic-buying, would likely run out of fuel within 4-5 days.  | 2          | 2      | Legal requirements re: conduct of industrial disputes.<br>Stocks of contingency fuel to varying degrees<br>National Emergency Plan for Fuel   | Sept 2021<br>Sept 2023     |

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| Risk ID<br>Rating            | Sub-category<br>Lead                           | Outcome Description  | Likelihood | Impact | Controls in place   | Last Review<br>Next review |
|------------------------------|--|--|------------|--------|---|----------------------------|
| <b>R101</b><br><b>MEDIUM</b> | Industrial Action<br>TfL                       | <b>Industrial action (public transport)</b><br>Strike action by key rail or London Underground staff (e.g. signallers) resulting in the total shutdown of very significant amounts of the national rail network or about ¾ of the London Underground network. In both cases severe disruption could last for a week as part of a three-month campaign.                               | 3          | 2      | Health and Safety at Work Act 1974.<br>Employment Act 1980.<br>Employment Act 1988.<br>Public Order Act 1986.<br>Trade Union and Labour Relations (Consolidation) Act 1992.<br>Anti-Social Behaviour Act 2003.<br>Organisational Business Continuity Arrangements | Sept 2021<br>Sept 2023     |
| <b>R99</b><br><b>MEDIUM</b>  | Industrial Action<br>LFB                       | <b>Industrial action (firefighters)</b><br>A national fire strike in England for a continuous eight-day period with loss of life directly attributable to a weakened response by individual fire and rescue services, and reputational impact on government.   | 2          | 2      | Police Act (1996)<br>RCN Code on Industrial Action<br>Alternative emergency cover protocols for the Fire Brigade<br>Organisational Business Continuity Arrangements<br>Recall to active duty  | Sept 2021<br>Sept 2023     |
| <b>R100</b><br><b>MEDIUM</b> | Industrial Action<br>MoJ                       | <b>Industrial action (Prison officers)</b><br>Industrial action by operational prison staff, leading to a shortfall of staff available for duty for more than 24 hours.  | 4          | 2      | Criminal Justice and Public Order Act (1994)  | Sept 2019<br>Sept 2022     |
| <b>R80</b><br><b>MEDIUM</b>  | Failure of governance<br>Business Sector Panel | <b>Systemic Financial Crisis</b><br>A severe economic downturn and/or crisis of confidence precipitates the failure of one or more UK banks. This would have a major negative impact on the GDP (Gross Domestic Product) by reducing bank lending, consumption and broader investment. Such a crisis would likely lead to a recession and accompanying pressure on living standards. | 2          | 3      | PRA, FCA and FPC regulatory bodies<br>Financial Services and markets Act 2000   | Nov 2020<br>Sept 2022      |

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| Risk ID<br>Rating           | Sub-category<br>Lead                              | Outcome Description   | Likelihood | Impact | Controls in place  | Last Review<br>Next review |
|-----------------------------|---|---|------------|--------|--|----------------------------|
| <b>R72</b><br><b>MEDIUM</b> | Failure of<br>Governance<br><br>Local Authorities | <b>Collapse of a major government contractor</b><br><br>The collapse of a major provider of integrated facilities and construction services for a range of private and public organisations.  | 4          | 2      | Commercial business continuity and contingency plans<br><br>Service continuity plans to maintain critical services   | Sept 2021<br><br>Sept 2023 |
| <b>R73</b><br><b>MEDIUM</b> | Failure of<br>governance<br><br>Local Authorities | <b>Major Social Care Provider Failure</b><br><br>The failure of a major domiciliary care provider affecting 20,000 vulnerable people and their families.  | 4          | 2      | Contingency planning for a large-scale incident of this type would remain with central government<br><br>Local authority service continuity plans  | Sept 2021<br><br>Sept 2023 |
| <b>R103</b><br><b>LOW</b>   | Failure of<br>governance<br><br>Local Authorities | <b>Insolvency affecting fuel supply</b><br><br>Significant disruption to fuel supplies because of insolvency at a key refinery or terminals. Primary impacts are disruption to the production and/or supply of refined fuel products. Shortages can cause elevated short-term demand. | 1          | 2      | Reserve fleet of Road tankers<br><br>Temporary financial assistance to some orgs to maintain fuel supplies while market responds.<br><br>Central government arrangements for emergency fuel deliveries from downstream oil industry to maintain deliveries to key sites. | Sept 2021<br><br>Sept 2023 |



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## 4.4 Natural Hazards

| Risk ID<br>Rating              | Lead | Outcome Description  | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|--------------------------------|------|--|------------|--------|--|----------------------------|
| <b>R83</b><br><b>VERY HIGH</b> | EA   | <b>Surface Water Flooding</b><br>Surface water flooding in a large metropolitan area caused by a warm unstable atmosphere, most likely to occur in summer due to the warmer atmosphere having a greater water holding capacity, causes a pattern of convective rainfall events.  | 3          | 4      | Flood and Water Management Act 2010<br>The Flood Risk Regulations 2009<br>Land Drainage Act 1991<br>Water Resources Act 1991<br>FFC – Flood Guidance Statements<br>New building developments controlled through planning guidelines<br>Multi Agency Flood Plans<br>London Strategic Flood Framework<br>National Flood Emergency Plan<br>Environment Agency Floodline | Sept 2021<br>Sept 2022     |
| <b>L21</b><br><b>VERY HIGH</b> | EA   | <b>Fluvial Flooding</b><br>Successive bands of frontal rainfall saturate river catchments (soil moisture deficit is at zero) and fill river channels to full capacity. High intensity heavy rainfall causes fluvial rivers in London (tributaries to the Thames) to exceed channel capacity. Flooding happens very quickly with little warning and time for evacuations. | 3          | 4      | See R83  | Sept 2021<br>Sept 2022     |

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| Risk ID<br>Rating              | Lead                     | Outcome Description   | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|--------------------------------|--------------------------|---|------------|--------|---|----------------------------|
| <b>R92</b><br><b>VERY HIGH</b> | Met Office               | <b>Severe Space Weather</b><br>Disruption to the electricity grid, resulting in two rural/coastal sub-station disconnections each effecting communities of approx. 100,000 people, with loss of power for 1 month or more and rota-disconnections for a further 1 month or more. Voltage instability may also result in local blackouts, most likely in urban areas lasting a few hours.  | 3          | 4      | Electricity Industry monitoring and analysis of GIC<br>Space Weather is assessed as part of the Daily Hazards Assessment<br>National Grid design standards and response arrangements<br>Alternative positioning, navigation and timing signal systems<br>Forecasting through Met Office Space Weather Operations Centre | Nov 2020<br>Sept 2022      |
| <b>R84</b><br><b>VERY HIGH</b> | EA                       | <b>Severe Drought</b><br>Following three consecutive and unprecedented dry winters London is in a severe drought (level 4) situation. Emergency drought orders are in place with millions of properties with severe water supply restrictions and low water pressure (impacting supply to properties at high levels and tower blocks). Increase of illnesses due to reduced use of water impacting on hygiene levels, increased casualties and potentially fatalities. Mental wellbeing impacts communities and public outrage leads to some disorder issues. | 2          | 5      | Water Resources Act 1991<br>DEFRA: Planning for Major Water and Wastewater Incidents in England and Wales<br>Drought Plan direction document  | Sept 2021<br>Sept 2022     |
| <b>R87</b><br><b>HIGH</b>      | Department for Transport | <b>Volcanic eruption</b><br>Volcanic ash incursions for up to 25 days (assumed not to be sulphur-rich) resulting in sporadic and temporary closures of significant parts of UK airspace for up to a total of 15 days (possibly non-consecutive) during a three-month eruption period  | 4          | 3      | Met Office Volcanic Ash Advisory Centre Forecasting<br>CAA Volcanic Ash Safety Regime<br>Airline response plans   | Sept 2019<br>Sept 2022     |

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| Risk ID<br>Rating   | Lead | Outcome Description  | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|---------------------|------|--|------------|--------|--|----------------------------|
| <b>R85<br/>HIGH</b> | EA   | <b>Poor Air Quality</b><br>A 30-day period of elevated levels of either ozone or PM2.5 causing increases in death rates among vulnerable populations due to poor air exacerbating respiratory and cardio-vascular conditions.  | 3          | 3      | Air Quality Standards Regulations 2010<br>European directive on ambient air quality and cleaner air for Europe (2008/50/EC)<br>The UK Air Quality Strategy<br>Environmental Permitting Regulations 2010<br>Clean Air Act & Environmental Protection Act<br>Local authority air quality management areas and action plans- London Mayor's Air Quality Strategy which encompasses Ultra Low Emissions Zones and Low Emission Neighbourhoods<br>AirTEXT warning system<br>Local Air Quality Action Plans<br>Local Air Quality Monitoring Network<br>GLA Air Quality Action Plan | Nov 2020<br>Sept 2022      |
| <b>R90<br/>HIGH</b> | NHS  | <b>Heatwave</b><br>Daily maximum temperatures greater than 32C and minimum temperatures greater than 15C over most of a region for around 2 weeks including at least 5 consecutive days. Up to 1,000 fatalities and 5,000 casualties, mainly amongst the elderly. There could be disruption to power supply, telecommunications and transport infrastructure within the 2 weeks. | 4          | 3      | Health & Safety at Work Act 1974<br>Public Health Act<br>Heatwave Plan for England<br>Long term planning for local authorities, CCGs and NHS<br>Climate Change Adaption Strategy for London<br>Heat Health Watch<br>Department of Health Heatwave Plan for England   | Dec 2020<br>Sept 2022      |

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| Risk ID<br>Rating   | Lead       | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|---------------------|------------|---|------------|--------|--|----------------------------|
| <b>R91<br/>HIGH</b> | Met Office | <b>Low temperatures and heavy snow</b><br>Low temperatures and snow (falling and lying) over substantial areas of low-lying land, (below 300m) for at least one week. After an initial fall of snow, there is further snowfall on and off for at least 7 days. Most lowland areas experience some snow fall greater than 10cm at a time, with overall snow depth greater than 30cm. This would coincide with a period of at least 7 consecutive days with a daily mean temperature below -3C. | 3          | 3      | Met Office Hazard Manager service<br>Warning & Informing<br>Category 1 & 2 responders' emergency response, BCM and severe weather plans.<br>Highways Agency, TfL and local authorities' winter road maintenance plans.<br>Met Office forecasts & National Severe Weather Warning Service<br>TfL snow desk<br>Op GRIDLOCK to support motorists stranded on M25.       | Nov 2020<br>Sept 2022      |
| <b>L19<br/>HIGH</b> | EA         | <b>Groundwater Flooding</b><br>Following unprecedented amounts of extended above average rainfall throughout 3 winter months groundwater levels are exceptionally high throughout London. The main areas of concern are in the South East of London where the geology is predominately chalk.   | 3          | 3      | Flood and Water Management Act 2010<br>The Flood Risk Regulations 2009<br>Land Drainage Act 1991<br>Water Resources Act 1991<br>Environment Agency Floodline<br>FFC – Flood Guidance Statements<br>New building developments controlled through planning guidelines<br>Multi Agency Flood Plans<br>London Strategic Flood Framework<br>National flood emergency plan | Sept 2021<br>Sept 2022     |

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| Risk ID<br>Rating            | Lead       | Outcome Description   | Likelihood | Impact | Controls in Place   | Last Review<br>Next Review |
|------------------------------|------------|---|------------|--------|---|----------------------------|
| <b>HL19</b><br><b>HIGH</b>   | EA         | <b>Coastal/Tidal Flooding</b><br>Localised tidal flooding resulting from sudden breach of a section of the Thames tidal wall or embankment caused by a vehicle collision or construction incident or a failure of a tidal flood gate coinciding with high tides on the river Thames.  | 3          | 3      | See L19   | Sept 2021<br>Sept 2022     |
| <b>R93</b><br><b>MEDIUM</b>  | Met Office | <b>Storms and Gales</b><br>Storm force winds affect multiple regions for at least 6 hours during a working day. Most inland and lowland areas experience mean speeds greater than 55mph and gusts faster than 85mph.  | 3          | 2      | Met Office Hazard Manager service<br>Warning & Informing<br>Category 1 & 2 responders emergency response plans<br>Highways Agency response plans.<br>TfL adverse weather plans<br>LFB USAR and Water Rescue capabilities.<br>LAS HART | Nov 2020<br>Sept 2022      |
| <b>HL21</b><br><b>MEDIUM</b> | LFB        | <b>Land Movement</b><br>Roads and access routes impassable for a time. Emergency access into/out of large populated areas difficult or impossible; severe congestion over wide geographical area. Loss of power and other essential services over wide geographical area. Potential for trapped or missing people either in landslides itself and/or in collapsed structures. | 3          | 2      | Land use planning restrictions<br>Building Control regulations enforced by Local Authorities.<br>Construction, renovation, maintenance and demolition standards   | Nov 2020<br>Sept 2022      |

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| Risk ID<br>Rating            | Lead                 | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|------------------------------|----------------------|---|------------|--------|--|----------------------------|
| <b>L54c</b><br><b>MEDIUM</b> | Accident<br>LFB      | <b>Fires involving landfill and waste processing sites</b><br>Major fire lasting several days with significant environmental and local impacts.   | 5          | 3      | See R54  | Sept 2021<br>Sept 2022     |
| <b>L54d</b><br><b>MEDIUM</b> | Accident<br>LFB      | <b>Wildfires in proximity to large urban areas</b><br>A major wildfire spreading over an area of over 100 hectares at the urban-rural interface. Significant environmental impacts and risks to residential property and essential services.  | 3          | 2      | See R54<br>London Fire Brigade borough specific rural strategies<br>Specialist firefighting equipment and resources  | Sept 2021<br>Sept 2022     |
| <b>L54e</b><br><b>MEDIUM</b> | Accident<br>LFB      | <b>Major fire in care homes and hospitals</b><br>Fire causing up to 20 fatalities of vulnerable people in residence causing the closure of an entire hospital or care home.   | 3          | 2      | See R54  | Sept 2021<br>Sept 2022     |
| <b>R94</b><br><b>LOW</b>     | Local<br>Authorities | <b>Earthquake</b><br>An earthquake that results in the ground shaking with an intensity of six on the European Macroseismic Scale (EMS), this is classed as 'strong'. Many houses and buildings suffer slight non-structural damage like hair-line cracks and falling of small pieces of plaster. | 1          | 1      | London and national generic response plans <ul style="list-style-type: none"> <li>• Site clearance</li> <li>• Evacuation &amp; Shelter</li> <li>• Recovery</li> </ul> Mutual aid arrangements<br>Specialist fire and rescue assets | Sept 2021<br>Sept 2023     |

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## 4.5 Hostile State Activity

| Risk ID<br>Rating | Lead              | Outcome Description   | Likelihood | Impact | Controls in Place  | Last Review<br>Next Review |
|-------------------|-------------------|---|------------|--------|--|----------------------------|
| R43<br>LOW        | Local Authorities | <b>Undermining Democratic Activity</b><br>A cyber-attack conducted by a hostile state actor on a UK Electoral system during an election period. The attack could cause disruption to the electoral processes, resulting in data loss or manipulation and impact the result, or public confidence in the result. | 3          | 1      | UK Electoral processes largely not reliant on computer systems vulnerable to this type of attack | Nov 2020<br>Sept 2022      |

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### 4.6 Threats

In this public version of the London Risk Register threats and cyber risks are grouped and summarised by target. Further detail on the types of threats is available in the [National Risk Register](#).

Threats are assessed nationally so reassessment dates are not included.

| Risk ID Rating             | Outcome Description  | Likelihood | Impact | Controls in Place   |
|----------------------------|--|------------|--------|---|
| <b>T1</b><br><b>MEDIUM</b> | <p><b>Attacks on Publically Accessible Locations</b></p> <p>There has been an increase in the frequency of terrorist attacks in the UK from 2017. Nearly all attacks have occurred in publically accessible locations.</p> <p>A defining feature of such attacks is the targeting of people. This may be random or aimed at a specific group. Impacts may include fatalities and physical and/or psychological casualties, significant damage to infrastructure and other property, increased demands on and disruption to essential services.</p> | 5          | 2      | <p>Continued warning and informing of crowded places through heightened security alerts and Physical security measures where appropriate</p> <p>Emergency services response plans &amp; specialist resources</p> <p>Work of Counter Terrorism Security Advisors to raise awareness and provide training</p> <p>Op Servator hostile reconnaissance disruption operations</p> <p>Targeted comms from counter terrorism police to stakeholders</p> <p>Public awareness campaigns providing advice to the public including digital tools and e-learning</p> |



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| Risk ID Rating     | Outcome Description   | Likelihood | Impact | Controls in Place  |
|--------------------|---|------------|--------|--|
| <b>T2<br/>HIGH</b> | <p><b>Attacks on Infrastructure</b></p> <p>Critical National Infrastructure are the facilities, systems, sites, information, people, networks and processes that keep the UK running and provide the essential services we all rely on. This includes electricity and water services and telecommunications.</p> <p>Attacks could be carried out with a variety of methods, including explosives or cyber attacks.</p> <p>Consequences of attacks of this nature could include disruption to essential services, possible evacuation of residents or employees, economic impacts.</p> | 4          | 3      | <p>UK Government's counter-terrorism Strategy (CONTEST) (summarised above)</p> <p>Business continuity plans for loss of essential services helps to minimise disruption to users.</p> <p>Well established programme of work to protect infrastructure from terrorism including protective security advice from Centre for the Protection of National Infrastructure and local Police services</p> <p>National Cyber Security Centre advises government and industry on how to secure cyber infrastructure and to respond to incidents.</p> <p>Consequence based planning by the authorities ensuring that responses to a variety of emergencies are already planned for.</p> |
| <b>T3<br/>HIGH</b> | <p><b>Attacks on Transport</b></p> <p>In the UK, conventional terrorist attacks on land and air-based transport are more likely than against maritime transport. Physical attacks could take a variety of forms including explosives, noxious substances or attackers wielding blades.</p> <p>Consequences of an attack on a transport system could include fatalities and physical and/or psychological casualties, disruption to the transport system and negative impacts to the national economy.</p>   | 4          | 3      | <p>Regulation and monitoring of services by DfT requiring certain organisations to deliver a range of security measures. DfT also provides advice and best practise to other sectors.</p> <p>"See it. Say it. Sorted." campaign.</p> <p>BTP work with industry and DfT on security and provide tailored policing of the railway network.</p> <p>Contingency plans developed by operators in conjunction with responders</p> <p>Op Servator hostile reconnaissance disruption operations run by PSO &amp; BTP</p>   |

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| Risk ID<br>Rating              | Outcome Description   | Likelihood | Impact | Controls in Place   |
|--------------------------------|---|------------|--------|---|
| <b>T4</b><br><br><b>MEDIUM</b> | <p><b>Cyber attacks</b></p> <p>Cyber criminals engage in criminal activity to exploit weaknesses in online systems, usually for financial gain. As well as using technology to commit a crime (such as hacking to steal data), offenders can also increase the scale and reach of a crime (such as cyber-enabled non-fiscal fraud). States and state-sponsored threats tend to be politically motivated, and may attempt to access and cause disruption to strategic systems across government and other key sectors.</p> | 4          | 2      | <p>National Cyber Security Strategy sets out the government response to ensuring that government, CNI, business and citizens are as resilient as possible to cyber threats.</p> <p>The National Cyber Security Centre, part of GCHQ, supports the most critical organisations in the UK to improve their cyber resilience. The NCSC also responds to cyber incidents to minimise harm to the UK, help with recovery and learn lessons for the future.</p> <p>Additional outreach to businesses and public regarding cyber threats and security</p> <p>Centre for Protection of National Infrastructure providing security and cyber security advice</p> |

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| Risk ID Rating      | Outcome Description   | Likelihood | Impact | Controls in Place  |
|---------------------|---|------------|--------|--|
| <b>T5</b><br>MEDIUM | <p><b>Smaller Scale CBRN Attacks</b></p> <p>Malicious actors remain interested in chemical, biological, radiological and nuclear (CBRN) attack methods. In the UK, it is assessed that terrorists are more likely to use knives, vehicles or improvised explosive devices, but the threats of CBRN attacks cannot be ruled out.</p> <p>CBRN attacks have the potential to kill, injure and cause wide-ranging harm. Depending on the method used there is potential for catastrophic blast damage, widespread infection, or contamination of people, the environment, buildings, water supplies and food.</p> <p>Attacks could range from a small target incident, to large catastrophic events at the highest end of the spectrum, such as the widespread dispersal of a biological agent or the detonation of an improvised nuclear device.</p> | 4          | 2      | <p>Improving methods to detect and monitor CBRN materials, including through the border.</p> <p>Regulating access to hazardous materials and their precursors</p> <p>Improving and maintaining capabilities to enable emergency responders to respond effectively, rapidly and safely</p> <p>Provision of guidance in incidents and increasing public access to information on what to do during general and hazardous materials emergencies</p> <p>Local and organisational CBRN response plans</p> <p>Well-developed specialist response capabilities</p> <p>Access to medical countermeasures and adaptability of other consequence-based plans to respond to unconventional attacks</p> <p>Decontamination process of people and place regularly trained and tested.</p> <p>Continuity plans to ensure effective civil government can continue throughout and after an incident.</p> |
| <b>T6</b><br>HIGH   | <p><b>Medium Scale CBRN Attacks</b></p> <p>See T5 outcome description</p>   | 4          | 3      | See T5 Controls in Place   |

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| Risk ID<br>Rating           | Outcome Description  | Likelihood | Impact | Controls in Place        |
|-----------------------------|--|------------|--------|--------------------------|
| <b>T7<br/>VERY<br/>HIGH</b> | <p><b>Larger Scale CBRN Attacks</b></p> <p>See T5 outcome description</p> <p>A larger-scale CBRN attack has never happened in the UK, but would be more challenging to respond to than other malicious attacks, due to the potential health impacts and widespread environmental contamination. CBRN events can also present responders and those affected with significant levels of uncertainty about what has happened, and the scientific evidence may evolve as the incident unfolds. This leads to widespread psychological impacts including anxiety.</p> | 3          | 5      | See T5 Controls in place |

# Appendix 1 - The 6 Stage Risk Assessment Process

## Contextualisation

A range of factors influence the assessment of both likelihood and impact of risks. Demographics, transportation and environmental factors all exert an influence on how a risk would manifest in a particular area. Each of the 33 Borough Resilience Forums in London uses this local context to develop their own risk assessments.

## Hazard Identification and allocation for assessment

London Risk Advisory Group identifies the threats and hazards that, in their view, could give rise to an emergency within London in the next 2 years.

Lead risk assessors agreed by the group then undertake to assess the likelihood of each risk occurring, and to make a judgement of how impactful the RWCS of that risk would be. Risks included in the London Risk Register are subject to a scheduled review programme to ensure that each risk is revisited and updated periodically.

## Risk analysis

Drawing on guidance from Government, other research and local knowledge, lead assessors consider the likelihood of the risk over the next five-year period. Individual Risk Assessments are then provided to the London Risk Advisory Group for discussion and approval.

## Risk evaluation

Individual Risk Assessments are confirmed and summary information collated into the London Risk Register.

## Risk treatment

Gaps in capability against the reasonable worst-case scenarios is assessed periodically by the London Resilience Forum, where additional risk management options are agreed as necessary.

## Monitoring and Review

Risk assessment is not a static process and is subject to constant review. At a minimum, each Individual Risk Assessment is formally reviewed on a 2-year cycle. An annual update of the London Risk Register is published in the spring.

## Appendix 2 – Likelihood and Impact Scoring Scales

Further detail on the scoring measures is provided in Annex 4D of “Emergency Preparedness” (HM Government, 2005) or Local Risk Management Guidance (available via Resilience Direct).

### Likelihood scale

| Score | Likelihood Descriptor | Probability of the Reasonable Worst-Case Scenario occurring within a 12-month period |
|-------|-----------------------|--|
| 1     | Low                   | Less than 0.2% chance of occurring per year  |
| 2     | Medium Low            | Between 0.2% and 1%  |
| 3     | Medium                | Between 1% and 5%  |
| 4     | Medium High           | Between 5% and 25%   |
| 5     | High                  | More than 25%  |

### Impacts Categories

Each impact category is split into several “indicators” which are scored out of five. Indicator scores are amalgamated to reach a score for that category, and the category scores are amalgamated to reach an overall impact score.

| Impact Category     | Explanation   |
|---------------------|---|
| Human Welfare       | Includes numbers of fatalities and casualties resulting from the RWCS, needs for mass evacuation, and short- and long-term accommodation.   |
| Behavioural Impacts | Psychological impacts of the risk, including how people’s perception and behaviour might change because of the risk.  |
| Economic            | An approximate net economic cost, including both direct (e.g. loss of goods, buildings, infrastructure) and indirect (e.g. loss of business, increased demand for public services) costs.                         |
| Essential Services  | How the RWCS might impact the emergency services, critical infrastructure, transport, education and other service and infrastructure providers  |
| Environment         | Encompassing long-term impact of contamination or pollution of land, water or air with harmful biological / chemical / radioactive matter or oil, flooding, or disruption or destruction of plant or animal life. |
| Security            | Includes impacts to law enforcement and intelligence services, and disruptions to criminal justice and border security.   |

## Appendix 3 – Overall Risk Rating Definitions

| Definitions of Nationally Approved Risk Ratings  |   |
|--|---|
| Very High (VH)   | These are classed as primary or critical risks requiring immediate attention. They may have a high or medium likelihood of occurrence, but their potential consequences are such that they must be treated as a high priority. This may mean that strategies should be developed to reduce or eliminate the risks, but also that mitigation in the form of (multi-agency) planning, exercising and training for these hazards should be put in place and the risk monitored on a regular frequency. Consideration should be given to planning being specific to the risk rather than generic. |
| High (H)   | These risks are classed as significant. They may have a high or low likelihood of occurrence, but their potential consequences are sufficiently serious to warrant appropriate consideration after those risks classed as 'very high'. Consideration should be given to the development of strategies to reduce or eliminate the risks, but also that mitigation in the form of at least (multi-agency) generic planning, exercising and training should be put in place and monitored on a regular frequency.  |
| Medium (M)   | These risks are less significant but may cause upset and inconvenience in the short term. These risks should be monitored to ensure that they are being appropriately managed, and consideration given to their being managed under generic emergency planning arrangements.  |
| Low (L)  | These risks are both unlikely to occur and not significant in their impact. They should be managed using normal or generic planning arrangements and require minimal monitoring and control unless subsequent risk assessments show a substantial change, prompting a move to another risk category.  |
| <i>Based on the model risk rating matrix published in Annex 4F of "Emergency Preparedness" (HM Government, 2005)</i> |   |

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**LONDON RESILIENCE GROUP**

The London Resilience Group is jointly funded and governed by the Greater London Authority, London Local Authorities and the London Fire Commissioner. We are hosted by the London Fire Brigade. Our work, and that of the London Resilience Partnership, is overseen by the London Resilience Forum.