LONDON FIRE BRIGADE

Assessment of Risk Methodology 2025

Contents

Layer 1. Public Concerns and Public Risk Perception

LFB assess public concerns and public risk perception in three ways;

1. Community workshops

2. Analysis of website traffic

3. YouGov polling

1 Community Workshops.

LFB Strategic Planning worked in Partnership with the Brigade Engagement Team. The Strategic Planning team provided the overall objectives for the piece of work and provided risk information and risk content. The Engagement team carried out an Equalities Impact Assessment, identifying specific groups for targeted engagement who represented either seldom heard or at-risk groups. The Engagement team facilitated focus groups with the LFB Community Forum and organisations/representatives who work with communities (in particular on community risk and resilience). Contact and administration was provided by the LFB Engagement Team.

In addition to identified groups an open public workshop was held that any member of the public could attend. Groups within the demographics referenced in the EIA were approached via existing relationships, links made through previous LFB engagement, or contacts provided to the team by colleagues, partners and other organisations.

A target number of attendees was not set, as this engagement piece was designed to speak to a number of groups to understand how they might perceive risk, rather than to be a fully representative sample of London.

Workshop attendees received a presentation on the nature and purpose of the AoR followed by a discussion around what, “Risk,” meant to individuals.

Workshop attendees were then asked about the level of threat perceived in their lives currently of various pre identified risks taken from the higher risks identified at the start of the engagement work based on 2023s AoR. These categories of risk have been maintained to allow comparison between assessments and to allow changes to be tracked.

Attendees were able to either use an interactive online tool (via Mentimeter) or fill out a paper form, rating each risk category on a scale from 0-100 to represent how personally concerned they were about each one.

Attendees were then asked open-ended questions, asking them to share any underlying causes of fires and of non-fire incidents, and any other risks that they are concerned about.

This data was recorded in spreadsheet format, to be analysed by the Strategic Planning team for the public perception of risk portion of the Assessment of Risk 2024.

The following workshops were held.

Group	Date	Delivery Mode	Attendee Numbers
Action Disability Kensington and Chelsea	11 November 2024	Online	3
Public and Community Volunteer Services	12 May 2024	Online	11

Westminster LGBT+ Forum	12 November 2024	In-person	7
Barnet Youth Board	12 December 2024	In-person	18
Action Disability Kensington and Chelsea	12 December 2024	Online	5
LFB Community Forum	13 January 2025	Online	3
East London Older People's Reference Group (Tower Hamlets)	16 January 2025	In-person	9
London Bridge and Bankside BIDs	28 January 2025	Online	8
The Ivy Club Over 50s Women's Group	30 January 2025	In-person	19
ChargeSafe - riders group	28 March 2025	In-person	8
Open faith session	27 February 2025	Online	9
Second open public session	07 March 2025	Online	4
Total			104

Additional focus groups were held in the following Boroughs, led by local Borough Commanders.

Borough	Date	Delivery Mode	Attendee Numbers
Lewisham	13 March 2025	In Person	9
Islington	14 March 2025	In Person	8
Ealing	26 March 2025	In Person	34
Hillingdon	17 March 2025	In Person	16
Lambeth	19 March 2025	In Person	8

The purpose of these sessions was to add geographic breadth to respondents' data and to form a trial group to inform wider role out of borough-based data collection on public risk perception. Borough sessions were not intended to hit any specific demographic other than those that live in the borough.

To make risk information more accessible during focus groups AoR risk identifiers were grouped into more general categories to aid public understanding, and examples were provided for each. The table below shows the AoR item from 2023 and the simplified grouping for public engagement.

AoR Risk Descriptor (highest risks)	**Descriptor for Public Engagement**
Fire involving warehouses and bulk storage.	Large commercial fires
Fire involving manufacturing and processing plants.	
Fire involving landfill or wasteland.	
Fires in large public and commercial buildings	
Fire involving food and drink outlets	
Fire involving offices and call centres	

Fire involving retail outlets	
Fire involving rural land (urban rural interface)	Wildfire and grass fires near buildings
Non-fire incidents involving trains and transport buildings.	Car and train collisions and entrapments
Non-fire incidents involving road vehicles and urban infrastructure.	
Non-fire incidents involving outdoor water and boats	Water rescue
Fire involving purpose-built flats.	Fires in flats and shared living
Fire involving converted flats or HMOs	
Fires in purpose built high-rise flats	High rise and/or major fire
Major Fire	
Fire involving short stay accommodation	Fires involving vulnerable people.
Fire involving care homes and specialised living	
Fire involving houses and bungalows	House fires
Fire involving private garages and sheds	
Surface Water Flooding	Flooding
Fluvial Flooding	
Groundwater Flooding	
Coastal/Tidal Flooding	
Low temperatures and heavy Snow	Cold weather, snow, and disruption
Accidental Release of a Biological Substance	Accidents with hazardous materials
High Consequence Dangerous Goods	
Attacks on Infrastructure	Malicious attacks and terrorism
Attacks on Transport	
Medium Scale CBRN Attacks	
Larger Scale CBRN Attacks	

2. Analysis of website traffic

LFB Strategic Planning analysed website traffic on the LFB public facing website to gauge public interest in different risk information. This data takes the form of an automated dashboard tracking website traffic. Analysis of 12 months of LFB website traffic was used in the AoR 2025 to indicate level of public concern regarding specific risk information. Data was collected on individual users and the areas of the website that they interacted with within the," safety," section. An assumption was made that a higher proportion of users viewing a particular page holding a specific type of risk information indicated a higher level of public concern regarding that topic. In total 203K users visited the Brigades, "safety," pages out of 779.9K users of the webpage. Data capture period was 01/01/24 – 01/01/2025.

A google tool was used to automate the analysis, data was exported to Microsoft Excel and converted to a proportional Tree Diagram for presentation in the AoR report. Raw data is available here;

https://lookerstudio.google.com/reporting/3573c2fa-b160-47f5-b97c-ad76e8dd5b2d/page/kIV1C

3. YouGov polling

Acknowledging the limited reach of public and targeted workshops and the difficulty in providing full representation for a diverse city, LFB commissioned a supporting question on perceived risk using the YouGov platform to broaden representation.

This question presented respondents with all 12 risks on the list used in workshops as well as options of, "none of these", and "don't know". Respondents were asked which of the listed risks was of most concern

to them. This question has been repeated at 6-month intervals to track changes in perception. Results were analysed using Microsoft products.

.

Layer 2. Risks relating to property, places, and incident type

2.1 Risk Matrices

Risk information is presented both by incident type and location and by incident type code. The calculations for likelihood and severity are the same in each matrix. LFB incident data is linked to Power BI for automated reporting. The most recent five full calender years years of incident incident data are analysed. Information is presented by both type and location and by Incident Type Code to allow disaggregation of specific incident types from the wider location data.

2.2 Calculation of likelihood

Likelihood score is based on frequency of incidents occuring. This is calculated by, Number of occurences in data/ data period. The score is then taken from Table 1.

Table 1. Likelihood score table

Score	Descriptor
1	Between once a year and once a week
2	Between one a week and one a day
3	Between one and five a day
4	Between five and twenty a day
5	Twenty or more a day

2.3 Calculation of severity by casulaty rate

Casualty rate is determined by calculating the number of incident type required on average to generate a casualty. This is calculated by, number of incidents in data period/number of casualties for incident type in data period. Severity score is taken from Table 2.

Table 2. Consequence by casualty rate score table

Score	Life consequence
1	One casualty occurs per 100 or more incidents
2	One casualty occurs per 25 - 100 incidents
3	One casualty occurs per 10 - 25 incidents or a fatality occurs in 300 or more incidents
4	One casualty occurs per 5 – 10 incidents or a fatality occurs per 100 – 300 incidents
5	One casualty occurs per 5 or fewer incidents or a fatality occurs per 100 or fewer incidents

2.4 Calculation of severity by wider consequence score

The wider consequence of an incident is indicated by the sum of fire appliances used over the full duration of the incident including the operational and post-operational phases, initial attendance, and all required reliefs. This measure serves as a proxy for the wider impacts of an incident on the community as well as the overall scale and the impact on LFB. Where the wider impact score is higher than the life consequence score it has been used to moderate the score upwards. Below is an indicative worked example. The low threshold of frequency used to capture wider consequence allows for incidents that are occasionally very widespread or resource intensive to be measured alongside those that have more frequency but less widespread impacts.

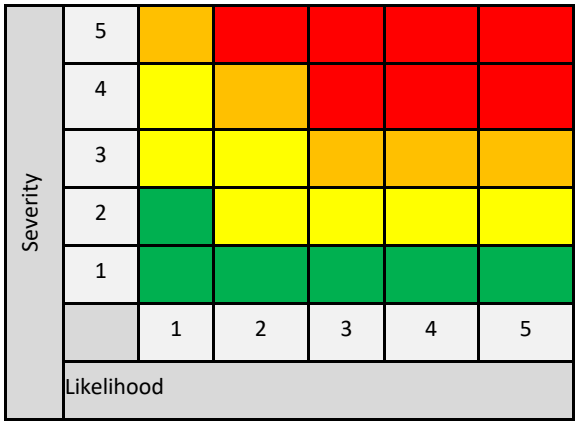
Table 3. Wider consequence score table

Score	Wider impact consequence
1	One or more incidents of this type have needed over 4 pumps in the last five years
2	One or more incidents of this type have needed over 40 pumps in last five years
3	One or more incidents of this type have needed over 60 pumps in last five years
4	One or more incidents of this type have needed over 80 pumps in last five years
5	One or more incidents of this type have needed over 100 pumps in last five years

2.5 Using the Risk Matrices

Once incidents have been scored for likelihood and consequence they are placed on the relevant matrix and displayed either by individual incident type code or by incident type and location. Incidents displayed by type code are placed in matrix 1 and Incidents displayed by type and location are placed in matrix 2. The base data is the same. The different presentation allow the same risk data to be viewed by location and by individual incident type.

Incidents with high severity but low likelihood are prioritised in this matrix over high frequency low severity incidents.



2.6 Risk Score: Worked example

An incident of *fire* in the location *purpose built flat*, occurs in London on average 7.26 times per day giving a likelihood score of 4. On average, one casualty occurs every 7 incidents in this location type, giving a consequence score of 4. The combination of likelihood and consequence returns an overall risk score of 16 for the incident type *fire in a purpose built flat*. However, the wider consequence score of fires in purpose

built flats is 5 due to the large number of resources required to resolve these incidents, indicating a higher overall impact. The score is therefore moderated up to a 5 for consequence as per the table. The overall risk score is now 20.

Neighbourhood densities and local risk profiles

Neighbourhood Density Zones highlight the areas of London with different densities of people and buildings.

The map graphic is created by the LFB Information Management Team

Urban Centres are the areas with highest population and building density (more than 15,000 people per sq. km) and are shown in red. Urban areas have above average population and building density (between 9,000 and 15,000 people per sq. km) and are shown in amber. Suburban areas have below average population andbuilding density (between 2,000 and 9,000 people per sq. km) and are shown in grey. Semi-Rural areas have the lowest population and building density (below 2,000 people per km) are shown in green.

NFCC Definition of Risk Maps

Maps showing dwelling fire and road traffic accident risk are produced by the LFB Business Intelligence Team and ORH respectively. The method published by the NFCC is used to produce maps to identify areas of risk based on demographic, geographic and socio-economic factors associated with incident frequency and outcomes.

Layer 3.1 Extraordinary risks and risks from the London risk Register.

These risks are taken directly from the London Risk Register. The London Risk Register is produced by the London Resilience Forum (LRF). The London Risk Register reflects risks recorded on the National Risk Register and National Security Risk Assessment as appropriate.

These risk registers deal with low frequency, high impact events and take a subjective approach to assess the reasonable worst-case scenario for each risk identified. Due to the limited data available on rare events subject matter experts and partners use indicator tables, professional judgment and extrapolate from past events to produce risk ratings.

The risks for which LFB is the lead are scored using input from LFB subject matter experts and with input and scoring from partners. Risks on which other partners lead are scored in a similar way. This gives the Brigade and the London Resilience Forum a wider, partner perspective on risks faced in London and England. This register includes risks that LFB will not directly respond to, however the inclusion of risks on the register indicates that LFB should plan for continued delivery of core functions during an event. scores for any of the risks, we would seek to get the risk rescored by the LRF rather than show a different score on our own risk register for that year.

Both the London Risk Register and the National Risk Register are available publicly and include method statements with the main documents. The national security risk assessment is not published publicly but is reflected in the national risks register.

Risk of note outside of the London risk register are identified through cross departmental engagement and through the workshop series that leads to production of layer four. These represent risks for which there is insufficient data for them to appear in other layers but for which there is sufficient concern from stakeholders to warrant inclusion in the AoR.

Layer 3.2: Extraordinary risk scenario modelling.

Modelling in this section is a development of the existing optimisation model and dynamic cover tool used by LFB and provided by a contractor ORH

Historic periods of high appliance unavailability were identified by using the saved data in the Dynamic Cover Tool (DCT). By navigating back to periods of 99th percentile appliance unavailability Strategic Planning were able to identify periods of operational stress.

Individual risks on the London Risk Register were then modelled using historically similar incidents, mobilising policies and subject matter expert input to build a mobilising profile for the risk type.

These incident profiles were then added to the DCT at the pre identified 99th percentile periods of demand and impacts on projected attendance time were measured.

In 2024 three incident types were modelled. A subsurface train derailment, a major residential high-rise fire and concurrent wildfires across London.

Historic data on appliance availability was used to calculate the percentage of the time that sufficient applainces of each type were available to respond to the modelled incidents

In the first iteration of this approach data was used for calendar years in 2022 and 2023.

In future iteration this approach will be developed to include a larger data set.

Layer 4. New and Emerging Risks

The approach taken to new and emerging risks is to draw together the Brigade's various sources of risk information including departmental horizon scanning. Subject matter experts, policy owners and key stake holders were identified by strategic planning and brought together for a series of two workshops, results were then moderated by Assistant Commissioners. Detailed methodology for the workshops is found in Emerging Trends and Future Risks: Operational Horizon Scanning Workshop Series Method.