LONDON RESILIENCE
preparing for emergencies

London Resilience Partnership

London Risk Register

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Greater London Authority

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London Resilience Team

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The London Risk Register is collectively owned by the Category 1 Responders (as defined by Schedule 1 to the Civil Contingencies Act 2004) within the London Local Resilience Forum area.

Record of Amendments

Date	Version	Author	Changes
October 2011	Version 0.3 approved as Version1.0	London Resilience Team	N/A – new document consolidating 6 Community Risk Registers into a single London Risk Register.
April 2013	Version 1.1	London Resilience Team	All – alteration to risk information following LRAG meetings and formatting refresh
November 2013	Version 2.1	London Resilience Team	Reformatting to more closely align London Risk Register with National Risk Register and following comments from consultation with London Resilience Team.
January 2014	Version 2.2	London Resilience Team	Amendments following discussion at London Risk Advisory Group meeting.

Any queries or enquiries should be directed to lrt@london.gov.uk.

Abridged Distribution History

Date	Comments	Version
19.09.11 10.10.11	Draft presented to London Risk Advisory Group Version 0.3 approved by London Resilience Forum for publication as Version 1.0	0.2 1.0
10.06.13	Version 1.1 approved by London Resilience Forum for publication as Version 2.0	1.1
06.02.14	Version 2.2 circulated to London Resilience Forum for publication as Version 3.0	2.2

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Introduction and Background

The Risk Register is used by the London Resilience Partnership to help the prioritisation of resilience activities towards higher rated risks.

Communities and businesses are also encouraged to use the London Risk Register to inform their own resilience arrangements and business continuity plans. It is for this reason that the London Risk Register is made publically available.

The risks included in the London Risk Register represent 'reasonable worst case scenarios' and their inclusion in the register does not mean that they are going to happen, or that if they did do that they would be as serious as the descriptions included here. Reasonable Worst Case Scenarios are nationally developed and informed by historical and scientific data, modelling, trend surveillance and professional expert judgment. The London Risk Register provides an assessment of the likelihood and impact of these scenarios for London.

The London Risk Register does not include reference to pre-planned events, which are covered under separate guidance and risk assessments.

The 6 Stage Risk Assessment Process

1. Contextualisation

Rather than reproduce here, London's Risks in Context is available separately, and summarises a range of factors which influence the assessment of both likelihood and impact of risks in London, such as demographics, transportation and environmental factors.

2. 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 5 years.

Identified lead assessors then undertake Individual Risk Assessments for each risk prior to multi-agency discussion. Risks included in the London Risk Register are subject to a scheduled review programme to ensure that each risk is revisited and updated periodically.

3. Risk analysis

Drawing on guidance from Government, other research and local knowledge, the lead assessor considers 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.

4. Risk evaluation

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

LRAG incorporates into CRR threat statements provided by central government within the Local Risk Assessment Guidance, but does not assess likelihood or impact.

5. Risk treatment

Gaps in capability, compared to the Reasonable Worst Case Scenario risks are assessed periodically by the London Resilience Forum. Options for additional risk management are developed, and agreed by the London Resilience Forum.

6. Monitoring and Review

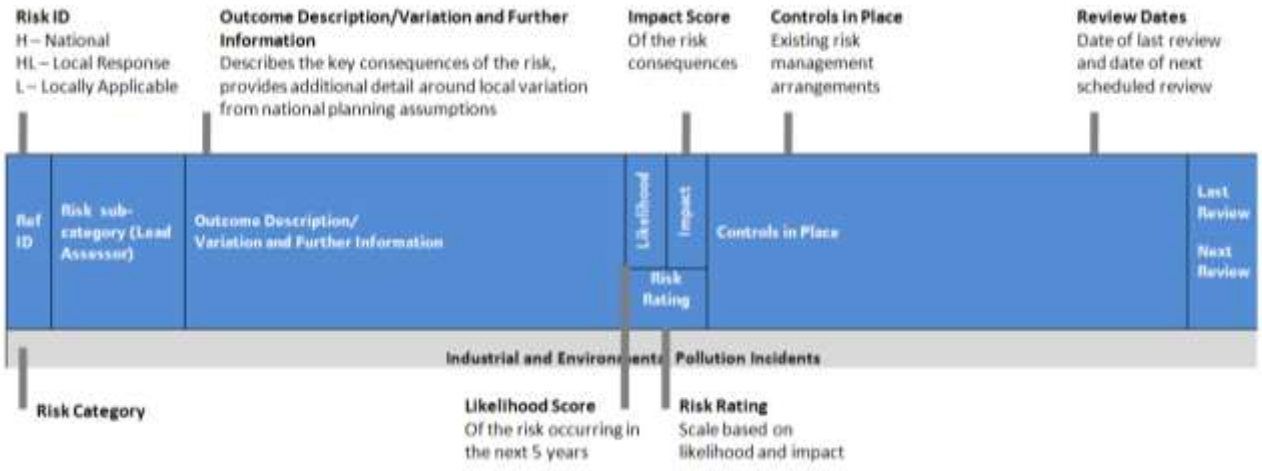
Risk assessment is not a static process and is subject to constant review. At a minimum, each Individual Risk Assessment is formally reviewed on a 2 year cycle. An annual update of the London Risk Register is published in the summer.

Navigating the London Risk Register

The London Risk Register is organised into the following categories.

- Natural Hazards
    - Human health incidents
    - Flooding
    - Volcanic hazards
    - Severe weather
    - Severe space weather
    - Severe wildfires
    - Animal health incidents
- Major accidents / incidents
    - Major industrial accident
    - Industrial and Environmental Pollution accidents
    - Major structural accidents
    - Technical failures
    - Incidents affecting Infrastructure and/or the Environment
    - Major transport accidents
    - Disruptive industrial action
    - Public disorder
- Malicious Attacks
    - Attacks on crowded places
    - Attacks on infrastructure
    - Attacks on transport system
    - Unconventional attacks
    - Cyber security

Each risk is assigned a Risk ID which is nationally consistent and relates to a more detailed, and protectively marked, Individual Risk Assessment.



London Risk Register – Hazards

Ref ID	Risk sub-category (Lead Assessor)	Outcome Description/ Variation and Further Information	Likelihood	Impact	Risk Rating	Controls in Place	Last Review / Next Review
Human Diseases / Human Health Incidents							
H 23	Influenza Type Disease (Pandemic). (PHE)	Pandemic is likely to occur in one or more waves, possibly weeks or months apart. Each wave may last between 12 - 15 weeks. Up to half the population could be affected. All ages may be affected, with some groups at more risk. Clinical attack rate of 25 to 50% spread over one or more waves with case fatality of up to 2.5%. This means, at the upper end of assumptions, up to some 750,000 excess deaths in the UK across the whole period of the pandemic and over 10,000 healthcare contacts per 100,000 population per week at peak. Probable peak in weeks 6 to 8 following first case, with 22% of total cases occurring at this time.	4	4	Very High	NHS Constitution provides for Vaccination Programmes Capacity planning in NHS trusts. Comprehensive surveillance systems London Resilience Partnership Plans	Sept 2011 Dec 2013

H 24	Emerging infectious diseases (PHE)	Precise impact will depend upon the effectiveness of antibiotics and antivirals in fighting infection. Based upon the experience of the outbreak of Severe Acute Respiratory Syndrome (SARS) in 2002, the worst case likely impact of such an outbreak originating outside the UK would be cases occurring amongst returning travelers and their families and close contacts, with spread to health care workers within hospital setting. • Short term disruption to local hospital intensive care facilities • Possible disruption of several weeks to elective procedures • Public concern about travel, within and beyond the UK and possible international travel restriction advice. Some infections give a longer period in which to put effective control measure in place to prevent spread.	3	3	NHS Constitution provides for Vaccination Programmes Capacity planning in NHS trusts. Comprehensive surveillance systems London Resilience Partnership Plans	Sept 2011 Dec 2013
			High			

Flooding						
H 21	Severe inland flooding affecting more than 2 UK regions (Environment Agency)	A massive inland event or multiple concurrent regional events following sustained heavy rainfall over two weeks. The event would include major fluvial flooding affecting a large urban area. Across urban and rural areas flooding of up to 50,000 properties (homes & businesses) for up to 10 days. Up to 10 fatalities and 500 casualties and 20 missing persons. Up to 55,000 people needing assistance with evacuation. Up to 6,000 people in need of rescue or assistance in-situ. Closure of primary transport routes. Loss of essential services (water, gas, electricity & telecom) to 250,000 homes and businesses for up to 14 days. Sediment disruption to water supplies. Significant regional economic damage. For evacuation and emergency sheltering and accommodation, 60% leave the affected area and stay with relatives/friends or holiday-makers return home. 30% use available hotels in safe areas. 142,000 (22%) of people flooded need assisted sheltering for up to 5 days and 25% of displaced households need temporary accommodation for up to 12 months.	3	5	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014
			Very High			

HL 18	Local / Urban flooding fluvial or surface run-off (Environment Agency)	Flash flooding and steadily rising river levels across entire region threaten large urban towns. Localised flooding of 1000 to 10,000 properties for 2-7 days. Up to 15 fatalities and 150 casualties. Up to 15,000 people evacuated. Up to 500 people stranded over a large area and in need of rescue. Road and rail links impassable for up to 5 days. Sediment contamination of water supplies. Loss of essential services (gas, electricity & telecoms) to 20,000 homes for up to 14 days. Widespread disruption for 7-14 days. Up to 1,000 people needing assistance with sheltering for up to 12 months. Sewage treatment works flooded. Up to 50 properties destroyed and many more uninhabitable. Localised economic damage and 6-18 months recovery time required. 6 and 18 months recovery before business as usual conditions are restored.	3	4 Very High	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014
H 19	Major coastal and tidal flooding affecting more than two UK regions (Environment Agency)	Major sea surge, tides, gale force winds and potentially heavy rainfall. Tidal reaches of rivers affected. Excessive tide levels and many coastal and/or estuary defences overtopped or failing (breaches). Drains 'back-up'. Inundation from over-topping of defences would allow as little as 1 hour to evacuate, widespread structural damage. Flooding of up to 300,000 properties (homes & businesses) for up to 14 days. People stranded over a large area. Up to 150 fatalities, 2000 'missing' persons and 2000 casualties. Up to 0.4m evacuees. Up to 40,000 people in need of rescue or assistance in-situ over a 36 hour period. For evacuation and emergency sheltering and accommodation, 60% leave the affected area and stay with relative/friends or holiday-makers return home. 30% use available hotels in safe area. 142,000 (22%) of people flooded need assisted sheltering for up to 5 days and 25% of displaced households need temporary accommodation for up to 12 months.	2	5 High	Thames Barrier and Flood Prevention Act 1972. Flood and Water Management Act 2010 Metropolis Management (Thames River Prevention of Floods) Amendment Act 1879 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014

HL 16	Local coastal / tidal flooding (affecting more than one Region) (Environment Agency)	Sea surge, spring tides, gale force winds, heavy rainfall, some defences overtopped or failing at multiple locations. Flooding of 1000 to 10,000 properties for up to 14 days. Up to 20 fatalities, 300 casualties and up to 200 missing persons. Up to 50,000 people (including tourists) in coastal villages and towns evacuated from flooded sites. People stranded over a large area and up to 5,000 people in need of rescue. Up to 10,000 people needing assistance with sheltering for up to 12 months. Possible large scale evacuation required. Structural damage to properties. Impact on infrastructure includes: widespread disruption for 7-14 days, salt damage, road and bridge damage, debris and contaminated water supplies, sewage treatment works flooded. Severe economic damage with 6-18 months recovery before business as usual conditions are restored.	2	5	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014
			High			
HL 17	Local coastal / tidal flooding (in one Region) (Environment Agency)	Sea surge, high tides, gale force winds affecting the coastline and one Region, a defence system overtopped or failing. Localised impact with infrastructure affected and up to 1000 properties flooded for up to 14 days. Up to 10 fatalities, 150 casualties and up to 100 missing persons. People stranded over a large area and up to 2,000 people in need of rescue. Up to 3,000 people needing assistance with sheltering for up to 12 months. Some local evacuation and cordoning off of affected areas. Structural damage to properties. Impact on infrastructure includes: localised disruption for up to 7 days, salt damage, road damage, debris and contaminated local water supplies and pollutants from affected businesses. Mutual aid will be needed within a Region and possibly from neighbouring regions.	3	3	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014
			High			

HL 19	Local fluvial flooding. (Environment Agency)	Localised flooding of 100 to 1,000 properties for 2-7 days. Up to 5 fatalities and 50 casualties. Up to 5000 people evacuated, up to 200 people stranded over a large area and in need of rescue. Disruption to transport with repairs taking considerable time. Waterways closed to traffic due to strong currents and high water levels. Sediment contamination of local water supplies. Localised loss of essential services (gas, electricity & telecoms) for up to 5000 for up to 14 days. Up to 250 people needing assistance with sheltering for up to 12 months. Substantial disruption for 7-14 days. Localised economic damage and 6-18 months recovery time required.	4	3	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014
			High			
HL 20	Localised, extremely hazardous flash flooding (Environment Agency)	Heavy localised rainfall in steep valley catchment leading to extremely hazardous flash flooding (eg high velocities and depths). Likely that no flood defences in place. No flood warning service available/ or suddenness of event means timely flood warnings not possible. Flooding of up to 200 properties. Extent of downstream effect could reach 30-50km. Significant local infrastructure damage - gas, electricity supplies, telecommunications, road and rail links.	4	3	Flood and Water Management Act 2010 Land Drainage Act 1991 Water Resources Act 1991 EA Flood Warning Direct service Met Office National Severe Weather Warning Service EA inspection of flood defences London Resilience Partnership Plans	Aug 2011 Feb 2014
			High			
HL 44	Major reservoir dam failure/collapse (Environment Agency)	Collapse without warning resulting in almost instantaneous flooding. Significant movement of debris 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. Up to 200 fatalities, up to 1000 casualties. Up to 50 missing persons and people stranded. Hazardous recovery amongst collapsed infrastructure and debris. Up to 200 people need temporary accommodation for 2 – 18 months. Extent of downstream effect could reach 50-60km. Significant damage to gas, electricity supplies, telecommunications, road and rail links.	1	5	Reservoirs Act, 1975 Water Act, 2003 Regular statutory inspections Met Office National Severe Weather Warning Service London Resilience Partnership Plans	May 2013 May 2015
			Medium			

Volcanic hazards						
H 54	Disruption to aviation as a consequence of volcanic ash (GLA)	Volcanic ash incursions for up to 25 days resulting in sporadic and temporary closures of significant parts of UK airspace for up to a total of 15 days during a 3 month eruption period. The entire UK mainland and potentially other parts of Europe could be affected for up to 10 of these days. A single period of closure within the 3 month eruptive episode may last for up to 12 consecutive days, depending on meteorological conditions.	TBC	TBC	This risk group is scheduled for assessment by the London Risk Advisory Group in 2014. Information on volcanic risks can be found in the National Risk Register.	Dec 2014 Dec 2016
H 55	Severe effusive (gas rich) volcanic eruption overseas (GLA)	A severe volcanic eruption, generating large amounts of gas, aerosol and ash over a 5 month period affecting the UK and Northern Europe.	TBC	TBC		Dec 2014 Dec 2016
Severe weather						
H 17	Storms & Gales. (Local Authorities)	Storm force winds affecting most of the South East England region for at least 6 hours. Most inland, lowland areas experience mean speeds in excess of 55 mph with gusts in excess of 85 mph. Up to 50 fatalities and 500 casualties with short term disruption to infrastructure including power, transport networks, homes and businesses.	3 High	3	Regular inspections of trees and highways for maintenance. Met Office National Severe Weather Warning Service Met Office Hazard Manager service Responder specialist resources	Sept 2011 Feb 2014

H 18	Low temperatures and heavy snow. (Local Authorities)	Snow falling and lying over most of the area for at least one week. After an initial fall of snow there is further snow fall on and off for at least 7 days. Most lowland areas experience some falls in excess of 10cm, a depth of snow in excess of 30cm and a period of at least 7 consecutive days with daily mean temperature below -3°C. Up to 1000 fatalities (excess deaths) and thousands of casualties, mainly amongst the elderly and there is likely to be some disruption to transport networks, businesses, power supply and water supply, and also school closures.	3	3	Highways Act 1980, Railways and Transport Act 2003 Government's 'Snow Code' Specific plans for traffic management Coordination of gritting and salt stocks Met Office National Severe Weather Warning Service Responder specialist resources	Sept 2011 Feb 2014
			High			
H 50	Drought (Environment Agency)	Periodic water supply interruptions affecting 385 000 businesses in London for up to 10 months. Emergency Drought Orders in place authorising rota cuts in supply according to needs of priority users as directed by Secretary of State. The 2.24 million households in London would not be subjected to supply interruptions. A drought of this severity is unprecedented and would take at least 3 dry winters to develop.	2	4	Water Resources Act 1991 Floods & Water Management Act 2010 Progressive restraints on consumption to preserve supply for critical services Storage reservoirs	Feb 2012 Feb 2014
			High			
H 48	Heat Wave. (Health)	Daily maximum temperatures in excess of 32°C and minimum temperatures in excess of 15°C over most of a region for at least 5 consecutive days. Up to 1000 fatalities and 5000 casualties mainly amongst the elderly. There could be disruption to power supply and transport infrastructure. The heatwave event definition is based on and August 2003 type event, but more severe. There will be subsequent impact on electricity generation and cooling systems. Currently in the London area the summer peak demand is higher than winter due to building air conditioning systems.	4	2	Health & Safety at Work Act 1974 Public Health Act Heatwave Plan for England London Resilience Partnership Plans Climate Change Adaption Strategy for London Heat-Health Watch	Jun 2011 Feb 2014
			Medium			

Structural Incidents						
HL 21	Land movement (London Fire Brigade)	Caused by Landslides or tremors. 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 a number of persons to be trapped or missing either in landslides itself and/or in collapsed structures. Up to 5 fatalities depending on the size and location of land movement. Such incidents are rare within the UK with some areas being more prone to landslides than others.	1 Medium	3	Land use planning restrictions Building Control regulations enforced by Local Authorities. Construction, renovation, maintenance and demolition standards	May 2013 May 2015
Severe space weather						
H 56	Severe space weather (GLA)	Disruption to two coastal electrical substations serving approximately 100,000 customers each for two or more months . Consumers would experience a loss of supply for up to half of this period, and rota disconnections may be used during the following four weeks. Disruption to satellite services for several days including interruptions and degradations to GPS, potentially resulting in casualties and fatalities. Up to 2 weeks disruption to aviation (including increased error rates in flight control and air traffic systems) and temporary loss of wireless systems including mobile phones and internet. Increase in error rate in ground based unprotected digital control systems which are ubiquitous in modern technology, for the duration of the storm.	TBC	TBC	This risk is scheduled for review by the London Risk Advisory Group in 2014. Information on space weather risks nationally can be found in the National Risk Register.	Dec 2013 Dec 2014

Severe wildfires						
H 58 and HL 33	Forest or moorland fire (London Fire Brigade)	Forest or moorland fire across up to 1500 hectares over a period of 7-10 days. Evacuation of between 100 and 3000 homes. Up to 10 fatalities and 100 casualties.	1	2	London Fire Brigade borough specific rural strategies Specialist fire fighting equipment and resources	Jan 2013 Feb 2015
			Low			
Animal Diseases / Animal Health Incidents						
H 25	Non-zoonotic Notifiable animal diseases (Local Authorities)	Assessment based on the need to cull and dispose up to 4 million animals with up to 900 infected premises across UK. For FMD whole of Great Britain is likely to be declared a 'controlled area', prohibiting the movement of all susceptible livestock unless licensed. £400 million 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. 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.	3	2	Animal Health Act 1981 Animal Health Act 2002 Other secondary legislation and EU directives National disease control strategies	May 2013 May 2015
			Medium			

H 26	Zoonotic Notifiable animal diseases (Local Authorities)	The most significant disease in this category is Highly Pathogenic Avian Influenza. Potential human health threat. Realistic worst case scenario based on the need to cull and dispose of up to 30 million poultry across GB. Loss of disease free status resulting in EU and third country import bans on poultry, captive birds and poultry products. Disruption to communities, local economies, tourism and the environment. Economic impacts for a major outbreak assessed at £60 million. The major outbreak scenario is of much greater scale than that experienced in any of the recent outbreaks of avian influenza in the UK, where the disease has been contained and has been limited to one or two infected premises plus associated contact premises.	3	2	Animal Health Act 1981 Animal Health Act 2002 Other secondary legislation and EU directives National disease control strategies	May 2013 May 2015
			Medium			

London Risk Register – Major accidents / incidents

Major industrial accidents / Industrial and Environmental Pollution Incidents						
HL 28	Localised fire or explosion at a fuel distribution site or tank storage of flammable and/or toxic liquids. (London Fire Brigade)	Up to 1km around the site, causing up to 15 fatalities and 200 casualties. Impact on environment, including widespread impact on air quality.	2	3	Control of Major Accident Hazard 1999 (COMAH) Regulations. The Dangerous Substances and Explosive Atmosphere Regulations 2002 Petroleum Regulations Regulatory Reform (Fire Safety) Order 2005 Site Operators on-site contingency plans Emergency Services specialist resources	May 2012 Feb 2015
			High			

HL 3	Localised industrial accident involving small toxic release (London Fire Brigade)	Up to 1km from site causing up to 10 fatalities and up to 100 casualties.	3	3	Control of Major Accident Hazards Regulations 2005 (COMAH) Regulatory Reform (Fire Safety) Order 2005 London Resilience Partnership Plans	May 2012 Feb 2015
			High			
H 12	Biological substance release from facility where pathogens are handled deliberately (Health)	Up to 10 fatalities and serious injuries or off-site impact causing up to 1,000 casualties. Assume release in an urban area. Pathogen release from containment – example SARS release from lab in China resulted in 2 deaths & several hundred people quarantined. This type of release could be the source of an outbreak that leads to H23-H26 risks.	2	3	Animal Health Act 1981 Specified Animal Pathogens Order 1998 Health & Safety at Work etc Act 1974 Control of Substances Hazardous to Health Regulations 2000 Management of Health & Safety at Work Regulations 1999 Reporting of Injuries Diseases and Dangerous Occurrences Regulations Carriage of Dangerous Goods (Classification, Packaging and Labelling Regulations Genetically Modified Organisms (Contained Use) Regulations 2000 Regulation, audit and enforcement of legislation by HSE London Resilience Partnership Plans	June 2011 Feb 2015
			High			

H 46	Biological substance release during an unrelated work activity/industrial process (Health)	Up to 10 fatalities and serious injuries or off site impact requiring up to 1000 casualties. Specifically related to Legionella disease during an unrelated work activity or industrial process.	4	3	Health & Safety at Work etc Act 1974 Control of Substances Hazardous to Health Regulations 2000 Management of Health & Safety at Work Regulations 1999 Reporting of Injuries Diseases and Dangerous Occurrences Regulations HSE Approved Code of Practice and Guidance 2001 (not fully complied with) HSE and Local Authority inspections of cooling towers; (not uniform) London Resilience Partnership Plans	May 2011 Feb 2015
			High			
HL 4	Major pollution of inland waters (Environment Agency)	Pollution incident impacting upon inland waters (for example, could be caused by chemical spillage or release of untreated sewage) leading to persistent and/or extensive effect on water quality, major damage to aquatic ecosystems, closure of potable abstraction, major impact on amenity (i.e. tourism) value, serious impact on human health. Major sewage pollution could occur as the result of a failure of electric supply.	4	3	Environment Act 1995 Water Resources Act 1991 Environmental Protection Act 1990 Pollution Prevention and Control Act 1999 Control of Major Accident Hazards Regulations 1999 The Environmental Permitting Regulations (England and Wales) 2010 Groundwater Regulations 1998 Anti-Pollution Works Regulations 1999 Inspections and compliance monitoring undertaken by appropriate regulatory body 24 hour incident hotline and response system Pollution control equipment and resources	Feb 2013 Feb 2015
			High			

HL 14	Local (road) accident involving transport of fuel/explosives (London Fire Brigade)	Up to 30 fatalities and up to 20 casualties within vicinity of accident/explosion. Area would require evacuating up to 1 km radius depending on substances involved. Potential release of up to 30 tonnes of liquid fuel into local environment, watercourses etc. Large quantities of fire fighting media (foam) could impact on environment. Roads and access routes impassable for a time. Emergency access into/out of large populated areas becomes difficult or impossible.	2	3	Carriage of Dangerous Goods by Rail Regulations 1996 Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 2002 Radioactive Material (Road Transport) Regulations 2002 Air Navigation (Dangerous Goods) Regulations 1994 Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990 Specialist Emergency Services and other responder equipment and resources	Dec 2011 May 2014
			High			
HL 12	Local accident involving transport of hazardous chemicals (London Fire Brigade)	Up to 50 fatalities and up to 500 casualties (direct injuries from the accident would be similar to road or rail accidents; indirect casualties are possible, if substance covers wide area). The extent of the impact would depend on substance involved, quantity, nature and location of accident. The assumption is based on phosgene / chlorine.	2	4	Carriage of Dangerous Goods by Rail Regulations 1996 Packaging, Labelling and Carriage of Radioactive Material by Rail Regulations 2002 Radioactive Material (Road Transport) Regulations 2002 Air Navigation (Dangerous Goods) Regulations 1994 Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1990 Specialist Emergency Services and other responder equipment and resources	Dec 2011 May 2014
			High			

HL 25	Fire or explosion at a flammable gas terminal including LPG/LNG storage sites. (London Fire Brigade)	Up to 1km around site, causing up to 50 fatalities and 150 casualties. Gas terminal event likely to be of short duration once feed lines are isolated; event at a storage site could last for days if the explosion damaged control equipments. Impact on environment, including widespread impact on air quality.	1	3	Control of Major Accident Hazard 1999 (COMAH) Regulations Pipeline Safety Regulations 1996 cover the pipelines feeding the gas holders. Site Operators on-site contingency plans Multi Agency off-site COMAH Plans Major Accident Hazard Pipeline (MAHP) Plan Emergency Services specialist resources	May 2012 Feb 2015
			Medium			
HL 7	Industrial explosions and major fires (London Fire Brigade)	Up to 1km around site, causing up to 20 casualties, some of a serious nature. Explosions would cause primarily crush / cuts and bruise-type injuries, as well as burns.	2	2	Legislation: Control of Major Accident Hazards (COMAH) Regulations 1999 Regulatory Reform (Fire Safety) Order 2005 Building design and fire protection systems to prevent or limit the spread of fire Emergency Services and other responder specialist resources	May 2012 Feb 2015
			Medium			
H 4	Fire/explosion at a fuel distribution or storage site toxic liquids in atmospheric pressure storage tanks (London Fire Brigade)	Up to 3km around sire causing (from 10) up to 150 fatalities and (100 to) 2000 casualties. Might be disruption to air transport in the short-term until fuel supply re-directed. Short-term regional excessive demands on health core services. Closure of roads in locality for a short period of time.	1	5	Control of Major Accident Hazard 1999 (COMAH) Regulations. The Dangerous Substances and Explosive Atmosphere Regulations 2002 Petroleum Regulations Regulatory Reform (Fire Safety) Order 2005 Site Operators on-site contingency plans Emergency Services specialist resources	May 2012 Feb 2015
			Medium			

H 5	Fire or explosion at an onshore fuel pipeline (London Fire Brigade)	Up to 1km around site causing up to 100 fatalities and 500 casualties. A release point close to a populated (i.e. urban) area. Impact on environment, including persistent/widespread impact on air quality.	1	3	Requisitioned Land and War Works Act 1948 The Land Powers (Defence) Act1958 Shell-Mex and BP (London Airport Pipeline) Act 1959 Esso Petroleum Company Act 1961 Pipelines Act 1962 Pipeline Safety Regulations 1996 Control of Major Accident Hazards (COMAH) Regulations 1999 Emergency Services specialist resources	May 2012 Feb 2015
			Medium			
H 7	Explosion at a high pressure natural gas pipeline (London Fire Brigade)	Local to site causing up to 200 fatalities and up to 200 casualties. Impact on environment, including persistent/widespread impact on air quality.	1	3	Pipeline Safety Regulations 1996 Regulatory and industry measures including provision of maps for excavation Emergency Services and other responder specialist resources	May 2012 Feb 2015
			Medium			
HL 30	Localised explosion at a natural gas main. (London Fire Brigade)	Causing up to 100 fatalities and up to 100 casualties.	1	3	Pipeline Safety Regulations 1996 Regulatory and industry measures including provision of maps for excavation Emergency Services and other responder specialist resources	May 2012 Feb 2015
			Medium			

H 9	Large toxic chemical release (London Fire Brigade)	Up to 3km from site of toxic chemical release causing up to 50 fatalities and up to 2000 casualties from a large industrial complex or bulk storage of chemicals near to a populated (i.e. urban) area. There are some sites of this nature within the M25. Depending on the nature and extent of the contamination there could be impacts on air, land water, animal welfare, agriculture and waste management. This risk might require decontamination. Excessive demands on health care services locally both short and long term. Risk to water supplies and contamination of farm land could lead to avoidance of foodstuffs.	1	5	Control of Major Accident Hazards Regulations 2005 (COMAH) Regulatory Reform (Fire Safety) Order 2005 Emergency Services and other responder specialist resources London Resilience Partnership Plans	May 2012 Feb 2015
			Medium			
H 11	Accidental release of radioactive material from incorrectly handled or disposed of sources. (Environment Agency)	Up to five fatalities and up to 100 contaminated people requiring medical monitoring. Many worried people may present at hospitals. Radiation may be spread over several km but concentration where source is opened. Depending on the nature and extent of the contamination there could be impacts on air, land, water, animal welfare, agriculture and waste management. This risk may require decontamination. Assume radioactive material is a medical source from radiotherapy machine.	1	4	Radioactive Substances Act 1993 High Activity Sealed Source Regulations 2005 Arrangements for safe handling and disposal of radioactive sources Radiation detectors at high risk sites Environment Agency inspections of all major sources Emergency Services specialist resources London Resilience Partnership Plans	Aug 2011 Feb 2015
			Medium			

H 14	Major contamination incident with widespread implications for the food chain, (Local Authorities)	There may be direct animal and consumer health effects arising from this incident. Assume a small number of fatalities (5) and casualties (50), although the public health implications of food incidents vary widely. Additionally, there may be food production/marketing implications, depending on the scale and area affected. Consumer confidence may also be affected leading to lost markets and, where staple products (e.g. bread or milk) are affected, potential panic buying. Could arise from: 1. Industrial accident (chemical, microbiological, nuclear) affecting food production areas e.g. Chernobyl, Sea Empress oil spill, animal disease. 2. Contamination of animal feed e.g. dioxins, BSE. 3. Incidents arising from production processes, e.g. adulteration of chilli powder with Sudan I dye or melamine contamination of milk.	4	2	EC Directives and Regulations: Regulation (EC) 852/2004 Regulation (EC) 853/2004 Regulation (EC) 854/2004 Food Safety Act 1990 Imports monitored Local Authority Environmental Health Sampling Public Health England monitoring and surveillance Food Standards Agency plans	Aug 2011 Feb 2015
			Medium			
H 15	Maritime pollution (Maritime and Coastguard Agency)	Spillage of 100,000 tonnes of crude oil into the Thames estuary polluting up to 200 km of coastline. Release of sufficient pollutant into the river, with contamination of embankments and river structures, to result in a Tier 2 or Tier 3 pollution response within the port. Pollution may arise from an incident within the London Resilience area, or from an incident further east with pollution being spread upriver on a series of tidal cycles.	1	2	Dangerous Substances in Harbour Areas Regulations 1987. Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998. Port State Control checks coordinated in European waters All vessels navigating on the tidal Thames required PLA licence PLA Vessel Traffic Service National Contingency Plan for Marine Pollution from Shipping and Offshore Installations (2000) Oil Spill Contingency Plan Guidelines for Ports, Harbours & Oil Handling Facilities Specialist equipment for response	Feb 2013 Feb 2015
			Low			

HL 37	Release of significant quantities of hazardous materials as a result of major shipping accident (Maritime and Coastguard Agency)	Fatalities and casualties unlikely. Significant environmental damage would depend on substance involved, quantity, nature and location of accident.	1	2	Port of London River Byelaws 1978 Dangerous Substances in Harbour Areas Regulations 1987 Dangerous Substances in Bulk Byelaws 1991 Merchant Shipping (Oil Pollution Prevention, Response and Cooperation Convention) Regulations 1998 Navigation safety monitored by Vessel Traffic System at the Thames Barrier Navigation Centre The PLA's Dangerous Substances in Bulk Byelaws 1991 Specialist response equipment and resources	Sept 2011 May 2014
			Low			

Major industrial accidents / Major structural accidents						
HL 22 a	Large Building Collapse (Local Authorities)	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 a number of persons to be trapped or missing. Localised loss of power and other essential services. Local access routes affected due to road closures.	2	3	Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards and enforcement Emergency Services and other responders specialist resources London Resilience Partnership Plans	May 2013 May 2015
			High			

HL 10 5	Complex Built Environments (Local Authority)	A consequence of a major incident affecting large buildings / complex built environments. Incidents in these facilities have the potential to trigger a complex chain of events that lead to serious consequences for public.	2	3	Health and Safety at Work Act 1974. Management of Health & Safety at Work Regulations 1999. Fire and Rescue Services Act 2004 & guidance pursuant to the Regulatory Reform (Fire Safety) Order 2005. Safety at Sports Grounds Act 1975 and Fire Safety and Safety of Places of Sport Act 1987 Local building safety systems and practices Safety Advisory Groups in place at major sports grounds London Resilience Partnership Plans	May 2015
			High			
HL 22	Building Collapse. (Local Authorities)	Collapse of low rise building, or part thereof. Potential for a number of persons to be trapped or missing. Localised loss of power and other essential services. Local access routes affected due to road closures. Up to 5 fatalities and 20 casualties depending on the size and construction of building, and occupation rates. A number of such incidents annually within London.	5	2	Building Control regulations enforced by Local Authorities Construction, renovation, maintenance and demolition standards and enforcement Emergency Services and other responders specialist resources London Resilience Partnership Plans	May 2013 May 2015
			Medium			
HL 23	Bridge Collapse. (Local Authorities)	Roads, access roads 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 a number of persons to be trapped or missing.	1	3	Building Control regulations enforced by Local Authorities Highways Act Regular inspections Height and weight restrictions and signs reduce the likelihood of an incident London Resilience Partnership Plans	May 2013 May 2015
			Medium			

See also :

H 44 – Major reservoir dam failure/collapse at Natural hazards / Flooding

H 21 – Land movement at Severe weather / Structural incidents

Major industrial accidents / Technical failures						
H 43	Telecomms infrastructure - human error. (London Fire Brigade)	Widespread loss of telecommunications (including public land line and mobile networks) at a regional level for up to 3 days. Assume emergency services' communication systems are also affected.	3	5	Civil Contingencies Act 2004 Telephone provider demand and network capacity management strategies National Emergency Alert for Telecoms London Resilience Partnership Plans	April 2012 Dec 2014
			Very High			
H 38	Disruption in upstream oil and gas production (London Fire Brigade)	Catastrophic accident destroying all parts of a critical upstream facility and, in the worst case, taking months or more to restore to normal levels of service. This could potentially result in <11% loss of gas supply to the UK which could impact on power generation if demand were high. As 40% of power is generated by gas fired stations then a reduction in generation might be felt. Downstream oil would not be immediately so adversely affected given alternative means of supply.	2	4	National Emergency Plan for Fuel National Blackstart Plan London Resilience Partnership Plans	Sept 2011 Dec 2014
			High			
H 39	Failure of water infrastructure or accidental contamination with a non-toxic contaminant. (London Fire Brigade)	Loss of or non-availability for drinking, of the piped water supply, for up to 50,000 people, for more than 24 hours and up to 3 days. Domestic, industrial, commercial and agricultural premises without piped water. Fire tenders cannot be refilled from hydrants within the affected area. Resupply via bowsers or bottled water. Priority given to vulnerable customers. Liaison with local health and social services ensures that details of such customers are complete at the time of the incident. Water companies are also required to give priority to hospitals and schools. Also required to have due regard for livestock and essential food industries. May not be possible to continue a full service at hospitals, schools and businesses etc that do not maintain their own on-site water storage.	4	3	Water Industry Act 1991 Security and Emergency Measures Direction 1998 Water companies mutual aid arrangements in place London Resilience Partnership Plans	Sept 2011 Dec 2014
			High			

H 41	Technical failure of national electricity network - Blackstart (London Fire Brigade)	Total blackout for up to 3-5 days due to loss of the National Grid. Possible loss of life support machines, civil unrest, no alarms, street lighting, gas heating, rail transport, water supplies and mobile (PMT) telecommunications etc. Back up generators available for limited time for individual businesses and emergency services in some instances. "Power Islands" created over the first day. Most of the country reconnected within three days, London late on in the process. Peak demand not able to be met after three days.	2	5	Testing and maintenance regime National Emergency Plans London Resilience Partnership Plans	April 2012 Dec 2014
			High			
H 45	Technical failure of electricity network due to operational error or bad weather causing damage to the system. (London Fire Brigade)	Total shutdown of the electricity supply in Greater London occurring during working week and lasting for 24hours. Damage to distribution overhead lines meant that many customers remained without a supply for several days before repairs could be completed. An event of this kind occurred in October 1987 when severe storms led to the electricity transmission network in the south east being shut down.	2	4	Testing and maintenance regime National Emergency Plans Mutual aid resources available London Resilience Partnership Plans	April 2012 Dec 2014
			High			
H 40	No notice loss of significant telecommunications infrastructure in a localised fire, flood or gas incident. (Metropolitan Police Service)	Loss of service to up to 100,000 people for up to 72 hours Building damage to a large urban telecoms facility. Possible impact on emergency services including disruption to proposed Emergency Services Control Centres. Possible accidental cutting of submarine cables.	5	2	Civil Contingencies Act 2004 Telephone provider demand and network capacity management strategies National Emergency Alert for Telecoms London Resilience Partnership Plans	Aug 2011 Dec 2014
			Medium			

H 49	Loss of drinking water supplies due a major accident affecting infrastructure (Local Authorities)	Non-availability of piped water supply to domestic, industrial, commercial and agricultural premises, for a population of up to 350,000 for more than 24 hours and up to 2 weeks. Fire tenders can not be refilled from fire hydrants within the affected area. Severe logistical difficulties in resupply of bottled water/bowsers even using mutual aid from other water companies. Suspension of hospital and school services. Food industries within the impacted zone may close. Human population given priority over animals and livestock.	1	4 Medium	Water Industry Act 1991 Security and Emergency Measures Direction 1998 Water companies mutual aid arrangements in place London Resilience Partnership Plans	Sept 2011 Dec 2014

Major Transport accidents / Incidents						
HL 11	Railway Accident (British Transport Police)	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.	4	3 High	Railway and Transport Safety Act 2003 Railways (Access and Management) Regulations 2005 Railways (Accident Investigation and Reporting) Regulations 2005 Railways (Licensing of Railway Undertakings) Regulations 2005 Railways Act 2005 and 1993 The Railway Safety Levy Regulations 2006 Transport Act 2000 Heath and Safety at Work (etc) Act 1974 The Railway (Safety Case) Regulations 2000 Improved inspection regimes to detect track defects Train Protection Warning Systems ATOC Guidance and Directives Specialist Emergency Services and other responder resources	Feb 2013 May 2014

HL 9	Aviation accident (London Fire Brigade)	Aviation accident causing up to 50 fatalities and up to 250 casualties. Accident involving one commercial aircraft, probably on take off or landing.	2	3	Stringent controls on aircraft entering UK Airspace including the mandatory use of Aircraft Collision Avoidance systems on heavy aircraft UK flight separation rules CAA Maintenance and Flight safety standards Airline maintenance regimes London Resilience Partnership Plans	Sept 2011 May 2014
			High			
HL 34 and HL 8	Incident involving a passenger vessel in or close to UK waters leading to the ship's evacuation or partial evacuation (Maritime and Coastguard Agency)	Up to 50 fatalities and up to 100 casualties. The risk is based on an accident to a typical passenger vessel visiting London, or a large Class V vessel (<600 passengers) operating in central London.	1	3	Port of London Act 1968 (as amended). General Directions for Navigating in the Port of London 2009. Port of London River Byelaws 1978. Port State Control checks coordinated in European waters Compulsory PLA pilotage for visiting cruise ships PLA Vessel Traffic Management System and coordination with Thames Barrier Navigation Centre Provision of life saving equipment on river banks and specialist response resources	Sept 2011 May 2014
			Medium			
H 16	Aviation accident over a semi-urban area (London Fire Brigade)	Collision of two commercial airliners - death of all passengers and crew on aircraft (600 fatalities), up to 50 fatalities and 300 casualties on the ground. Significant debris field but no significant damage to key infrastructure.	1	4	Stringent controls on aircraft entering UK Airspace including the mandatory use of Aircraft Collision Avoidance systems on heavy aircraft UK flight separation rules CAA Maintenance and Flight safety standards Airline maintenance regimes London Resilience Partnership Plans	Sept 2011 May 2014
			Medium			

HL 10	Local accident on motorways and major trunk roads (Metropolitan Police Service)	Multiple vehicle incident causing up to 10 fatalities and up to 20 casualties; closure of lanes or carriageways causing major disruption and delays.	4	1	Road Traffic Act 1988 Road Vehicle (Construction and Use) Regulations 1986 Traffic Management Act 2004 VOSA patrols to enforce legislation London Resilience Partnership Plans	Nov 2011 May 2014
			Low			

See also HL 37 – Release of hazardous chemicals as a result of shipping accident and HL 14 – Local (road) accident involving transport of fuel /explosives at Major accidents / Major industrial accidents / Industrial and Environmental Pollution Incidents

Disruptive industrial action						
HL 42	Loss of cover due to industrial action by workers providing a service critical to the preservation of life (GLA)	A number of three day strikes with significant support over a two month period affecting a single emergency service.	4	3	Police Act (1996) RCN Code on Industrial Action Standards of conduct, performance and ethics for nurses and midwives Alternative emergency cover protocols for the Fire Brigade Organisational Business Continuity Arrangements	Feb 2012 Dec 2013
			High			
H 30	Emergency services: loss of emergency fire and rescue cover because of industrial action. (GLA)	A series of strikes by fire fighters takes place, spread over a period of two months, perhaps lasting up to 48 hours each. London, and possibly other metropolitan areas, would have only very thin cover. Assumes no military assistance.	5	3	Police Act (1996) RCN Code on Industrial Action Standards of conduct, performance and ethics for nurses and midwives Alternative emergency cover protocols for the Fire Brigade Organisational Business Continuity Arrangements	Feb 2012 Dec 2013
			High			

H 31	Significant or perceived significant constraint on fuel supply at filling stations (Metropolitan Police Service)	Filling stations, depending on their locations, would start to run dry between 24 - 48 hours. Panic buying would exacerbate the situation. Replenishment of sites would take between 3 - 10 days depending on location much would depend on whether drivers from other companies would be prepared to cross picket lines, whether companies judged that they were able to maintain safe operations in the presence of picket lines or protests, and the extent of the supply of fuel from other locations.	3	2	Legal requirements re: conduct of industrial disputes. Stocks of contingency fuel to varying degrees National Emergency Plan for Fuel London Resilience Partnership Plans	Sept 2011 Dec 2013
			Medium			
H 35	Industrial action by key rail or London Underground workers. (British Transport Police)	Strike action resulting in the total shut down of either London Underground or the rail network on a national scale (e.g. action by key rail workers, e.g. infrastructure workers such as signallers) for > 3 days. Greater impact if action occurs in a co-ordinated manner.	1	2	Heath and Safety at Work (etc) Act 1974. Employment Act 1980. Employment Act 1988. Public Order Act 1986. Trade Union and Labour Relations (Consolidation) Act 1992. Anti-Social Behaviour Act 2003. Organisational Business Continuity Arrangements	Sept 2011 Dec 2013
			Low			
H 33	Unofficial strike action by prison officers		TBC		This risk is yet to be assessed by London Risk Advisory Group.	Feb 2014 Feb 2016

Public disorder						
H 37	Influx of British Nationals not normally resident in the UK. (Local Authority)	Up to 10,000 British nationals not normally resident in the UK, returning to UK within a 4 – 6 week period following conventional war, widespread civil unrest or sustained terrorism campaign against British and other Western nationals.	4	2	Medium	May 2014

London Risk Register – Malicious Attacks

Attacks on crowded places						
X 1	Attacks on crowded places	Crowded places remain an attractive target for a terrorist attack. Crowded places by their nature are easily accessible and offer the prospect for an impact beyond the loss of life alone. Attacks are often (but not always) carried out without prior warning.	4	3	High	• Work of counter terrorism security advisors to raise awareness and provide training • Physical security measures where appropriate • Emergency services response plans • Emergency services specialist resources	Dec 2013 Dec 2015
Attacks on infrastructure						
X 2	Attacks on infrastructure	Many of the impacts which could result from industrial accidents, technical failure or severe weather could also result from a terrorist attack on infrastructure. The risk and impact vary according to the criticality of the infrastructure assets affected. Cyber attacks are not incorporated in this risk assessment (see subsequent section).	3	3	High	• Business continuity plans for loss of essential services helps minimise disruption • 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.	Dec 2013 Dec 2015

Attacks on transport system					
X 3	Attacks on transport system	Conventional attacks on transport systems are judged to be the more likely (however the likelihood of them affecting any one individual is still extremely low). This is supported by evidence from around the world. Attacks on transport can take different forms and result in different levels of impact. Stringent security measures are in place at airports. Most rail and underground systems are more open and therefore attractive potential targets. To date no attack against maritime interests in the UK has been mounted by terrorists.	5 3 High	• Regulation and security processes of individual public transport sectors • Contingency plans developed by operators in conjunction with responders	Dec 2013 Dec 2015
Unconventional Attacks (small scale and catastrophic)					
X 4	Small Scale Unconventional Attacks	Mass impact terrorist attacks, whilst unlikely, cannot be ruled out. The likelihood of terrorists successfully undertaking an attack against a nuclear or chemical facility or obtaining chemical, biological, radiological (CBR) or nuclear materials remains low, but not negligible. If such attacks were successful, their potential impact on the UK would be severe and significantly greater than a conventional attack. The potential impacts of an incident involving CBR agents will depend on a range of factors including type and quantity of CBRN materials used. This could range from small-scale (assassination or poisoning) to mass-impact (widespread dispersion and contamination) which is reflected in the scores.	3 3 High	• Well developed specialist response capability • Access to medical-countermeasures	Dec 2013
X 5	Catastrophic Unconventional Attack		2 5 High		Dec 2015

Cyber security					
X 6	Cyber security (Infrastructure)	Increasing reliance on cyber space brings new opportunities and new threats. The very openness of the networks presents a vulnerability of compromise or damage to networks from the actions of hackers, criminals or foreign intelligence services. The two assessments cover risks of cyber attack against infrastructure and cyber attacks resulting in a loss of data confidentiality. Impacts of both types of cyber attack could include economic and societal disruption. While terrorists can be expected to continue to favour high-profile physical attacks, the possibility that they might also use cyber space to facilitate or mount an attack is growing.	2 3 High 5 1 Low	• National Cyber Security Programme • Additional outreach to businesses and public regarding cyber threats and security • National Cyber Crime Unit • Centre for Protection of National Infrastructure providing security advice	Dec 2013 Dec 2015
X 7	Cyber security (Data Confidentiality)				

Risks Not Applicable and Removed

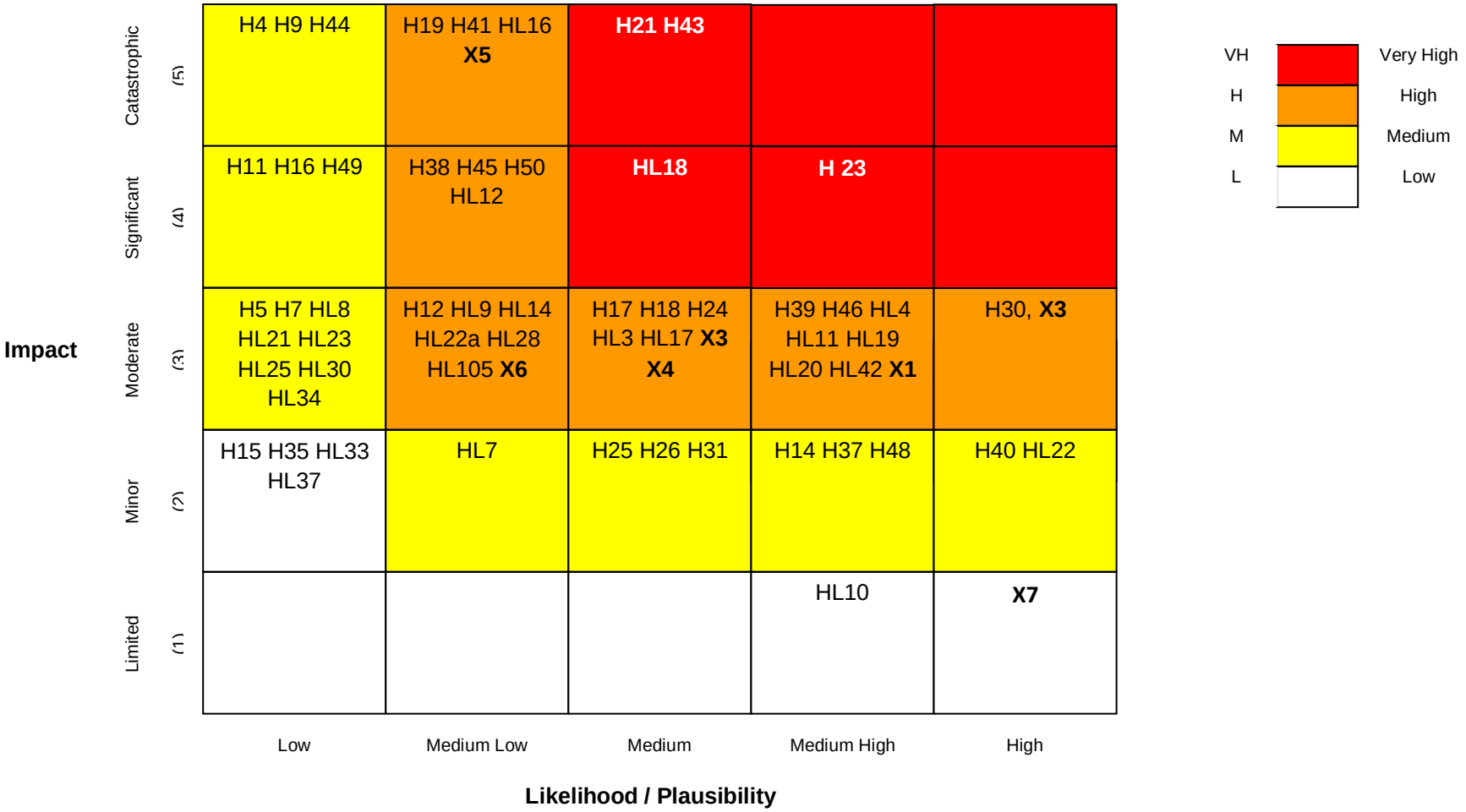
The risks below are currently considered by the London Risk Advisory Group to be 'not applicable' to the London Resilience area at the current time. As risk assessment is a dynamic process the status of these risk is re-assessed on a regular basis.

ID	Risk sub-category	Rationale for Not Applicable Status
H1	Fire or explosion at a gas LPG or LNG terminal or flammable gas storage site.	Deemed not applicable to London as no sites meeting this description.
HL1	Fire or explosion at a gas terminal or involving a gas pipeline.	Covered by H7 assessment.
H2	Fire or explosion at an onshore ethylene gas pipeline.	Deemed not applicable to London due to no ethylene gas pipelines
HL26	Localised fire or explosion at an onshore ethylene gas pipeline	Deemed not applicable to London due to no ethylene gas pipelines
H3	Fire or explosion at an oil refinery	Deemed not applicable to London due to no oil refineries
HL27	Localised fire or explosion at an oil refinery	Deemed not applicable to London due to no oil refineries
H6	Fire or explosion at an offshore oil/gas platform	Deemed not applicable to London due to no offshore Oil or gas platforms
H 103	Fire or explosion at a gas LPG or LNG terminal (or associated onshore feedstock pipeline)	The nearest gas terminal to a London LRF is Bacton, Norfolk, Therefore this risk is not applicable to London.

ID	Risk sub-category	Rationale for Not Applicable Status
H8	Very large toxic chemical release	No such facilities with London area.
HL104	Fire or explosion at a gas LPG or LNG terminal (or associated onshore feedstock pipeline)	The nearest gas terminal to a London LRF is Bacton, Norfolk, Therefore this risk is not applicable to London.
HL2	Localised industrial accident involving large toxic release (e.g. from a site storing large quantities of chlorine).	Not Applicable as incorporated in H4, H9 and HL3
H 10	Radioactive substance release from a nuclear reactor.	Deemed not applicable to London due to no nuclear reactors
HL31	Limited radioactive substance release from a nuclear accident.	Deemed not applicable to London due to no nuclear reactors
H 42	Rapid accidental sinking of a passenger vessel in or close to UK waters.	This outcome covered in Risk Assessment for HL34 and HL8.
HL13	Maritime accident or deliberate blockage resulting in blockage of access to key port, estuary, maritime route for more than one month	This risk deemed not applicable to London by London Risk Advisory Group.

H 22	Influenza Epidemic	Removed 2013: Advice from Public Health England is that this would not be considered a 'bad seasonal flu outbreak' and would be dealt with using normal arrangements.
H 24a	Legionnaires Disease	Removed 2013: Advice from Public Health England is that this would be dealt with using normal outbreak arrangements.
H 24b	Meningococcal Disease	Removed 2013: Advice from Public Health England is that this would be dealt with using normal outbreak arrangements.
HL 102	Oak Processionary Moth	Removed 2013: Advice from Public Health England is that there is minimal human health risk and this can therefore be removed from the London Risk Register.

Summary of Risk Ratings



Appendix 1 – Likelihood and Impact Scoring Scales

Impact scoring scale – qualitative measures

Level	Descriptor	Categories of Impact	Description of Impact
1	Limited	Health	• Limited number of injuries or impact on health.
		Social	• Limited number of persons displaced and insignificant personal support required. • Limited disruption to community services, including transport services and infrastructure.
		Economic	• Limited impact on local economy.
		Environment	• Limited impact on environment.
2	Minor	Health	• Small number of people affected, no fatalities, and a small number of minor injuries with first aid treatment.
		Social	• Minor damage to properties. • Minor displacement of a small number of people for < 24 hours and minor personal support required. • Minor localised disruption to community services or infrastructure < 24 hours.
		Economic	• Negligible impact on local economy and cost easily absorbed.
		Environment	• Minor impact on environment with no lasting effects.
3	Moderate	Health	• Sufficient number of fatalities with some casualties requiring hospitalisation and medical treatment and activation of MAJAX, the automated intelligent alert notification system, procedures in one or more hospitals.
		Social	• Damage that is confined to a specific location, or to a number of locations, but requires additional resources. • Localised displacement of > 100 people for 1-3 days.
		Economic	• Limited impact on local economy with some short-term loss of production, with possible additional clean-up costs.

		Environment	• Limited impact on environment with short-term or long-term effects.
4	Significant	Health	• Significant number of people in affected area impacted with multiple fatalities, multiple serious or extensive injuries, significant hospitalisation and activation of MAJAX procedures across a number of hospitals.
		Social	• Significant damage that requires support for local responders with external resources. • 100 to 500 people in danger and displaced for longer than 1 week. Local responders require external resources to deliver personal support. • Significant impact on and possible breakdown of some local community services.
		Economic	• Significant impact on local economy with medium-term loss of production. • Significant extra clean-up and recovery costs.
		Environment	• Significant impact on environment with medium- to long-term effects.
5	Catastrophic	Health	• Very large numbers of people in affected area(s) impacted with significant numbers of fatalities, large number of people requiring hospitalisation with serious injuries with longer-term effects.
		Social	• Extensive damage to properties and built environment in affected area requiring major demolition. • General and widespread displacement of more than 500 people for prolonged duration and extensive personal support required. • Serious damage to infrastructure causing significant disruption to, or loss of, key services for prolonged period. Community unable to function without significant support.
		Economic	• Serious impact on local and regional economy with some long-term, potentially permanent, loss of production with some structural change. • Extensive clean-up and recovery costs.
		Environment	• Serious long-term impact on environment and/or permanent damage.

Explanation of categories of impact

Category	Explanation
Health	Encompassing direct health impacts (numbers of people affected, fatalities, injuries, human illness or injury, health damage) and indirect health impacts that arise because of strain on the health service.
Social	Encompassing the social consequences of an event, including availability of social welfare provision; disruption of facilities for transport; damage to property; disruption of a supply of money, food, water, energy or fuel; disruption of an electronic or other system of communication; homelessness, evacuation and avoidance behaviour; and public disorder due to anger, fear, and/or lack of trust in the authorities.
Economic	Encompassing the net economic cost, including both direct (*eg* loss of goods, buildings, infrastructure) and indirect (*eg* loss of business, increased demand for public services) costs.
Environment	Encompassing 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.

Note:

Strictly, levels 1 and 2 of the impact scale are likely to fall below the threshold for an emergency. Consequently, there may be no statutory requirement to plan for events that score 1 or 2 on the impact scale. This scale recognises that, to demonstrate a thorough analysis, Category 1 responders will wish to include in their risk assessment certain risks with impacts at these levels.

Likelihood scoring scale

Level	Descriptor	Likelihood Over 5 Years	Likelihood Over 5 Years
1	Low	> 0.005%	> 1 in 20,000 chance
2	Medium Low	> 0.05%	> 1 in 2,000 chance
3	Medium	> 0.5%	> 1 in 200 chance
4	Medium High	> 5%	> 1 in 20 chance
5	High	> 50%	> 1 in 2 chance

Based on the model likelihood and impact scoring scales published in Annex 4D of "Emergency Preparedness" (HM Government, 2005)

Appendix 2 – Risk Rating Definitions

Definitions of Nationally Approved Risk Ratings	
Very high (VH) risk	These are classed as primary or critical risks requiring immediate attention. They may have a high or low 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) risk	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) risk	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) risk	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.
Based on the model risk rating matrix published in Annex 4F of "Emergency Preparedness" (HM Government, 2005)	

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