



Lancashire Fire
and Rescue Service



2021-2022

Strategic Assessment of Risk

Contents

Glossary of Abbreviations	4
Executive Summary	5
Introduction	7
Lancashire Combined Fire Authority	8
About Lancashire	9
Populous	9
Deprivation	10
Infrastructure	10
Built Environment	11
Technology	12
Electric vehicles and Bulk/Battery Energy Storage Systems (BESS)	12
Wildfire incidents	13
Health	13
Historical Data	15
Injuries and Fatalities	17
Resource to risk	17
National and local risks	19
Lancashire Fire and Rescue Service - Community Risk Identification Process	20
District Profiles	20
Risk assessment methodology	21
Executive risk assessment summary	24
Flooding	25
Wildfire	26
Accidental dwelling fires (ADF's)	27
Commercial property fires	27
Deliberate building fires	28
Industrial fires	29
Road traffic collisions (RTC's)	29
Rescue collapsed structure/confined space	30
High rise fires	31
Hazardous materials incident (Hazmat)	31
Hazmat Incident (Minor)	31
Hazmat Incident (Major)	32
Waste disposal site fires	32
Assist other agencies	33

Road vehicle fires	33
Building under construction fires	34
Animal Rescue	35
Other outdoor fires (Primary)	35
Secondary Fires (Accidental)Anti-Social Behaviour) & Secondary Fires (ASB)	36
Heritage fires	36
Removal of people from objects and Removal of objects	37
Other transport fires (Air, Boat, Train)	38
Other transport or making safe (not fire)	39
Rescue from water	39
Suicide or suicide attempts	40
Lift release	40
Rescue from height	41
Effecting entry/exit	41
Malicious attacks/terrorist incidents	41
Rescue from depth	42
Rescue from mud	42
Appendix A	44

Glossary of Abbreviations

ADF	Accidental Dwelling Fire
BME	Black or Minority Ethnic groups
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
CFA	Combined Fire Authority
CFRMIS	Community Fire Risk Management Information System
COMAH	Control of Major Accident Hazards
CRMP	Community Risk Management Plan
CRR	Community Risk Register
FRS's	Fire and Rescue Services
GIS	Geographic Information System
Hazmat	Hazardous Materials
IMD	Indices of Multiple Deprivation
IRS	Incident Recording System
LFRS	Lancashire Fire and Rescue Service
LRF	Lancashire Resilience Forum
LSOA's	Lower-level Super Output Areas
MOU	Memorandum of Understanding
MTA	Marauding Terrorist Attack
NOG	National Operational Guidance
NRR	National Risk Register
NWAS	North West Ambulance Service
RTC	Road Traffic Collision
SAoR	Strategic Assessment of Risk

Executive Summary

This is the fifth edition of Lancashire Fire and Rescue Service's (LFRS) 'Strategic Assessment of Risk' (SAoR).

The assessment seeks to underpin our Community Risk Management Plan (CRMP) by ensuring that risk management drives decision-making within LFRS.

This is the first year where we have produced the document based on a risk matrix formed by professional judgement and data taken from our Incident Response System (IRS).

Having firstly described the statutory responsibilities placed upon LFRS and the Combined Fire Authority (CFA) committee structure in section 1, the document then aims to detail across several areas of risk pertinent to the county of Lancashire.

The About Lancashire section explores 'population and demographics, district make-up, deprivation and health'. Information is provided on population density across the 14 districts that make up Lancashire, in addition to clarification on aspects of ethnicity, religion and work-day populations. The chapter highlights the relevance of aspects of deprivation within Lancashire, not least the prevalence of fuel poverty across an ageing population profile; one which statistically looks to continue to increase significantly in age terms over the next fifteen years at least. The combination of such factors poses risks to members of the communities we serve and hence it is incumbent upon us to be aware of their changing needs and the potential for increased risk in areas traditionally seen as low risk.

The next section, National and Local Risk concentrates on risk profiles raised as high risk by a National Risk Assessment and more locally by our Local Resilience Forum (LRF). The National Risk Assessment is a yearly process intended to identify, characterise, and compare all the major hazards and threats of national significance that may cause widespread impacts in the UK on a five-year horizon. It involves a large multi-agency process that allows ranking risks based on the likelihood and impact of the "reasonable worst-case scenario". It provides a national picture of the risks we face and is designed to complement Local Risk Assessments produced by the LRF.

The LRF considers the national issues alongside the local risk context, identifying the risks such as new issues or highlight situations where risk may be changing within the county. Each identified risk is then analysed and given a rating according to how likely the risk is to lead to an emergency and their potential impact on safety and security, health, economy, environment, and society. The LRF then evaluates

the analysis and determines whether to include it in the community risk register, identifying where plans are needed, and arrangements required to deliver a multi-agency response.

Finally, we finish with a collation of our risk scores across our Response section which aims to illustrate via a risk matrix our most common responses and our highest risks within the Fire Sector. This matrix is the product of our novel risk methodology, which has been designed to incorporate the frequency and trends of incident activity in Lancashire with consequences of the same activity. The methodology classifies pump-attended activity into one of 32 incident types and ranks these incidents based on a calculated risk score. Each incident type has a respective consequence score which is based on the average consequence score of seven categories determined by a panel of industry professionals. This score is combined with a likelihood score calculated using the average incident frequency for the previous three years. We apply a directional multiplier determined through statistical analysis of long-term incident data to this likelihood score to identify incident types which represent emerging or declining risk and impact their order in the overall risk ranking.

The methodology utilises the experience and knowledge of industry professionals with the robustness of data-driven statistical analysis to rank the majority of LFRS activity by the risk they pose and therefore establishes an appropriate position of response from the service in mitigating the impacts of these risks on communities in Lancashire.

Introduction

The Fire and Rescue National Framework identifies challenges that we have to deal with such as the continued threat of terrorism, the impacts of climate change, impacts of an ageing population and the need to cut the national deficit. In pursuit of our vision of 'Making Lancashire Safer', it is important that these wider challenges are understood to help us plan to achieve our strategic objectives in a more informed manner.

To address these challenges LFRS carry out a periodic assessment of risk to help us to consider the potential impact of external factors that may be a risk to our business. Where we identify risks, we need to act. This may be to actively mitigate the risk or simply to monitor it, and indeed there may be risks that we choose to accept and to take no action. Ultimately, we must satisfy ourselves through this strategic assessment of risk that there is no threat to our vision and that our strategic objectives are not compromised.

As a Service we review our assessment of risk at least annually by analysing our external and internal operating environments as part of our corporate planning process. This edition of Lancashire's SAoR document aims to highlight the risks we face and describes how we intend to deal with them. The information is based on current and historical risk data which is presented to inform our plans and strategies both now and in the future. This SAoR underpins our corporate planning process and will strengthen our CRMP, which we have a statutory duty to provide. Whilst the CRMP summarises how, through planning, we consider fire and rescue related dangers that could affect our communities and how we aim to tackle them, the SAoR provides some of the detail on these risks to give context to our corporate planning process.

The environment in which we operate is constantly changing and new risks to our communities will always emerge. It is our job to ensure that we continually assess these changing risks and ensure we keep the communities of Lancashire safe through our assessment of risk and prioritising our response to those risks. In addition to our annual process, we continue to analyse any emerging opportunities and threats throughout the year through our normal risk management processes.

Lancashire Combined Fire Authority

The CFA is responsible for leading and supporting LFRS. The CFA has a membership of 25 elected councillors consisting of 19 from Lancashire County Council, 3 from Blackburn with Darwen Council and 3 from Blackpool Council. Under the Fire and Rescue Services Act 2004 the CFA is legally required to enforce fire safety legislation and to reduce the risk of fire causing death, severe injury and property related losses to the community. It must also make provision for rescuing people in the event of road traffic collisions and for protecting people from serious harm arising from road traffic collisions in the Lancashire area.

The CFA is legally responsible for the enforcement of the Regulatory Reform 2005 (Fire Safety) Order which is applicable across England and Wales. This Order places the responsibility on individuals within an organisation to carry out risk assessments to identify, manage and reduce the risk of fire within public and commercial buildings.

The CFA governs LFRS, which is a designated Category 1 responder under the Civil Contingencies Act 2004. This Act requires emergency responders in England and Wales to co-operate in maintaining a public community risk register which is a product of the LRF. The LRF gives responders the opportunity to consult, collaborate and share information with each other to facilitate planning and response to emergencies.

The CFA meets five times a year with five sub committees, which report back to the Authority, meeting separately throughout the year. The CFA makes key strategic decisions including setting the Council Tax precept, approving the budget requirement, and reviewing items referred for a decision by a sub-committee.

About Lancashire

We respond to the area of Lancashire, covering 3,076 sq. km and with a large resident population, the Lancashire-14 area is one of the most populous and urbanised localities in Britain, but still manages to be an area of astonishing diversity. The 2011 Census usual resident population figure for Lancashire-14 area was 1,460,900; all of whom we aim to target and serve. This represented an increase of 46,200 people or a population growth rate of 3.3% since the last census in 2001.

Our Service is split into six districts, all with their own unique challenges and risks that influence our prevention, protection, and response activities locally. These districts are Central, Eastern, Northern, Pennine, Southern and Western.

There is much to be admired in the traditional townscapes, however with a broad range of building types from stone-built dwellings and mills, timber frame apartments and iconic heritage listed buildings, the risk of the built environment is large and ever changing.

Lancashire is well connected to bordering counties with an expansive range of transport networks, including 5 motorways and 5091.7km of road. Key railway lines, shipping ports and airports can also be found within the region. These provide rapid access for both north-south and east-west travel, making Lancashire and other parts of the region easily accessible for work and tourism.

There is something for everyone in Lancashire, with countryside, canals, 123-km of coastline and towns attracting 68.74 million visitors per year with staying visitors accounting for approximately 12% (8.22 million).

Populous

In 2016 it was predicted that between 2016 – 2041 Lancashire's dwellings would increase by 7.3% to 674, 107. In 2019 the whole Lancashire-14 area had a total dwelling stock of 681,160 of which 87.3% was owner occupied or privately rented. As you can see Lancashire's rise in dwellings has already surpassed the 2041 prediction just 5 years after it was made. This poses a risk to Lancashire, not only by increasing the dwellings we attend to but also impacts planning as the county continues to grow faster than estimated.

Future population predictions for the Lancashire 14 Authority areas show that growth rates across the county are expected to have distinct differences. Chorley, Lancaster, Fylde, and Rossendale are predicted to have the highest growth rates in population whereas in comparison Blackpool, Blackburn with Darwen, Burnley and Hyndburn are expected to have a population decrease.

When carrying out further comparisons with predicted population levels by age group, one category that is expected to substantially increase across the county is that of those aged 65+. Statistics show that there are significant increases in predicted population groups over the age of 65 that become greater still as the age range increases. This culminates with the oldest age group (90+) being predicted to rise by 121% across the county over the next 16 years.

The growing number of people aged over 65 and above presents significant challenges not only for LFRS, but also for our partners as demand increases for services. To address this LFRS works collaboratively with partners to identify and support the most vulnerable individuals within our communities.

The 2011 census recorded:

- That across the 14 Lancashire Districts there were 81,759 (13.2%) of households with an adult living alone aged 65 or over; this is above both the North West average.
- An average life expectancy for males is 78.5 and for females 82.2 years old.
- 13.2% of all Lancashire's households were occupied by one-person living alone aged 65 and over.
- 16.9% of all households in Fylde had one person in this age-group, which was the 12th highest rate in England and Wales.
- The over 65 age group saw a higher annual growth rate, 1.58%, than the 0-17s (0.6%) and 18-64 (0.5%).

Living alone may not necessarily affect an individual's fire risk; however, living alone combined with specific demographic characteristics can do so. Age, mental health, physical wellbeing and living environments can all play a part in contributing to an individual's circumstances for them to be considered at a higher risk of death or injury caused by fire.

From the 2011 Census, the largest ethnic group was white (90%). The black and minority ethnic (BME) group formed 10% of the population. Numerically, there were almost 141,000 black and minority ethnic people living in Lancashire.

Deprivation

Deprivation is measured across England through the combined Index of Multiple Deprivation 2019 (IMD 2019) which is the official measure of relative deprivation for small areas known as Lower-Level Super Output Areas (LSOAs) in England.

Since 2015, all of the Lancashire-14 authorities have become relatively more deprived on the IMD rank of average rank measure, apart from Chorley, West Lancashire and Ribble Valley. Preston has the greatest percentile change, -6% . Blackpool has been in the 10% most deprived lower-tier authority and Blackburn with Darwen, Burnley, Hyndburn, Pendle and Preston have been in the 20% most deprived in the five indices published since 2000.

The 2018 fuel poverty statistics indicate that 12.6% of households were fuel poor compared to the national average of 10.3%.

Infrastructure

There is a wide range of infrastructure risk within Lancashire including reservoirs and dams, wind turbines, ports, and rail networks.

There are over 100 registered dams and reservoirs in Lancashire owned by United Utilities and private owners. The Civil Contingencies Act 2004 requires Category 1 Responders such as LFRS to have plans in place to respond to all emergencies including flooding. Due to the vast amount of water reservoirs can hold, they have been identified as high risk and so a multi-agency reservoir plan has been developed.

Moreover, Lancashire currently has 16 onshore windfarms in operation hosting a total of 80 wind turbines. Wind turbines present an assortment of risks; the remote locations of many of the turbines can mean that travel time to the areas can increase the likelihood of fire spread. The height, location and construction of the turbines can make them prone to lightning strikes, and as the turbine-supporting tower structure may be over 100m high, if people are trapped rescue operations may prove to be very difficult.

Furthermore, Lancashire has three ports, situated in Heysham, Fleetwood and Glasson Dock. There are also several other maritime related sites which service leisure craft such as Preston Docks. The largest port is Heysham which is a deep berth port capable of handling some of the world's largest vessels. It is served by a railway station and the recently constructed £140m M6 Bay Gateway link road. The port is a key gateway for Irish Sea trade and is attracting significant investment including a £10m improvement programme. Its proximity to gas fields and the world's largest offshore wind farm (Walney Extension) has also influenced the type of goods being handled & services offered.

Lancashire is also the home to 62 railway stations operating over 200 miles of track in Lancashire. These range from busy commuter stations such as Preston and Lancaster situated on the West Coast Mainline, to smaller stations (some unmanned) located in rural areas. Lancashire is also part host to a heritage rail line, the East Lancashire Railway, which runs from Rawtenstall on a 12 mile stretch to Heywood in Greater Manchester.

In addition to the rail network, Lancashire has an 11-mile tram system that operates from Starr Gate in Blackpool to Fleetwood in the Wyre district. Part of this network is a 'shared space zone'; this is a new urban design approach reducing demarcation between trams, vehicles, and pedestrians, with some kerbs and traffic signs removed to produce a more open space.

Built Environment

In the past few years, Lancashire has seen the emergence of newer forms of construction, using more modern construction materials. Timber framed buildings is just one form of construction method that is growing in popularity due to the ease and speed of construction along with the lower build costs, and although once completed they adhere to stringent building and fire safety regulations, they pose several significant risks when in the construction phase in addition to the economic cost as a result of fire.

New building materials are being developed that present better value for money and reliability in terms of lower maintenance or replacement costs, however some of these poses significant risk. One such risk that Lancashire has experienced is the emergence of composite fencing and decking materials (made from recycled materials including plastic). Although some of these materials have suitable fire suppression characteristics, some do not, and it is these that have seen incidents escalate rapidly and damage, because of fire, increase significantly, the most recent example occurring in Blackburn in May 2021. Ongoing work is taking place to identify ways of mitigating the risk to prevent such significant fires occurring again.

This is all in addition to the ongoing work around high-rise and high-risk residential premises in the wake of the Grenfell Tower fire in 2017 and other work to ensure the safety of all high-risk commercial properties within Lancashire. More detailed information about the built environment risk can be found within LFRS' Protection and Business Safety Strategy.

Technology

Electric vehicles and Bulk/Battery Energy Storage Systems (BESS)

Following the growth in the use of Lithium-Ion batteries in vehicles, commercial settings and in domestic environments, FRSs across the UK have subsequently seen an increase in attendance at incidents involving this ever-growing list of applications. Lithium-Ion batteries are, in most cases, a safe and stable means of providing energy, with charging and discharge controlled by a Battery Management System (BMS), which prevents over charging and associated overheating of the battery.

If the battery overheats because of failure of the BMS, there is a risk that the temperature will reach a level where the structure of the battery breaks down and this leads to thermal runaway, the production of a range of toxic gases, which is potentially flammable and explosive in nature. Lithium-Ion batteries power many products such as mobile phones and laptops, but over recent years larger more powerful batteries have evolved and are now the power source in electric cars, such as Tesla and the Nissan leaf.

In the renewable energy environment, energy generated by solar, wind, biogas and other sources is increasingly being stored in Lithium-Ion battery solutions. In the commercial environment this can be in the form of a Battery Energy Storage System (BESS) such as the one located in Preston.

Typically, these are housed in a bank of what looks like shipping containers. A recent fire at one of these sites in Merseyside proved to be very challenging with no staff on site, and extinguishing the fire took several days.

In the domestic world, modern solar panels are increasingly linked to a domestic battery, often called a "Powerwall". These will also be problematic in the same way

as BESS sites and FRS's will not have any prior information on the presence of these in houses.

As the proliferation of alternative energy sources and energy storage increase, we are likely to attend more incidents involving Lithium-Ion batteries.

Wildfire incidents

The impact of climate change is also having a detrimental impact on the frequency and severity of wildfires, this includes changes in the timing of when wildfires occur and subsequently the materials that burn. We are starting to see the wildfire season extend into the summer months, in addition to the late spring season, which is having a significant impact on the ability of LFRS to extinguish wildfires using conventional methods. Early season wildfires generally involve surface fuels (e.g., Molinia grasses and heathers) as these are dryer than the cold, damp materials below the surface, which are generally managed by conventional wildfire equipment. As wildfires are becoming more frequent in the summer months these create more challenging conditions as it is not only the surface fuels that burn but the sub-surface fuels too.

In response, LFRS has invested in the technological development of its wildfire response capability by introducing specialist Burn's Teams and equipment, as well as working more closely with private and public sector organisations in the development, or adaptation, of existing agricultural equipment to improve our wildfire firefighting capability (e.g., farm vehicles with umbilical systems that provide long distance water delivery and suppression capabilities). We are also developing our understanding and use of digital technology that can assist in the management and forecasting of wildfire behaviour such as online forecasting models and satellite imaging technology. The continued use of our existing drone capability supports the management of wildfire incidents, and the investment of a new water bowser has increased our capability, not only for wildfire incidents, but also our response to incidents involving lithium-ion batteries.

Health

The health and wellbeing of the people of Lancashire can be linked to lifestyle and behavioural factors but can also be linked to a wide variety of social, economic, and environmental factors such as poverty, deprivation, housing, environment, or ethnicity. All these factors can heighten the risk of individuals being more susceptible to requiring assistance from the emergency services.

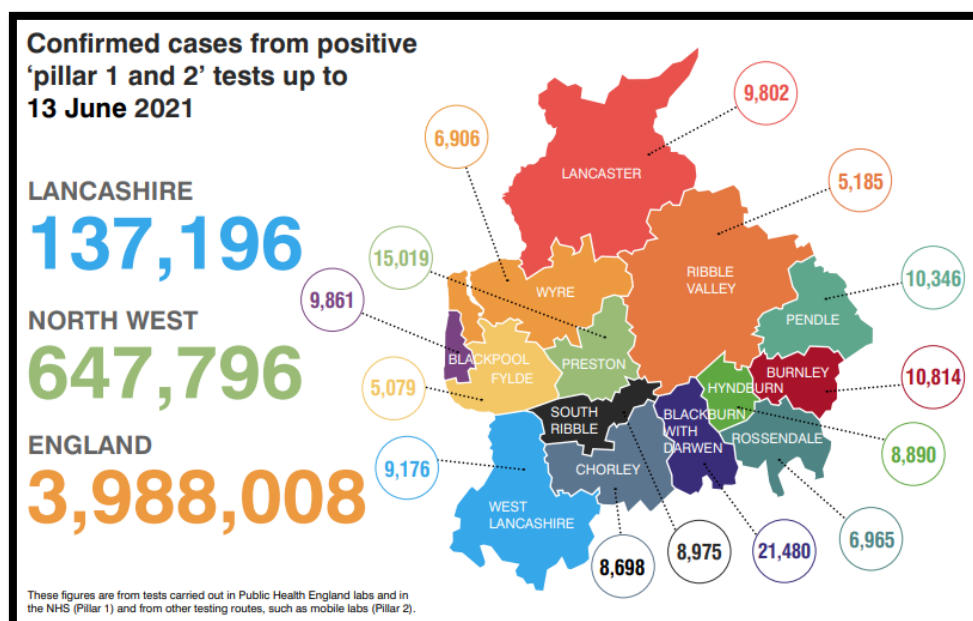
The health of people in Lancashire varies when compared to England. Within the county there are wide differences between the most and least deprived areas. For example, in the most deprived areas life expectancy at birth for men is 10.2 years lower and 7.1 years lower for women, when compared to the least deprived areas (2012-14). These inequalities can often begin in childhood and the health of children and young people is of paramount importance; ensuring healthy development into adulthood is vital.

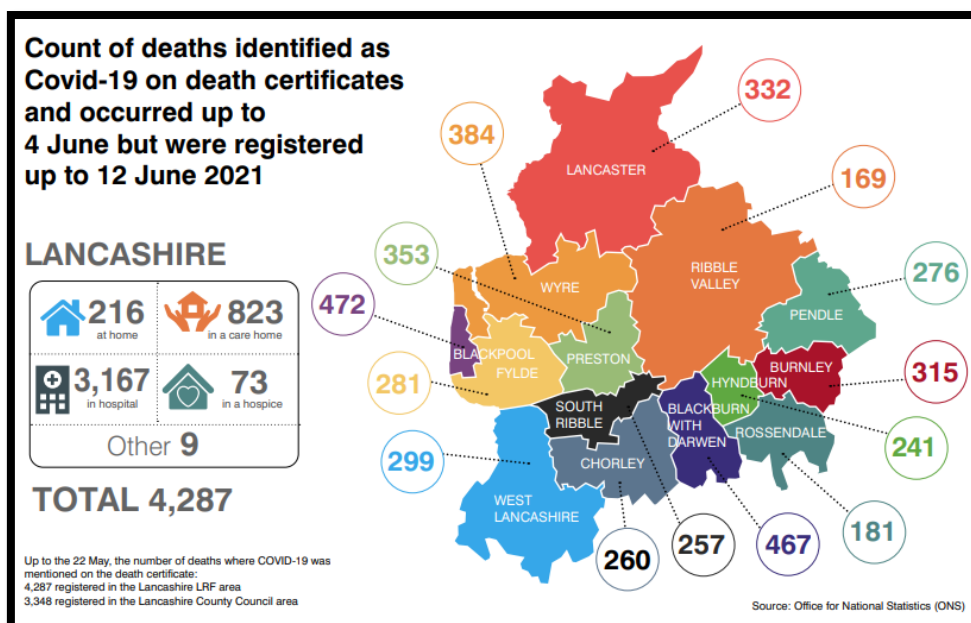
The infant mortality rate in Lancashire has levelled, although it remains significantly higher than England. The evidence shows rates of overweight and obese children varies compared to England, while there are issues around unintentional injuries and hospital admissions.

The health of adults in the county is mixed; prevalence and incidence rates for cancer, cardiovascular disease and liver disease are all above national rates (although this may be indicative of effective screening in some districts) and residents in the more deprived areas of Lancashire tend to have higher levels of premature and overall mortality from these conditions. Obesity and overweight rates for adults in Lancashire are in line with England, but there are some districts with significantly higher levels and some with significantly lower levels. Again, national trends indicate an increase overall in the numbers who are obese or overweight and it is expected the rates in Lancashire will also rise. Physical activity levels for adults are also low and increasing these can be beneficial for health.

There are issues around mental health and wellbeing, with residents in the most deprived areas of Lancashire nearly twice as likely to have mental health problems compared to those in the least deprived areas. This includes common mental health issues such as depression and anxiety, and more severe disorders such as schizophrenia.

The Coronavirus pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, the economy and social disruption. The ongoing Covid-19 situation has affected communities across Lancashire. The data below, taken from the Office for National Statistics, shows just how much of an impact Covid-19 has had on the physical health of those living within Lancashire. The mental health and well-being of those affected by the pandemic because of social isolation caused by shielding, being furloughed or self-isolating for example, has also had an impact on the health of those living in Lancashire.





Adult social care is an important function of the county council, particularly with the expected rise in the older population. There are many factors which can influence whether an individual accesses social care including living arrangements and health status. In Lancashire, more people aged over-65 live alone compared to England and are more likely to have a limiting long-term illness or disability, requiring adult care services, a figure which is likely to increase. There are high numbers of people providing unpaid care in Lancashire and this is expected to increase as more people with complex social and health care needs require support in the future.

Increasing social capital and social participation can increase people's resilience to the negative effects of ill health and a move towards more asset-based community services may provide a way improve and protect the health of residents in the more deprived areas.

The number of people with limiting long term illness from the 2011 census was an average in England of 8.5%, however Lancashire is above the national average with 10.3 % of people suffering.

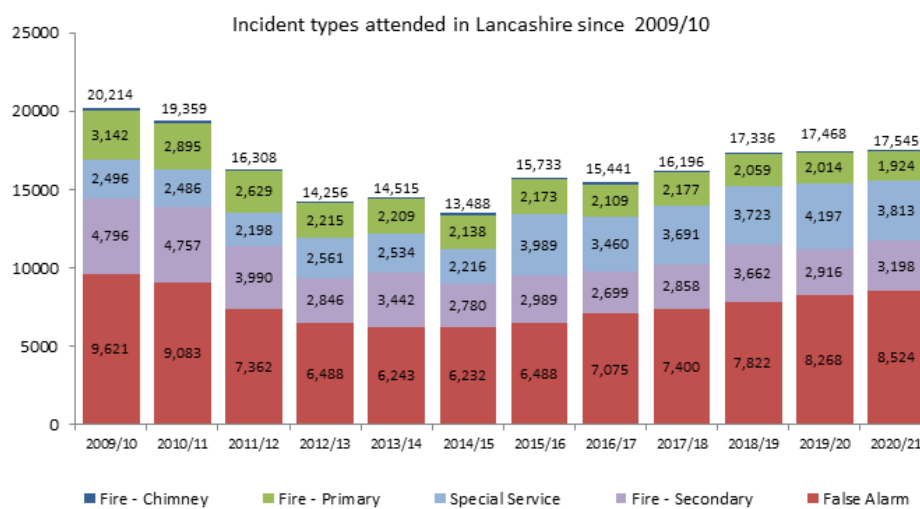
The national average for people who have their “day to day activities limited by health” is 17.9%.

Common factors present during Accidental Dwelling Fire's.	The 7 determinants covered during Safe & Well visits.
Physical and mental health	Falls prevention.
Hoarding	Social isolation
Substance misuse and/or alcohol	Living with dementia
Smoking	Diabetes
Elderly	Healthy homes/ winter pressures
Lone person	Home security/ arson vulnerability
	Mental health

Historical Data

The national incident recording system was introduced by the Department for Communities and Local Government in 2009, with the requirement that all FRSs record operational data using a standardised data collection mechanism. This has allowed unprecedented insight and analysis to be carried out at a national level, as well as presenting FRSs with the ability to greatly enhance data-led decision making.

During the twelve years in which IRS has been in operation, incident levels within LFRS have reduced by 13%, which equates to approximately 2,700 incidents. This reduction in activity is evident across most incident types, with false alarms reducing by 11%, secondary fires by 33% and primary fires, which are the most significant type of fire, have reduced by 39% within the same timeframe. However, special service incidents have increased by 53%, mainly due to the adoption of undertaking gaining entry incidents on behalf of the Ambulance Service.

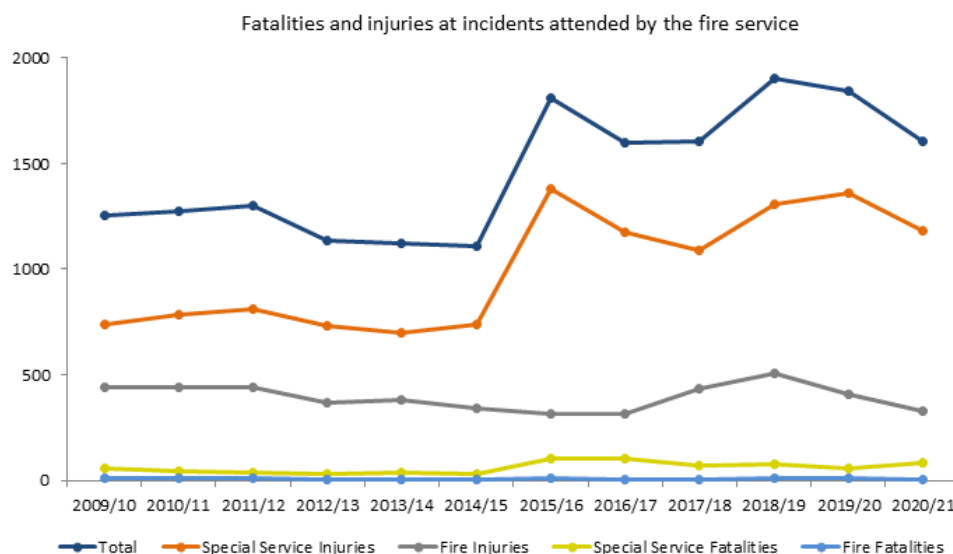


Injuries and Fatalities

The introduction of IRS has allowed FRSs to record additional granularity and data on victims at operational incidents. Within the last twelve years, injuries at fires have reduced by 25%, with the number of people receiving first aid and precautionary checks reducing by 15%. Last year, there were 329 injuries resulting from fire, with 17% requiring a hospital visit. Unfortunately, last year saw six fatalities in fires.

A large rise in the recording of victims from special service incidents has been witnessed over the previous twelve years. Recordings of injuries have risen by 60%, with fatalities rising by 46%. Whilst in the past many of these have occurred in RTCs, they are now mainly recorded as a result of providing support or assistance to other agencies, mainly in affecting entry to domestic premises.

The additional granularity and data recorded on victims as a result of the introduction of IRS has enabled greater analysis and insight to be obtained. This has led to the introduction of more tailored and targeted campaigns and initiatives through data-led decision making. Of all the accidental dwelling fires, 57% started in the kitchen last year. Of these incidents, the most common correlation was cooking, faulty appliances being the cause or negligent use of equipment. Due to this, home fire safety checks and safe and well visits place an added emphasis on kitchen or cooking safety.



Resource to risk

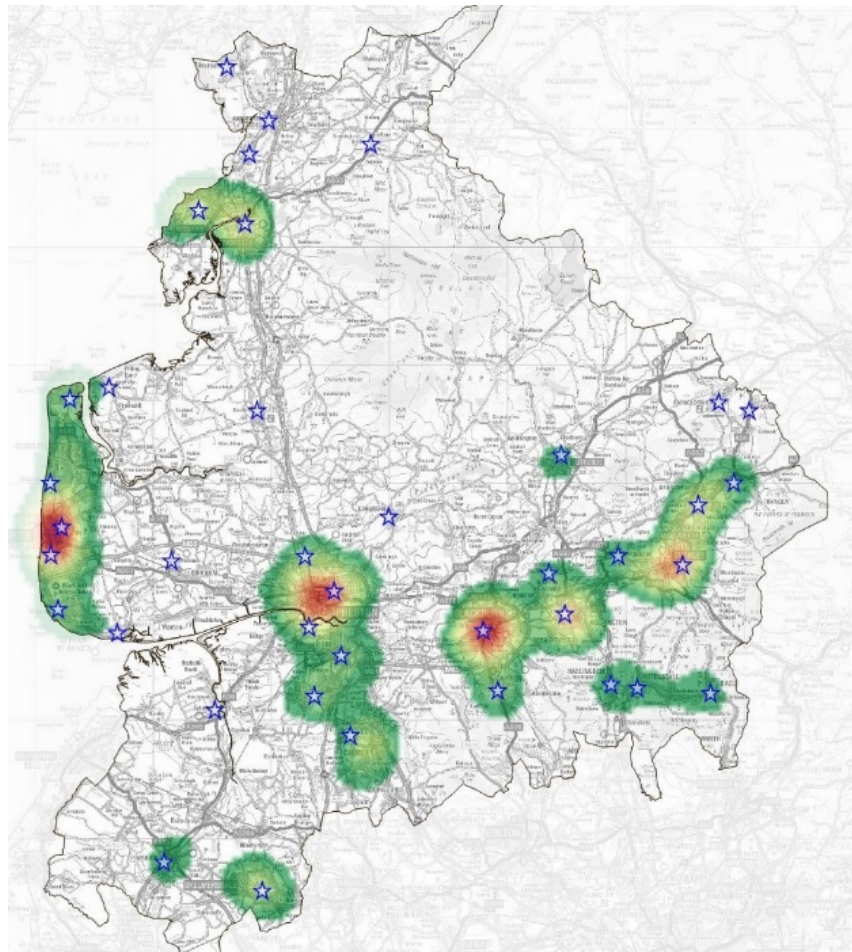
LFRS aims to allocate resources to risk, providing the most effective and efficient service and value for money to the people of Lancashire. Our offering is based around prevention, protection and response arrangements which are all tailored to current and emerging risks and applied proportionately to maintain risk at levels that are as low as reasonably practicable.

We aim to primarily prevent fires and other emergencies from happening. We allocate resources through our prevention and protection teams, supported by

operational crews and partner agencies to educate inform and advise our diverse communities.

When incidents occur, we operate a range of operational crewing systems both wholetime and on-call. This allows us to allocate resources effectively based on the risk associated with geographical areas within Lancashire. To maintain a highly trained operational provision we are supported by our service training centre, which incorporates specialist training facilities and highly skilled and accredited instructors.

The heat map below shows the location of our fire stations mapped against overall incident activity levels. The areas of lowest demand are represented by the light green shading and moves through darker green, to amber to red to display the areas of our highest demand. Many of our stations are in areas of high activity, but we also have stations where incident levels are comparatively lower, but the impact of fires and other emergencies could be significant.



National and local risks

The National Risk Register (NRR) of Civil Emergencies provides a government assessment of the likelihood and potential impact of a range of civil emergency risks.

The risks are thematically grouped to bring together risks that share similar risk exposure and require similar capabilities to prepare, mitigate and respond. The thematic groups and most pertinent risks identified by the NRR for LFRS are:

Environmental Hazards	Human and animal health	Major Incidents	Societal Risks	Malicious Attacks	Risks occurring overseas.
Flooding	Human diseases	Widespread electricity failure	Industrial action	Attacks on publicly accessible locations	Risks occurring overseas.
Severe weather	Animal diseases	System failure	Widespread public disorder	Attacks on transport systems	
Severe space weather	Antimicrobial resistance	Major transport accidents		Attacks on infrastructure	
Poor Air Quality		Industrial accidents		Chemical, biological, radiological and nuclear attacks	
Earthquakes		Major Fires		Cyber attacks	
				Disinformation	

A full breakdown can be found at the following link. [National Risk Register 2020 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/432222/national-risk-register-2020.pdf)

The Lancashire Risk register produced by the LRF provides information on emergencies that are foreseeable within the county of Lancashire. The highest risks identified can be seen below:

- Large toxic chemical release
- Influenza type disease (pandemic)
- Local coastal tidal flooding (more than one region)
- Local coastal tidal flooding (one region)
- Local urban flooding (fluvial or surface water run off)
- CBRN attack - unenclosed urban area (nuclear)
- CBRN attack - unenclosed urban area (chemical)
- Aviation incident
- Rail networks incidents
- Major contamination incident with widespread implications to the food chain

More information and further information can be found at <https://www.stayintheknow.co.uk/Documents/2019LancashireRiskAssessmentSummary.pdf>

To ensure that LFRS are prepared for any national or local events we work in partnership with the LRF to train and exercise for foreseeable events and have robust business continuity planning to ensure we can still fulfil our statutory duties.

13/16 agreements - LFRS has 'memorandum of understanding' (MOU) arrangements in place with its regional and neighbouring FRS in terms of reinforcement schemes to ensure serious emergencies are attended in an efficient and effective manner. This also includes specialist functions such as Rope Rescue.

Lancashire Fire and Rescue Service - Community Risk Identification Process



District Profiles

Lancashire is divided into 6 Areas. Within these areas are the Lancashire-14 districts which can be seen in the image below.

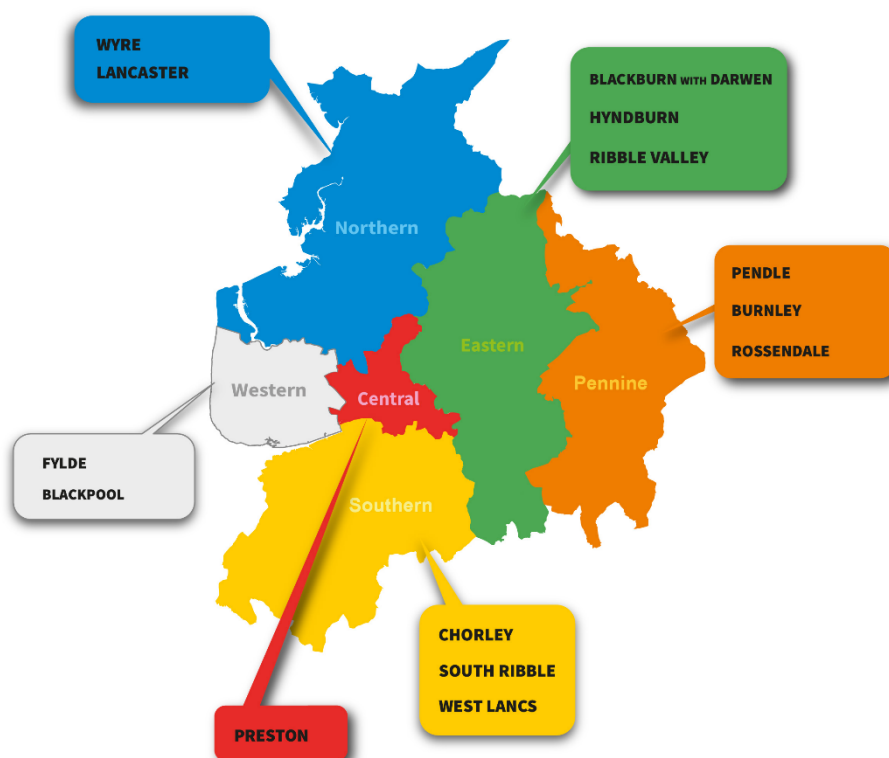
Each district faces its own unique risks and to effectively assess the risk, district plans are developed based on local intelligence and supported by a district intelligence profile that is produced annually.

The purpose of the profiles is to highlight activity and risk across each district both in terms of incident, geographical and people risk. This evidence-based document is designed to support the district plans by highlighting the most significant issues, the highest risk groups to target and the most significant areas to target.

Using previous incident activity, known demographic data and Mosaic estimate lifestyle data this report aims to inform who and where are those most vulnerable from fire, the location of risk and the resource demand against availability (applicable to On-Call stations only).

Incident data is based upon an average over the preceding three years. Partnership working helps to inform demographic data and makes use of the vulnerable person adult social care data supplied by Lancashire County Council, also the Exeter data which is taken from those registered with a General Practitioner and are aged over 65 years. Datasets which are too small at a district level to analyse are aggregated to County level.

Additional lifestyle data analysis is based on the Mosaic data, supplied by Experian Ltd.



Risk assessment methodology

The below assessment of risk was applied to 32 different incident types which cover the main incident types that we respond to as a Fire and Rescue Service and covered by National Operational Guidance (NOG). The purpose of the methodology is to develop and utilise a reliable model that can be applied equally across all incident types whilst considering the likelihood, consequence, and emerging and declining risk. The model uses single source reliable data (IRS), coupled with sector competent professional judgement.

Likelihood (risk)

Our likelihood calculation is based upon incidents historically attended over the previous three calendar years and the categorisation can be seen below:

Table 1: Likelihood score calculation.

Likelihood Class	Likelihood Score	Frequency	Frequency definition
High	5	365 or more	At least once per day
Medium high	4	52-364	At least once a week but less than once a day
Medium	3	12-51	At least once a month but less than once a week
Medium low	2	1-11	At least once a year but less than once a month
Low	1	Less than 1	Less than once a year

After the frequency has been calculated a directional multiplier is applied as to whether the incident type is emerging or declining and an overall likelihood – direction score is generated.

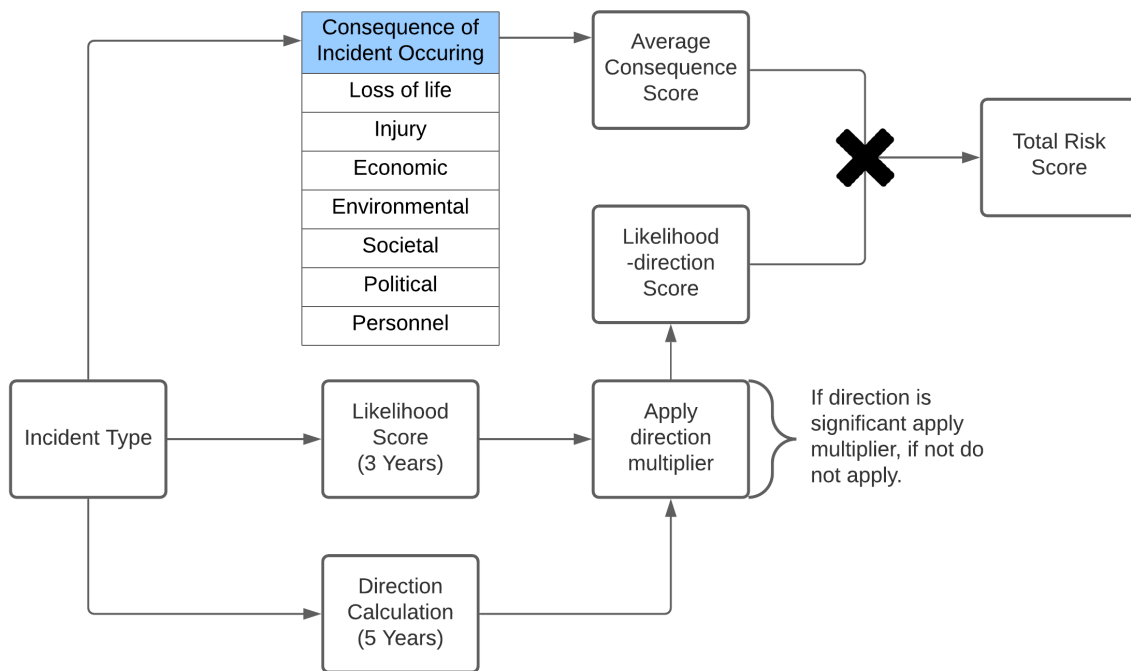
Consequence score

The consequence score is derived as the average score from our seven consequence categories. These scores have had professional judgement applied from sector competent persons and each category individually scored from 1-5.

Table 2: Consequence categories

Category	Definition
Loss of life	this reflects the loss of life consequences of an event occurring.
Injury	this reflects the potential casualties of an event.
Economic	this reflects the economic impact of an event.
Environmental	the reflects the environmental damage caused by an event.
Societal	this reflects the impact on societal function caused by an event.
Political	this reflects the impact of an event on the image of the service.
Personnel	this reflects the impact of an event on staff within the service.

The total risk score is then calculated as can be seen below:



To support our findings and to deliver our services effectively we also utilise many other data sources and tools that can be seen below:

National Risk Register (NRR)	The NRR is an assessment of the key risks that have the potential to cause disruption in the UK.
Census	The census in the UK is a count of all people and households. The latest census in the UK was held on 21 March 2021. However, there are currently no results available.
Mosaic	Geodemographic segmentation data from Experian that classifies UK households into different geodemographic groups.
Exeter data set	The Exeter data set is provided by NHS England and contains a list of people aged 65 and over and registered with a GP.
Incident Recording System (IRS)	The IRS is an electronic system for recording data at incidents. The system is operated by the Home Office and all fire services have a requirement to gather incident data.
Partner agencies	Consultation and working practices are shared between partner agencies that

	are linked in some way to our local risks.
Cadcorp SIS and Web Map Layers	Cadcorp SIS is a desktop geographic information system (GIS) used for spatial data analysis. Cadcorp Web Map Layers is a web-based GIS used to display spatial data.
Community Fire Risk Management Information System (CFRMIS)	CFRMIS is an electronic information system used to store and manage business fire safety and community safety data.
Local Resilience Forum (LRF) Community Risk Register (CRR)	The CRR provides information on emergencies that could occur and provides an assessment of how likely they are to happen and the impacts if they do.
Lancashire Insight	Lancashire specific data portal providing key statistical data regarding demographics, populous and health data.
District Intelligence Profiles and Plans	These identify risks that are perceived at a local level and help drive prevention, protection and response arrangements in localities.
Site Specific/ Operational Risk Information	. This relates to information we gain during visits to high-risk premises, and which is then made available to crews when dealing with incidents.

Due to the extensive and detailed documentation that underpins the SAoR not all information has been placed within this document. Should more detailed information be required it can be made available upon request through Corporate Programme and Intelligence (internal) or via Lancashire Fire and Rescue Services website:

[Publications - Lancashire Fire and Rescue Service \(lancsfireandrescue.org.uk\)](https://lancsfireandrescue.org.uk)

Executive risk assessment summary

Based on our risk assessment methodology, all incident categories have been scored. The highest risk incident types can be seen below. These highest risk incident types have been recorded within the Community Risk Management Plan (2022-2027) which highlights our proactive and reactive measure in response to the risk.

Risk Number	Incident Type	Overall Rating
1	Flooding	Very High
2	Wildfire	Very High
3	Accidental Dwelling Fires	Very High
4	Commercial property fires *1	Very High
5	Deliberate Building Fires	Very High
6	Industrial fires *1	Very High
7	Road traffic collisions (RTC's) *2	High
8	Rescue collapsed structure/confined space.	High
9	High rise fires	High
10	Hazmat Incident (Major)	High
11	Waste disposal site fires	High
12	Assist other agencies.	High
13	Road vehicle fires *2	High
14	Building under construction fires	High
15	Hazmat Incident (Minor)	Medium
16	Animal rescues	Medium

Items within the risk assessment have been linked in the CRMP outcomes due to similarities in response *1 have been merged and *2 have been merged.

The full list of the risk outcomes can be found in appendix A

Overall risk rating percentiles		
Rating	Score	Percentile
Very High	> 10.4	> 65%
High	10.3 to 8	50% - 64%
Medium	7.9 to 5.6	35% - 49%
Low	< 5.6	< 35%

Flooding

Whilst LFRS has no statutory duty to provide emergency response to water or flooding events, as a category 1 responder the Service is bound by the Civil Contingencies Act 2004 to have plans in place to respond to all emergencies. Through close consultation and collaboration with our partners and the LRF, a Multi-Agency Flood Plan has been developed which outlines the agreed coordinated multi agency response should a flooding event occur in the Lancashire area. This plan has been identified as an essential requirement as it has been recognised through the LRF Community Risk Register that there are approximately 65,000 properties at high or very high risk from flooding within Lancashire.

Due to the diverse nature of the Lancashire landscape, our communities can be at risk from coastal / tidal flooding, river flooding (fluvial), surface water (pluvial) and reservoir flooding, albeit the likelihood of these events occurring varies from 1 in 5 years to 1 in 1000 years.

In the last five years, LFRS has responded to 278 flooding related incidents where action was taken, and which were not related to burst pipes. This equates to 55 incidents of this type a year. Domestic dwellings were affected at 63% of these incidents. Lancaster has been badly affected (18% of the incidents), mainly due to the River Lune flooding during heavy rainfall.

Risk - Flooding	
Likelihood	Medium High
Consequence	Moderate
Risk score	15.87
Overall assessment	Very High

Wildfire

The wildfire season, severity and size of wildfires is increasing in duration, this could be attributed to climate change and other factors that have sustained or increased the fuel layer on the moors such as changes in land management, reduced animal grazing and competing priorities for moorland management.

Wildfires have historically occurred in spring and summer months. The spring fires usually involve surface fine fuel fires such as Molina grass/heather that have been dried out by the wind, sun, and frost. The fires that occur are also supported by a blanket of dead vegetation on the moors from the previous year. These types of fires can spread rapidly over large geographic areas.

The summer fires are caused by prolonged periods of drought conditions due to low rainfall and high temperatures. Ground fuel fires that occur in large and remote geographic areas where water sources are not readily available can be extremely resource intensive, require support from partner agencies and be difficult to extinguish due to being deep seated below ground. These types of incidents require vast quantities of water far in excess of what conventional fire-fighting appliances can deliver.

We know that wildfires can start for many reasons, such as mishandled campfires or barbecues, malicious activity such as deliberate fire setting, infrastructure incidents such as sparks from electricity lines or rail transport, and natural phenomena such as lightning (although this is rare). Hot, dry and windy weather are ideal conditions for wildfires to start and spread.

Over the previous five years, we attended 682 wildfire incidents which is an average of 136 incidents a year. 79% of the incidents only involved 1 pump. Half of all the wildfire incidents were deliberate, including some large-scale, multi-pump incidents attended by LFRS.

Risk - Wildfire	
Likelihood	Medium High
Consequence	Moderate
Risk score	13.59
Overall assessment	Very High

Accidental dwelling fires (ADF's)

Dwelling fires are those occurring in buildings that are normally occupied, typically houses, flats and bungalows. Fires of this nature can also result in both physical and mental harm and the injuries sustained could be fatal. As well as the human cost associated with dwelling fires, there is a significant economic burden associated with property damage. LFRS continues to provide a community fire safety service to the residents of Lancashire, where smoke alarms can be fitted, and home fire safety advice tailored to individual households as part of a Safe and Well visit. Reduction activity is carried out by community fire safety staff alongside operational personnel in conjunction with local and national campaigns.

Over the previous five years, we have attended an average of 864 incidents a year of this type. Single occupancy houses accounted for 62% of all accidental dwelling fires with flats, sheltered housing and bungalows sharing 33% of the total.

The Blackpool district experienced the highest number of ADF's followed by Lancaster then Preston. The Ribble Valley has seen the lowest number of ADF's over the last five years. 37% of the total number of ADF's were caused by 18-64 year olds with 21% caused by the elderly (65+). The biggest cause of ADF's is cooking related, followed by faults with electrical appliances.

Risk – Accidental dwelling fires	
Likelihood	High
Consequence	Minor
Risk score	13.49
Overall assessment	Very High

Commercial property fires

Commercial property accounts for 13% of the value of all buildings across the UK and is worth almost £900bn, according to the British Property Federation. Commercial property comprises a diverse range of property types including office space and retail establishments, from high street shops to large out-of-town complexes. It also refers to leisure establishments, such as restaurants, pubs, hotels, and gyms, and even car parking.

As with most counties throughout England, Lancashire boasts thousands of commercial premises, all of which must comply with the Regulatory Reform (Fire Safety) Order 2005. Fire and rescue services are responsible for enforcing this legislation and LFRS has a robust inspection programme in place for those premises

deemed to be high risk. Fire inspection forms the basis of our protection programme designed to reduce the risk and impact of fire upon communities, businesses, and our environment, and safeguard firefighters who respond to incidents involving them.

Over the past five years, we have attended an average of 270 incidents a year which have involved commercial premises where the cause has been recorded as accidental or unknown. This equates to a five-year total of 1351 incidents.

Non-residential properties accounted for 85% of the incidents, of which retail outlets accounted for 18%, with food and drink establishments 17%, and Industrial manufacturing 16%.

Other residential properties accounted for the other 15% of the total number of incidents, of which residential homes accounted for 34%, Hotel/motel 25%, and student hall of residence 18%.

Fires at this property type resulted in 3 fatalities, 6 serious injuries and 15 minor injuries over the previous five years.

Risk – Commercial building fires	
Likelihood	Medium High
Consequence	Moderate
Risk score	12.69
Overall assessment	Very High

Deliberate building fires

Inevitably, when thinking of deliberate fires, the term arson is often used. This is the act of using fire to destroy or damage any property belonging to another. However, there are many different reasons why individuals or groups display fire-setting behaviour, from curiosity to anti-social behaviour, to mental health issues. The term ‘deliberate fire setting’ covers a wider proportion of scenarios.

Regardless of the reason, a deliberate fire can cause significant damage to property, communities, the economy and in the worst-case scenarios cause injury or death. Using our IRS and Geographical Information Systems (GIS) LFRS can scan for trends in anti-social and deliberate fire setting. By doing this, areas can be quickly identified through emerging trends, meaning prevention activities can be planned and undertaken, often with our partners. Activities can include anything from removal of rubbish to increased youth engagement activities, all with an aim to reduce the incidence of deliberate fires and help our partners build stronger more sustainable communities.

Over the previous five years, we have attended an average of 249 deliberate building fires a year. Non-residential buildings accounted for 50% of the fires with public admin, security and safety properties being targeted the most (21% of the non-residential fires). Deliberate dwelling fires accounted for 46% of the total incidents with houses of single occupancy taking a 52% share of these incidents.

Deliberate building fires have been responsible for 11 fatalities, 18 serious injuries and 37 minor injuries over the last five years.

Risk – Deliberate building fires	
Likelihood	Medium High
Consequence	Moderate
Risk score	11.43
Overall assessment	Very High

Industrial fires

Industrial incidents can take a wide variety of forms, and their potential impact on our communities varies considerably in both scale and nature. In some cases, these incidents will have very limited impacts beyond the immediate area and can be dealt with locally, although others can have cascading effects that may impact the wider community. Within our Service area, there are 8 Top tier COMAH (Control of Major Accident Hazards Regulations 1999) sites and several Lower tier sites covered by the Dangerous Substances (Notification & Marking of Sites) Regulations 1990 (NAMOS). These businesses are required to take all necessary measures to prevent major accidents involving dangerous substances to limit the consequences to people and the environment of any major accidents that do occur.

There are several industrial estates in our area that pose risks because of the diverse range of manufacturing and/or processes undertaken by the businesses that occupy the premises at these sites. The experienced level of demand remains relatively low at these premises due to many sites being well-protected from the risk of fire and other incidents. The significant level of prevention activity that we undertake as an FRS helps to ensure this level of protection remains high.

Over the previous five years, we attended an average of 50 industrial based incidents a year. Of the 253 incidents attended, manufacturing accounted for 79% and processing 21%, with fires within Engineering premises and Factories accounting for 50% of the overall total.

Risk – Industrial fires	
Likelihood	Medium
Consequence	Moderate
Risk score	10.62
Overall assessment	Very High

Road traffic collisions (RTC's)

Nationally, RTC's are the most frequently attended non-fire incident by Fire and Rescue Services. LFRS has a statutory duty to provide an emergency response to RTC's. Whilst we are not the lead agency for road safety prevention work (this falls to Lancashire County Council and Unitary Authorities), we do recognise the importance

of road safety prevention work in mitigating collisions and the devastating effects that road traffic collisions can have on individuals and communities.

The area covered by LFRS is large and includes 5 motorways, over 700 km's of 'A' roads and a significantly high number of rural roads. Statistics have shown that car occupants are the most likely to be killed in an RTC, followed by pedestrians, motorcyclists and cyclists. Children aged under 15 are most likely to be involved in RTC's as pedestrians.

Over the previous five years, LFRS have attended an average of 590 incidents of this type a year, which accounts for 20% of all Special Service calls. There has been 64 fatalities and 446 serious injuries from RTC's attended by LFRS over the last five years, that involved either the extrication of trapped individuals or making the vehicle(s) safe. Other types of work undertaken by operational crews at RTC's have included making the scene safe, offering medical assistance only and the release of individuals where there was no requirement for an extrication to take place.

Risk – Road traffic collisions	
Likelihood	High
Consequence	Minor
Risk score	10.24
Overall assessment	High

Rescue collapsed structure/confined space.

Incidents occurring in confined spaces and within/around collapsed or unstable structures are some of the most complex areas that fire and rescue services work in and include both geological and manmade structures.

Fire and rescue services frequently attend incidents that involve a combination of these contexts, where danger to operational crews and the public is significant. LFRS aims to promote and develop good practice and support the development of safe systems of work to minimise the dangers faced in these environments.

Over the previous five years, we have attended an average of 76 incidents a year of this type, attending 381 incidents in total. LFRS attended 54 incidents involving somebody trapped in or under machinery or another object e.g., hopper, conveyor, crusher. 10 incidents involved a rescue from a confined space and 7 incidents from a collapsed structure. Due to the nature of this incident type, there have been 6 fatalities, 30 serious injuries and 35 minor injuries.

Risk – Rescue collapsed structure/confined space.	
Likelihood	Medium High
Consequence	Minor
Risk score	9.97
Overall assessment	High

High rise fires

LFRS regard any building that has six floors (ground + 5 floors above) as a high-rise building. Buildings of this size present many challenges to FRSs in the event of a fire. To successfully deal with an incident in a high-rise building, realistic training is essential along with gathering and storing risk information, educating the occupants and enforcing any breaches of legislation. We have identified high rise properties that have cladding that could promote external fire spread and put measures in place to ensure an appropriate, risk-based attendance is sent upon receipt of information that there is a confirmed fire in one of these buildings. There are 123 high rise buildings in Lancashire, ranging from domestic accommodation to hospitals, car parks to entertainment venues, hotels to education.

Over the previous five years, we attended an average of 12 fires involving high rise buildings. Of the 61 incidents attended in total, 74% were accidental fires. Domestic dwellings accounted for 45% of the incidents. Hospitals accounted for 31% of the non-residential high-rise fires and hotels/motels had a 46% share of incidents involving 'other residential' properties.

Despite the fears of rapid fire growth following the Grenfell tragedy, only 5% of these incidents resulted in the fire spreading beyond the floor of origin.

Risk – High Rise fires	
Likelihood	Medium Low
Consequence	Significant
Risk score	9.57
Overall assessment	High

Hazardous materials incident (Hazmat)

There are several pieces of legislation that place a duty on LFRS to protect lives, property and the environment from the damaging effects of hazardous materials. We work very closely with partner organisations, particularly the Environment Agency, to try to reduce the impact caused by hazardous materials. Dangerous hazardous materials are regularly transported through the Service area via rail or road. There are several other associated risks from hazardous materials, with some examples being COMAH sites and a multitude of other industrial sites, farms (especially in some of the more rural locations), waste sites and water treatment plants. There are also several high-pressure natural gas transmission pipelines crossing the region. This hazard arises from the high pressure and the possibility of fire and explosion from a release if one of the pipelines failed or sustained damage.

Hazmat Incident (Minor)

LFRS have categorised a Hazmat incident to be minor if less than four pumping appliances attended. Over the previous five years, we have attended an average of 53 incidents of this type a year. Of the 267 incidents attended, three resulted in fatalities and there were eight serious injuries sustained. 57% of the incidents

occurred in a domestic dwelling environment, whilst others included outdoors and road vehicles. 52% of the incidents involved a gas release.

Risk – Hazmat incident (Major)	
Likelihood	Medium Low
Consequence	Significant
Risk score	8.97
Overall assessment	High

Hazmat Incident (Major)

LFRS have categorised a Hazmat incident to be major if four or more pumping appliances attended. Over the previous five years, we have attended a total of 12 incidents of this type resulting in four people sustaining slight injuries.

Risk – Hazmat incident (Minor)	
Likelihood	Medium High
Consequence	Limited
Risk score	7.89
Overall assessment	Medium

Waste disposal site fires

Waste disposal sites nationally are recognised as being susceptible to fires, whether accidental or through negligence. Such fires are an increasingly growing risk and have the potential to impact upon resources and local communities for a significant period.

As well as the health risk to the residents of Lancashire, and firefighters dealing with this type of incident, waste disposal site fires also place a strain on partner agencies such as the Police, Environment Agency, public health, local authorities and the site owners.

There are several waste disposal and recycling centres across the Service area, including a mix of local authority-owned and privately-owned sites. The local authority-owned sites are often regulated by regulatory bodies such as the Environment Agency, while the private sites are regularly managed through unclear management structures.

For this document, ‘waste disposal site fires’ are defined as primary fires where a recycling or refuse structure has been affected.

Over the previous five years, we attended an average of 21 waste disposal site fires a year, equating to a total of 106, of which 80% (85) involved a refuse/rubbish tip with the remaining 20% (21) involving industrial processing.

Risk – Waste disposal site fires	
Likelihood	Medium
Consequence	Minor
Risk score	8.76
Overall assessment	High

Assist other agencies

LFRS, Lancashire Constabulary and North West Ambulance Service (NWAS) have entered a MOU which provides the agreement for LFRS to replace Lancashire Constabulary as the supporting agency for NWAS. This refers to instances where it is necessary to assist NWAS to gain entry to a property to provide patient care. This incident type primarily relates to calls where there is concern for the welfare of a patient inside premises and NWAS cannot gain access. NWAS staff on scene will request assistance to gain entry.

Over the previous five years we have attended an average of 977 incidents a year where we have assisted other agencies. Of the 4887 incidents attended, 74% were to gain entry to a property for NWAS so they could treat a patient. LFRS also attended 254 incidents to assist NWAS with a bariatric patient. Unfortunately, to the nature of this incident type, there were 193 fatalities, 582 serious injuries and 794 minor injuries dealt with by both LFRS and NWAS.

Risk – Assist other agencies	
Likelihood	High
Consequence	Limited
Risk score	8.73
Overall assessment	High

Road vehicle fires

The road vehicle fires dataset covers primary fires attended by LFRS that involved any vehicle designed for road use. Fires in derelict road vehicles are only included if they are considered to be a primary fire (i.e., the fire involved a fatality, casualty or rescue, or the fire was attended by five or more pumping appliances).

Every year in the UK, thousands of road vehicles are involved in fire and unfortunately people die as a result. Around half of these fires are started deliberately to cover criminal activity, to make a fraudulent insurance claim or as an act of vandalism. One in 12 reported stolen vehicles will be burnt out. Many other vehicle fires break out because of a fault or simply due to a lack of basic maintenance. The financial loss of having a car fire is bad enough and although insurance may compensate for this, nothing can help with the shock and inconvenience that follow even a small fire.

Over the previous five years we have attended an average of 507 incidents a year involving road vehicle fires. This equates to 2536 in total, with 62% involving cars, 10% vans and 9% motorcycles, with 48% of the fires being deliberate.

The district of Preston experienced the most road vehicle fires with 59% being deliberate. There were some casualties from this incident type with 10 people sustaining serious injuries over the last five years, and 36 people with minor injuries.

Risk – Road vehicle fires	
Likelihood	High
Consequence	Limited
Risk score	8.64
Overall assessment	High

Building under construction fires

When dealing with any fire in buildings under construction or demolition, whatever its size or complexity, they pose risks to FRS personnel. There is often a presumption that construction, demolition or building work complies with relevant regulations. This may not always be the case and if work is unregulated or in direct contravention of regulations, this could have a significant impact on the incident and firefighter safety.

Some small construction sites or buildings undergoing building work may be unknown to fire and rescue services, making pre-planning difficult. Sites known to fire and rescue services may alter significantly throughout the life of the project such as changes to access and egress, hazardous material storage, layout and fire protection features. Information obtained from site visits and inspections should be regularly reviewed, updated and communicated to relevant fire and rescue service personnel.

Existing buildings may contain hazardous substances that are associated with either the previous use of the building or building materials. This could include substances such as asbestos, which may not have been highlighted in a survey. If disturbed during building work or firefighting, asbestos presents a significant risk to health.

Although sites should be well-secured, using high fencing, hoardings, or other security measures, these may be compromised allowing the public to gain unauthorised access.

LFRS has invested time and money in identifying risks associated with buildings under construction by assembling a Built Environment Assessment Team.

Over the previous five years, we attended 65 incidents involving buildings under construction. This averages out at 13 incidents of this type a year. Single occupancy dwellings accounted for 50% of the incidents.

Risk – Building under construction fires	
Likelihood	Medium
Consequence	Minor
Risk score	8.54
Overall assessment	High

Animal Rescue

For many years, firefighters have responded to a variety of incidents involving pets, livestock, and wild animals. Animals in distress can pose a potentially serious risk to the public, staff from other agencies and firefighters. There is also an element of risk of members of the public suffering serious injury should they decide to attempt an animal rescue themselves. As Lancashire has large rural areas as well as densely populated areas, LFRS inevitably responds to incidents where a range of animals are in distress. We therefore have a range of resources available to deal with this risk, including six specialist animal rescue trained stations based at strategic locations across the county.

Over the previous five years, we attended an average of 163 animal rescues per year. This equates to 815 incidents in total with an increase of incidents year on year. Incidents involving trapped animals accounted for 41% of the total, with the majority involving domestic animals. 25% of animal rescues involved a rescue from height with the majority involving domestic animals. We attended 146 incidents (18%) involving rescues of animals from water or mud with over half of these involving livestock.

Risk – Animal rescue	
Likelihood	Medium High
Consequence	Limited
Risk score	7.75
Overall assessment	Medium

Other outdoor fires (Primary)

Other outdoor fires are fires in either primary outdoor locations, or fires in non-primary outdoor locations that have casualties, or five or more pumping appliances attending. Outdoor primary locations include outdoor structures such as post or telephone boxes, bridges, tunnels etc.

Over the previous five years, we have attended 408 incidents of this type, with an average of 81 incidents a year. 57% of these incidents were recorded as accidental. 262 incidents (65%) involved outdoor structures and 86 incidents (21%) involved outdoor equipment and machinery. Unfortunately, there were two fatalities over the last five years, along with 15 serious injuries and 14 minor injuries.

Risk – Other outdoor fires (primary)	
Likelihood	Medium High
Consequence	Limited
Risk score	7.75
Overall assessment	Medium

Secondary Fires (Accidental)Anti-Social Behaviour) & Secondary Fires (ASB)

This type of incident incorporates fires with no casualties, rescues or valuable property loss. These include outdoor fires, derelict property and derelict vehicle fires. Outdoor fires may involve grass, refuse, wheelie bins and straw.

Although there may be less damage incurred by secondary fires than primary fires, and these incident types generally occur outdoors, not involving people or property, the impact of deliberate secondary fires on LFRS is substantial. Secondary fires are one of the biggest burdens placed on our resources.

As with primary fires, the number of accidental secondary fires that we experience is low in comparison to those set deliberately.

Over the previous five years, we have attended an average of 1800 deliberate secondary fires a year, equating to 9004 in total. Of these, 65% involved rubbish, in the form of either loose refuse, a skip, a small refuse container or a wheelie bin. Over a third of the total number of incidents occurred in the districts of Blackburn with Darwen, Preston and Burnley.

Over the same five-year period, we have attended an average of 1267 accidental secondary fires a year, equating to 6336 in total. 30% of these incidents occurred in just two districts, Blackburn with Darwen and Blackpool, and as with deliberate secondary fires, involved rubbish.

Risk – Secondary fires (accidental)	
Likelihood	High
Consequence	Limited
Risk score	7.68
Overall assessment	Medium

Risk – Secondary fires (ASB)	
Likelihood	High
Consequence	Limited
Risk score	7.06
Overall assessment	Medium

Heritage fires

Heritage buildings or their contents may be of economic or cultural importance. These buildings present unique hazards, having been built in a period with no fire safety regulations, using traditional materials and construction methods. Utilities and associated protection measures are unlikely to meet current standards. Wiring may have deteriorated, and circuits can have no isolation point, or isolation may not control all circuits.

Heritage buildings that are open to the public or have had recent alterations may have been modified to meet current regulations. During a building's lifetime, it may have been altered or extended, using different materials and methods which can cause the structure to behave in unexpected ways. In older properties, internal studded walls may support part of the weight of the property. It is common for heritage buildings to have mezzanine floors, basements, tunnels, and attics.

The materials and design of heritage buildings can increase the expected rate of fire growth and spread. Fire spread may travel in hidden voids, behind facades and in cavities to unexpected sections of the building. Vaults and ducts can cause unchecked fire spread underfoot. Lack of compartmentation can cause fires to spread to additional rooms. Fire spread may also occur between properties where shared roof spaces or voids exist.

Over the previous five years, we have attended 26 incidents where there has been a fire within a 50 meter radius of a heritage property. This is an average of 5 incidents of this type a year.

Risk – Heritage fires	
Likelihood	Medium Low
Consequence	Moderate
Risk score	7.23
Overall assessment	Medium

Removal of people from objects and Removal of objects

People often get stuck, some very seriously and sometimes through no fault of their own. Fire and Rescue Services log call-outs in a number of categories, including 'removal of people from objects' and the rather more wince-inducing 'removal of objects from people'. Quite often, these incidents are as simple as removing a ring from a finger, however sometimes over-confidence is to blame, having been spurred on by other people and showing off, resulting in people getting stuck in objects that take FRS's a little more time and resources to successfully deal with.

Removal of people from objects

Over the previous five years, we have attended an average of 56 incidents a year involving the removal of people from objects. Of the 283 incidents attended, 68% involved a trapped limb, with the other 32% being recorded as 'other'. A third of these incidents occurred in the domestic dwelling environment.

Removal of objects from people

Over the previous five years, we have attended 317 incidents of this type. This equates to an average of 63 incidents a year. Ring removal accounted for 76% of these incidents with other incidents attended including impalements, handcuff removal and removal of other objects such as railings.

Risk – Removal of people from objects	
Likelihood	Medium High
Consequence	Limited
Risk score	7.11
Overall assessment	Medium

Risk – Removal of objects from people	
Likelihood	Medium High
Consequence	Limited
Risk score	6.67
Overall assessment	Medium

Other transport fires (Air, Boat, Train)

Although air is one of the safest modes of transport, incidents relating to air travel are still present across the UK, with many occurrences related to smaller aircraft such as microlights and gliders. Within Lancashire, to the far west of the county, sits Blackpool airport, where the risk of an air transport fire is high due to the amount of traffic utilising the airport.

Lancashire has over 120 km's of coastline, several rivers, lakes, reservoirs, canals and other water bodies that have the potential to have boats of varying sizes being used for business and pleasure purposes.

Incidents on the railways can also pose significant risks and potential danger to the community. The west coast main line dissects Lancashire, with trains running between Edinburgh and London stopping at Preston. There are also a few other local lines in operation, all of which pose their own unique levels of hazards and risks.

Over the previous five years, we have attended an average of 4 incidents a year involving vehicles other than those that are road based, with one incident in 2017 resulting in a fatality. Of the 20 incidents that occurred over the five year period, 14 were accidental and 6 were deliberate. One incident involved a military aircraft, four incidents involved trains/trams, with the remainder (15) involving boats.

Risk – Other transport fires (Air, Boat, Train)	
Likelihood	Medium Low
Consequence	Moderate
Risk score	7.11
Overall assessment	Medium

Other transport or making safe (not fire)

This incident type is split in to two categories, 'making safe (not RTC)' and 'other transport incident'. Attendance at these incidents could be following a request from other emergency services or through the 999 call route. Incidents in these categories include cordoning off, body retrieval and stabilising an unsafe structure as well as making the scene safe, releasing a person and making a vehicle safe.

Over the previous five years, we have attended an average of 141 incidents a year of this type, totalling 708. We have seen a year-on-year increase since 2016. Of the 708 incidents attended, 83% have resulted in LFRS making the scene safe, with 51% of these incidents requiring us to stabilise, or otherwise make safe an unsafe structure. The majority of these have been in a domestic environment however, numerous incidents involved retail, food and drink establishments and outdoor structures. This incident type has resulted in 6 fatalities, 11 serious injuries and 35 minor injuries.

Risk – Other transport or making safe (not fire)	
Likelihood	Medium High
Consequence	Limited
Risk score	6.43
Overall assessment	Medium

Rescue from water

There are a number of water related risks across Lancashire, with the River Ribble, River Lune, River Wyre, River Irwell and River Calder, each posing their own risks. The risk of members of the public entering the water and getting into difficulty appears to be on the increase. The combination of the River Lune and River Ribble running directly through the cities of Preston and Lancaster respectively, and the growing student population in those cities brings an increased risk of water-related incidents occurring. Lancashire has over 120 km's of coastline, and there are several lakes, reservoirs and other water bodies across the Service area that pose risks to the community. The west of the county also has three ports, Heysham, Fleetwood and Glasson.

Our crews carry out training in these areas to ensure their knowledge of the hazards posed and ability to respond are first class. LFRS continues to prepare for water rescue incidents daily and provides an emergency response 24 hours a day.

Over the previous five years, we attended an average of 39 water rescue related incidents a year. Overall, this equates to 196 water rescue incidents in total, with an increase in number year on year since 2017. These incidents have seen 9 fatalities and 18 serious injuries. The main type of incident we attended involved rescues from rivers/canals (41%) and rescues from lakes/ponds/reservoirs (10%)

Risk – Rescues from water	
Likelihood	Medium
Consequence	Limited
Risk score	5.95
Overall assessment	Medium

Suicide or suicide attempts

Across England, fire and rescue services responded to a record number of suicides – the sixth successive yearly increase nationwide. Suicide and suicide attempts can have lasting effects on individuals, their social networks and communities and the emergency responders attending.

Over the previous five years, we have attended 147 suicides or suicide attempts. This is an average of 29 incidents of this type a year. The districts of Blackpool (17%) and Preston (14%) had the highest number of incidents. Incident recording shows that we attended 115 incidents where there was a threat of/attempted suicide and 32 incidents of suicide. 45% of the total number of incidents occurred in the individuals place of residence.

Risk – Suicide or suicide attempts	
Likelihood	Medium
Consequence	Limited
Risk score	5.81
Overall assessment	Medium

Lift release

Fire and rescue services are not required to attend incidents where a person is shut in a lift, and not in any immediate physical or medical danger. They should only be called in an emergency. Maintenance and non-emergency lift releases are the responsibility of the building or lift owner, who should ensure there is a 24/7 lift release service provided, as well as communications facilities inside the elevator so a person can raise the alarm.

Over the previous five years, we have attended 653 incidents involving a lift release, equating to an average of 130 incidents a year. 68% of these incidents involved a rescue of someone that was not in distress. 68% of the total number of incidents involved a residential building.

Risk – Lift release	
Likelihood	Medium High
Consequence	Limited
Risk score	5.71
Overall assessment	Medium

Rescue from height

Nationally, FRS's respond to a wide range of incidents at height involving a variety of environments, such as industry, buildings/dwellings (including buildings under construction) and natural environments (such as steep ground, rock faces). Locally, LFRS covers a wide geographical area, including coastlines to the west, and fells and dales to the north. We respond to incidents where people are stranded in inaccessible locations without specially trained rope rescue equipment, and where there is a high level of risk. Every wholetime firefighter in LFRS is trained to carry out a rescue using a rope pack and associated equipment, backed up by specialist teams from Chorley, Bamber Bridge or St Annes.

Over the previous five years, we attended an average of 44 rescues from height incidents a year. This equates to 221 incidents in total. Of these, 33% involved non-residential buildings, 29% involved domestic dwellings and 26% involved the outdoors, including rescues from trees and equipment in parks. This incident type saw 10 serious injuries and 19 minor injuries.

Risk – Rescue from height	
Likelihood	Medium
Consequence	Limited
Risk score	5.62
Overall assessment	Medium

Effecting entry/exit

The Fire Service is the 'go to' service when people need to get in to, or out of a building or vehicle in an emergency. Incident types range from getting access to a house because somebody is in distress, children locked in their bedroom along with animals locked in cars.

Over the previous five years, we have attended an average of 256 incidents a year of this type, totalling 1281. Of these incidents, 69% involved LFRS effecting entry/exit to a dwelling due to somebody being in distress. Children in vehicles accounted for 17% of the incidents. Over this five-year period, this incident type has resulted in 12 fatalities, 35 serious injuries and 78 minor injuries to members of the public.

Risk – Effecting entry/exit	
Likelihood	Medium High
Consequence	Limited
Risk score	5.43
Overall assessment	Low

Malicious attacks/terrorist incidents

The UK faces a serious and sustained threat from terrorism, including from international groups, domestic extremists and Northern Ireland related groups. The

current UK threat level for terrorism is 'Substantial', which means an attack is likely. While most incidents have occurred in and around major cities in the UK, it is vital that all emergency services are prepared to deal with an incident in their area. For the purposes of this document, 'terrorist' refers to any individual or group seeking to use threats or violence as a means of inflicting terror for the purpose of advancing political, religious, racial or ideological causes. This includes a wide variety of individuals and groups of varying ideologies and backgrounds. Incident types may include Marauding Terrorist Attack (MTA), Chemical Biological Radiological Nuclear and explosives (CBRNe), vehicles as a weapon of choice, or smaller-scale attacks.

We prepare for such incidents by taking advice from the relevant authorities on the potential risks posed and assessing the impact that such an attack/incident may cause through working with key partners as part of the LRF.

We have not attended any incidents of this type over the previous five years.

Risk – Malicious attacks/terrorist incidents	
Likelihood	Low
Consequence	Significant
Risk score	4.79
Overall assessment	Low

Rescue from depth

Special service incidents involving rescues from below ground could involve shafts, caves, tunnels, sewers or wells. Rescues of this type are often protracted in nature with access difficult for fire appliances. They may require the use of technical rope skills, and/or additional appliances such as an aerial ladder platform.

Over the previous five years, we have attended 11 incidents, with 7 involving outdoor rescues, 3 rescues from buildings and 1 from a vehicle. Two people sustained serious injuries and two sustained minor injuries.

Risk – Rescues from depth	
Likelihood	Medium Low
Consequence	Limited
Risk score	3.84
Overall assessment	Low

Rescue from mud

Mud rescues involve the use of specialist equipment to recover people and animals from the mud or sinking sand that lies along coasts, river embankments, and lakes. A typical rescue involves using an inflatable raft to support the sinking casualty whilst the crew then use either water or air to soften the mud, allowing the casualty to be pulled to safety. Incidents where people get stuck in deep mud are particularly hazardous. If not rescued quickly enough, a victim may sink further down, which can

be hastened by panicking and moving. In addition, trapped victims could be swept away by the water in areas of large tidal variation or by strong currents.

Teams of rescuers require special expertise that is different, but related to water rescue and as such, LFRS have a range of resources available to deal with this type of incident, including six specialist trained stations based at strategic locations across the county along with close working relationships with Bay Search and Rescue Teams and the Coastguard.

Over the previous five years, we have attended 29 incidents, which equates to almost 6 incidents a year on average. Many of these incidents occurred in districts with tidal estuaries including Lancaster, Wyre, Fylde, South Ribble and West Lancashire, accounting for 66% of the incidents.

Risk – Rescues from mud	
Likelihood	Medium Low
Consequence	Limited
Risk score	3.84
Overall assessment	Low

Appendix

Appendix A

Flooding	15.87
Wildfire	13.59
Accidental Dwelling Fires	13.49
Commercial property fires	12.69
Deliberate Building Fires	11.43
Industrial fires	10.62
Road traffic collisions (RTC's)	10.24
Rescue collapsed structure/confined space	9.97
High rise fires	9.57
Hazmat Incident (Major)	8.97
Waste disposal site fires	8.76
Assist other agencies	8.73
Road vehicle fires	8.64
Building under construction fires	8.54
Hazmat Incident (Minor)	7.89
Animal Rescue	7.75
Other outdoor fires (Primary)	7.75
Secondary Fires (Accidental)	7.68
Heritage Fires	7.23
Removal of people from objects	7.11
Other transport fires (Air, Boat, Train)	7.11
Secondary Fires (ASB)	7.06
Removal of objects from people	6.67
Other transport or making safe (not fire)	6.43
Rescue from water	5.95
Suicide/attempts	5.81
Lift Release	5.71
Rescue from height	5.62
Effecting entry/exit	5.43
Malicious attacks / terrorist incidents	4.79
Rescue from depth	3.84
Rescue from mud	3.84