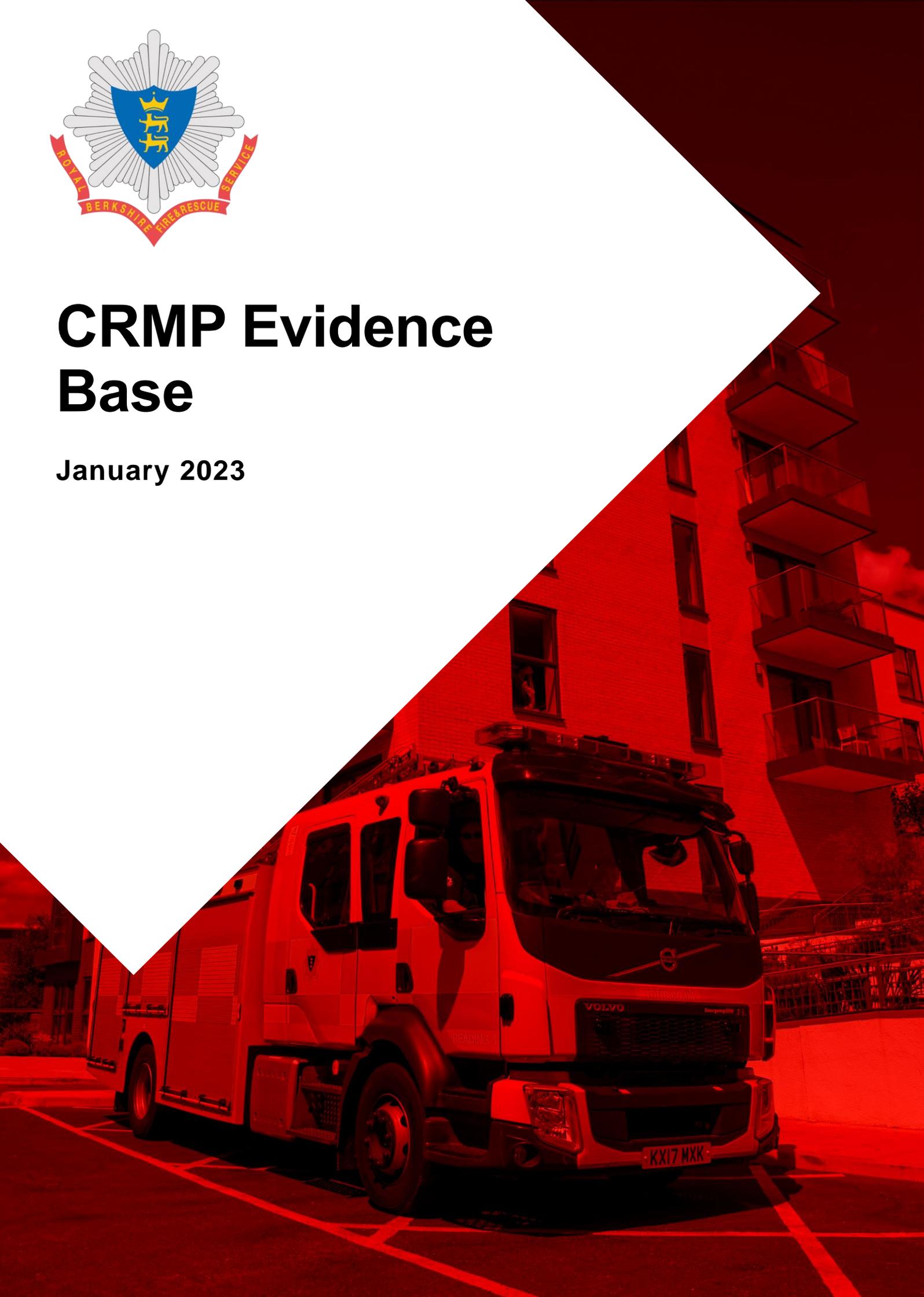




# CRMP Evidence Base

January 2023





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# Introduction

This document summarises the detailed analysis and evidence that has been used to develop our CRMP. The document describes how we understand the range of foreseeable fire and rescue service related risks as they relate to the communities we serve. We have identified a range of hazards and at risk groups and locations. This assessment of risk will allow us to make appropriate provision for fire prevention and protection activities and response to fire and rescue related incidents.

The evidence base also includes analysis that we have used to inform the priorities set out in the CRMP document.

The requirement to complete this activity is driven by the [Fire and Rescue Service National Framework 2018](#) which sets out a range of requirements for fire and rescue authorities. Every fire and rescue authority must have regard to the Framework in carrying out their functions.

We publish an annual statement of assurance which explains how we comply with the Framework.

## The County of Berkshire

In the [2021 Census](#) the county of Berkshire had a population of 949,776 people and spans 1,262 square kilometres (487 square miles). The County is made up of 6 Unitary Authorities: Bracknell Forest, Reading, Slough, West Berkshire, Windsor & Maidenhead and Wokingham. These authorities are responsible for the provision of local government services within Berkshire including, through the Royal Berkshire Fire Authority, Royal Berkshire Fire and Rescue Service (RBFRS).

Berkshire borders the counties of Hampshire, Surrey, Oxfordshire, Buckinghamshire, Wiltshire as well as Greater London.

Berkshire has an average population density of 753 people per square kilometre. In West Berkshire the population density is 229 people per square kilometre. In contrast, Slough has a population density of 2935 people per square kilometre. Generally, urban population centres represent higher risk areas for Fire and Rescue Services; however, rurality and isolation present their own challenges.

Berkshire is a diverse county, with a unique demographic picture in each Unitary Authority. RBFRS actively monitors the latest demographic data, including the [2021 Census](#) releases, and as more detailed 2021 Census releases become available from the ONS, more detailed demographic data will be updated by the Service.



According to the [2021 Census](#), Berkshire has a younger population than the national average. The Unitary Authority with the highest proportion of people aged under 16 is Slough, where 25% of the population is aged under 16 years old, whereas West Berkshire and Reading have the lowest proportion under 16 (19%). However, this is still above the England and Wales average of 18% of people aged under 16 years old.

Correspondingly, Slough is also the Unitary Authority with the lowest proportion of people aged 65 and over (9%). Of all Berkshire's Unitary Authorities, only West Berkshire is above the England and Wales average for proportion of people aged 65 and over (19% and 18% respectively).

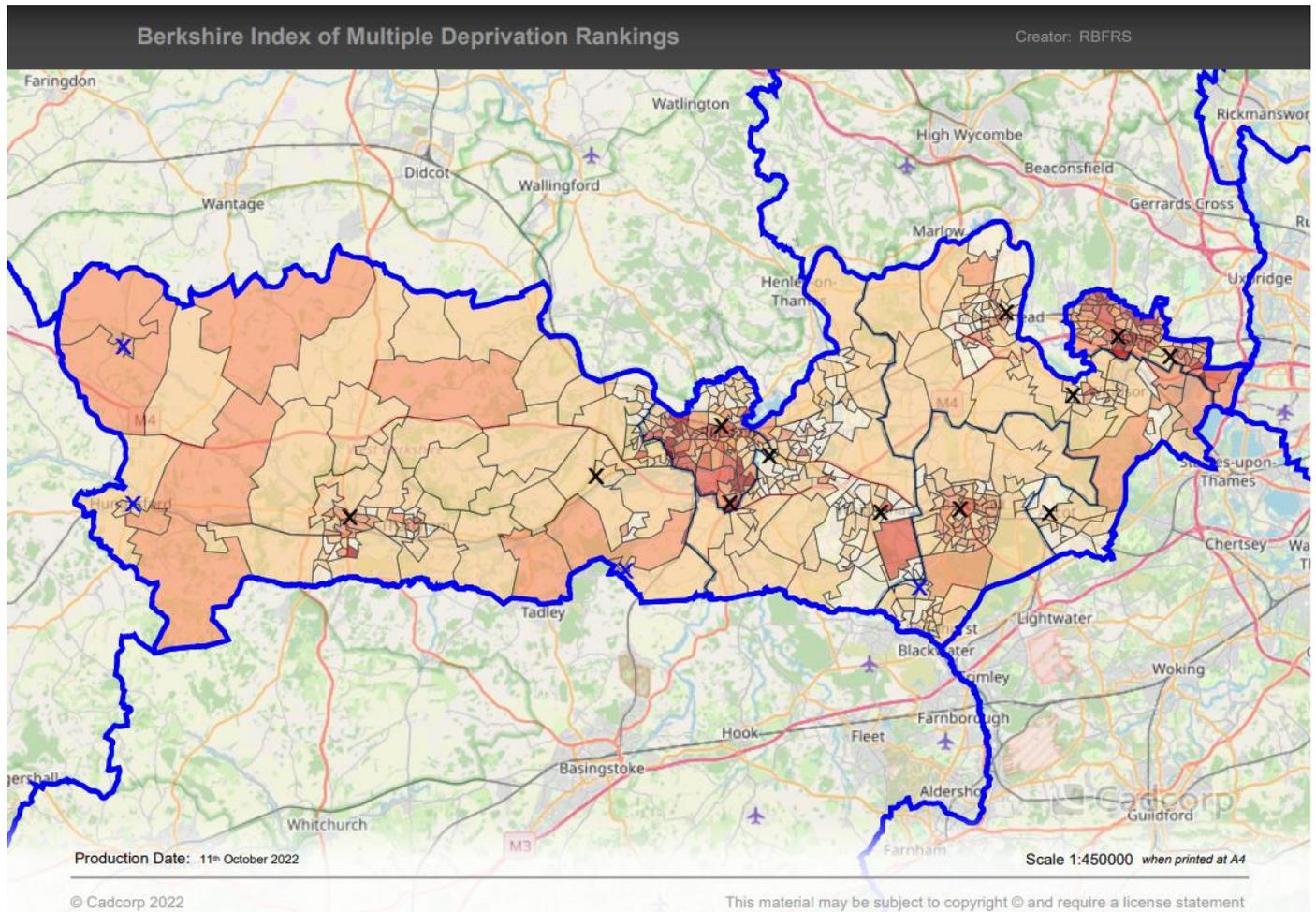
Of all Berkshire's Unitary Authorities, West Berkshire is the least ethnically diverse, with 85.6% of the population identifying as White: English, Welsh, Scottish, Northern Irish or British, which is well above the England and Wales average of 74.4%.

Reading and Slough are the most ethnically diverse Unitary Authorities in Berkshire, with 46.5% and 76.0% of people respectively in these areas with an identity other than White: English, Welsh, Scottish, Northern Irish or British. Berkshire has a significant number of people in our community who identify as Asian, Asian British or Asian Welsh, with Reading (17.7%), Slough (46.9%), Windsor & Maidenhead (13.1%) and Wokingham (12.9%) Unitary Authorities having above the England and Wales average (9.2%) of people who identify in this group.

According to the English Indices of Multiple Deprivation ([IMD](#)) in 2019 and the 2021 Census, Slough and Reading are the areas of Berkshire that are proportionally the most deprived, with over half of residents (57.7%) of Slough in the 2021 Census being deprived in at least one dimension. Comparatively, Wokingham has the lowest proportion of deprived residents (38.5%). Map 1 below illustrates the geographical spread of IMD results in Berkshire by Lower Layer Super Output Area (LSOA), which are small local areas containing approximately 650 households or 1500 people. This map shows how deprivation in Berkshire is generally more concentrated in urban areas. The crosses mark the locations of our Fire Stations.



### Map 1: Berkshire Index of Multiple Deprivation Rankings

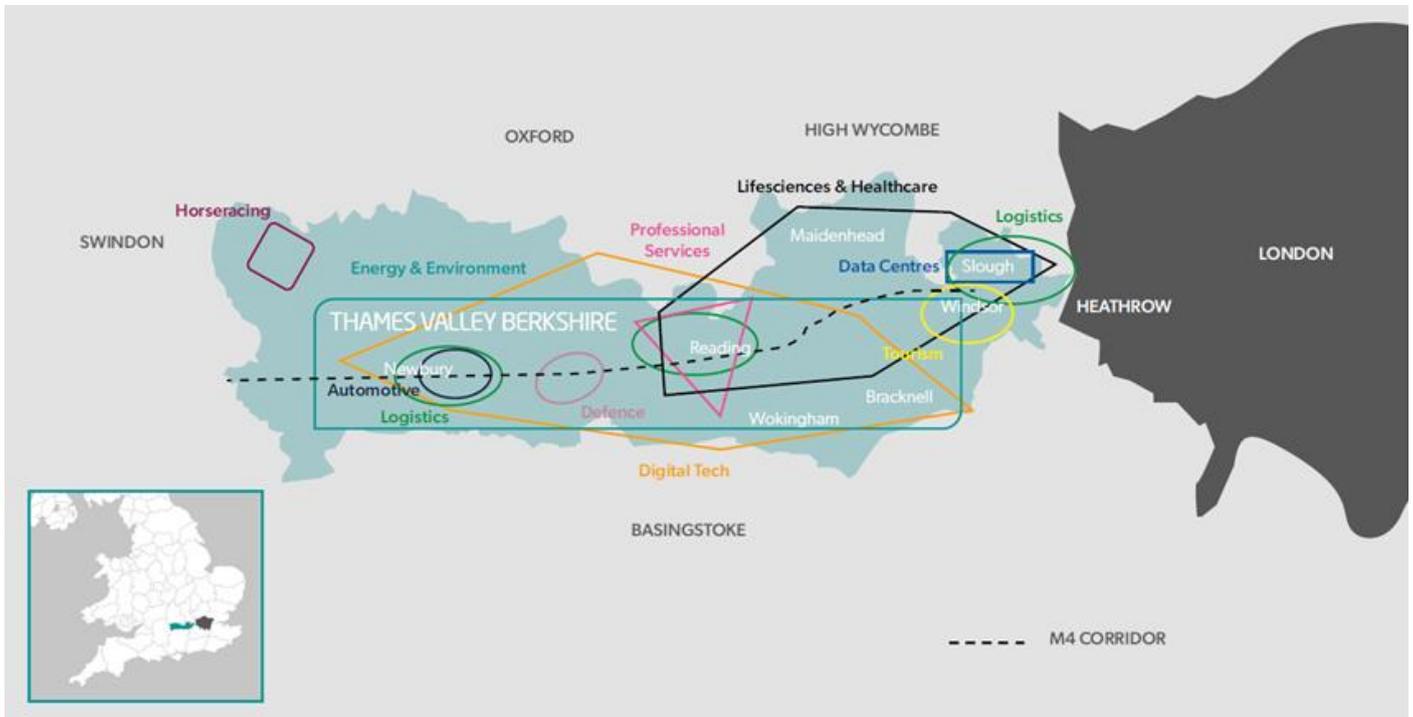


According to the [Thames Valley Local Enterprise Partnership](#) (2020), Berkshire’s largest employment sectors are:

- Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles (16% of employees)
- Information and communication (13% of employees), which is three times higher than the national average for this sector.
- Professional, Scientific and Technical Industry (12% of employees).



**Map 2: Geographical locations of the major employment sectors in Berkshire (Thames Valley Local Enterprise Partnership).**





## Royal Berkshire Fire & Rescue Service

RBFRS has 16 fire stations placed in strategic positions across the county with 19 pumping appliances in total, supported by a variety of specialist appliances. These vehicles and their crews provide us with the capability to respond to a wide range of emergencies. Our newest station, Theale, was officially opened in October 2022 but has been operational and serving the community since October 2021. Eleven of our fire stations are crewed by wholetime firefighters, four are crewed by on call firefighters and one has a mixture of wholetime and on call firefighters.

In 2015 Berkshire, Oxfordshire and Buckinghamshire Fire and Rescue Services established the Thames Valley Fire Control Service, in Calcot, Reading. This shared service provides emergency call handling and mobilising for Thames Valley.

RBFRS delivers its services to Berkshire through three management hubs, each of which covers two Unitary Authorities. Each hub is responsible for providing Prevention, Protection and Response activity to meet their local risks.

- **East Hub:** Windsor and Maidenhead, Slough
- **Central Hub:** Wokingham, Bracknell Forest
- **West Hub:** West Berkshire, Reading

Central and East Hubs consist of predominantly urban areas, such as Maidenhead, Bracknell, Slough etc, whilst West Hub is combination of the predominantly rural area of West Berkshire, and the urban centres of Newbury, Thatcham and Reading.



# Understanding risk

RBFRS have adopted the National Fire Chiefs Council definition of risk. For community risk management in the fire and rescue service, risk is defined as:

**Risk: A combination of the likelihood and consequences of hazardous events**

## Key terms

We expand the key terms in this definition as follows:

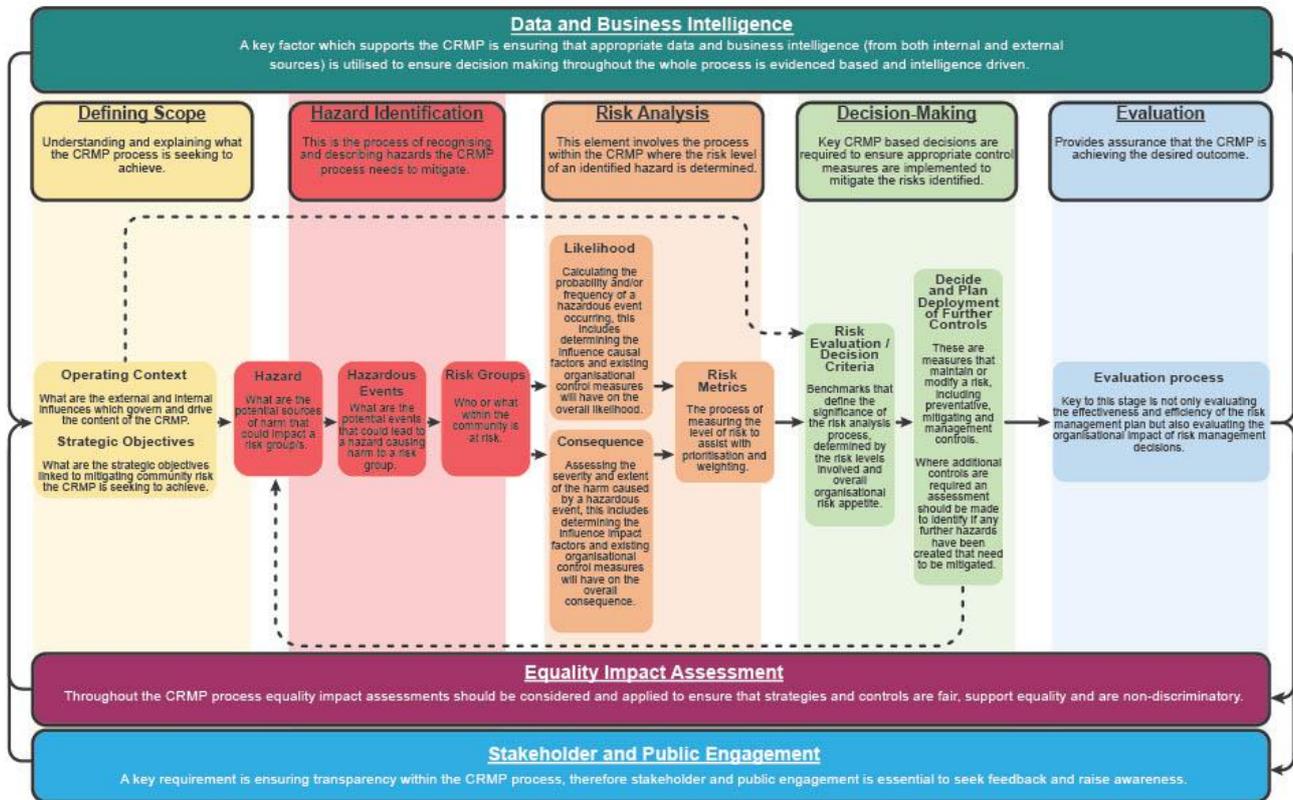
Term	Definition
Hazardous event	A potential event that can cause harm
Likelihood	The chance of something happening. May be described by the probability, frequency or uncertainty of events.
Consequence	The outcome of an event. Specifically, the severity or extent of harm caused by an event.

This definition helps to explain the core process within our Community Risk Management Plan. It refers to “hazardous events”, which are potential events that can cause harm to peoples, places the environment and/or the economy. Fire and rescue services record actual incidents of these types and produce statistics on their frequency and consequence. However, “hazardous events” also include potential incidents that have not yet happened but might happen in the future. A suitable and sufficient risk assessment should consider this possibility too. The definition allows for any “combination” of likelihood and consequences, to emphasise that risk might be the two components multiplied together, but they might be combined in other ways if appropriate.

In preparing our CRMP we have used the NFCC Community Risk Management Planning Strategic Framework. This has provided the structure of our approach to risk namely, that we have approached the process by considering the hazards to the communities of Berkshire and identified those which present the greatest risk.



## Community Risk Management Planning Strategic Framework





# Normal and Foreseeable Risk

The Fire and Rescue National Framework for England requires us to identify and assess the full range of foreseeable fire and rescue related risks Berkshire faces. Within that, we need to plan for both what is normal demand and what is beyond normal demand. This is driven by [The Fire and Rescue Services Act 2004](#), which states that (in relation to fires and road traffic collisions) fire and rescue services must secure the provision of the personnel, services and equipment necessary efficiently to meet all normal requirements. The Act does not define what normal requirements are. The CRMP is the process we undertake to ensure we are able to understand what is required to ensure we can manage normal demand in Berkshire.

When we describe foreseeable Hazards and Risks in later sections of this document, we identify whether we consider them to be normal or beyond normal. At the end of the document, we set our Planning Assumptions and expectations for normal conditions based on our analysis of risk and demand.

## Normal Risk

Our normal conditions of operation are the incidents (and false alarms) we manage in our communities on a day to day basis and those risks which, whilst less common, are still normal and to be expected (e.g. larger incidents). We know from our experience, and from our risk analysis, that there will be some days when the demand for a response to incidents is significantly higher than on others. These circumstances include some large incidents that require us to deploy multiple resources to one location or because there are multiple incidents happening at the same time (known as spate conditions). Spate conditions are commonly caused by challenging weather events such as heatwaves, flooding, high winds or snow. Although these risks are normal, they are unusual and we set specific expectations around our response in these conditions.

## Beyond Normal Risk

When demand is beyond normal this means that we will need to request assistance to support our service. These conditions are caused by particularly large incidents, or periods of spate conditions that are very unusual. We have long standing arrangements in place with neighbouring fire and rescue services to support each other during these periods, ensuring we can provide an ongoing response to incidents. These arrangements are known as reinforcement schemes, or more commonly as mutual aid.

When the scale of an incident or spate conditions is so severe that it outstrips mutual aid arrangements, such as during regional or national storms, or where an incident is very large or requires specialist technical support we can call upon national assets to support our deployment. These national resilience assets are continuously available and provide specialist capabilities, personnel and resources which enhance our ability to respond effectively to large-scale or critical incidents. Those incidents may be natural disasters, industrial accidents or terrorist attacks.

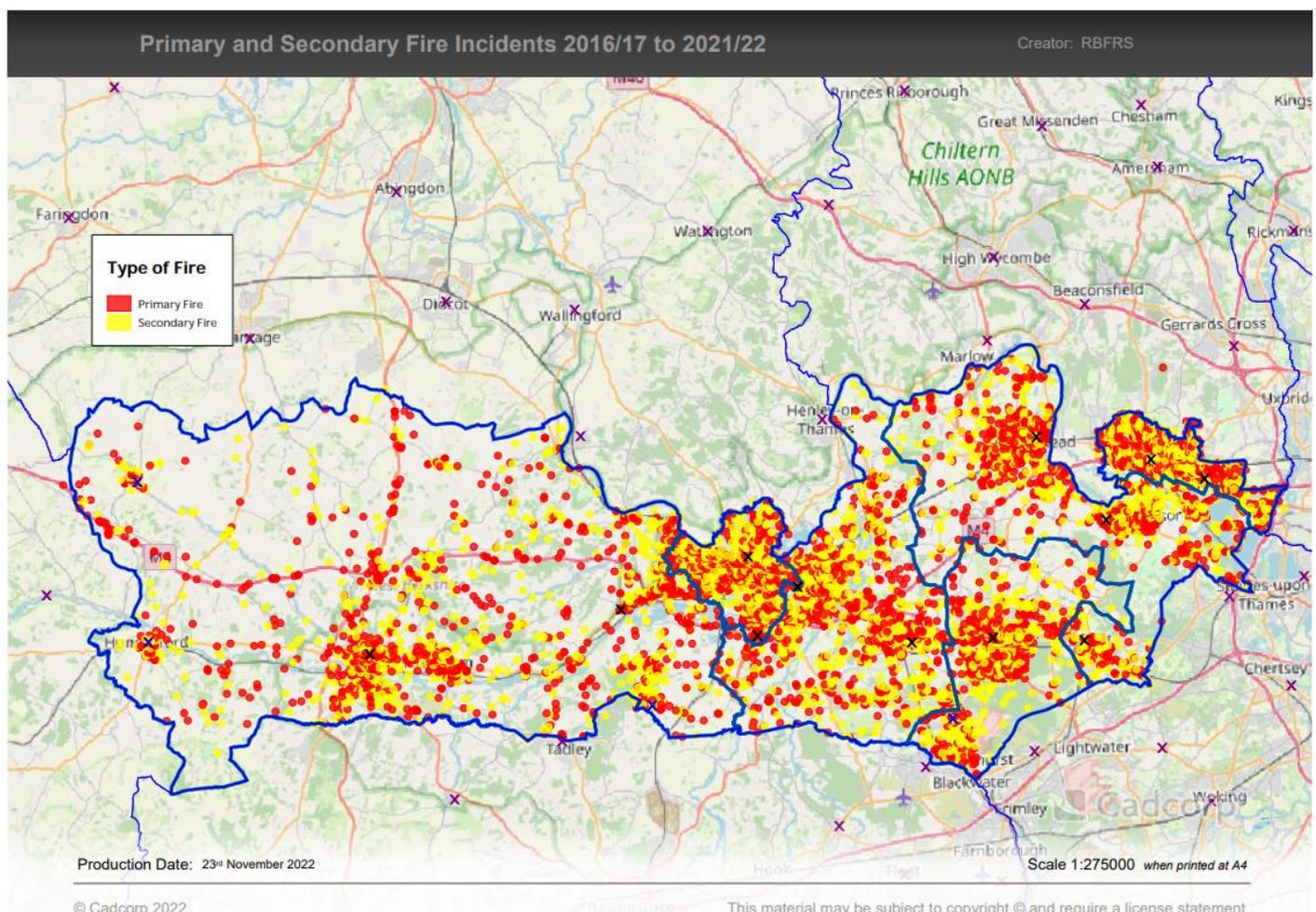


# Fire Risk in Berkshire

RBFA is required by The Fire and Rescue Services Act to promote fire safety, to make provision for protecting life and property from fires and ensuring we have the resources necessary to meet all normal requirements.

To best plan our activities we need to understand the risk fire across the county. Over the past 6 years we have been called to over 10,000 fire incidents in Berkshire. Of these, around half are more serious, primary fires including house fires and vehicle fires, and the other half are secondary fires – for example rubbish fires or fires on open land. Map 3 shows the location of the fires we have been called over the past 6 years. The incidents are concentrated in our towns and other residential areas.

**Map 3: Primary and Secondary Fire Incidents**



Fires start in many different circumstances and have different impacts. For many fire types, knowing where we have attended fires previously is a good starting point, however as many fire types are thankfully rare, we also need to consider that there may be other high risk areas to



identify. Different types of fires have different causes and different factors associated with them. We have considered these associated factors in our risk analysis. We have followed the NFCC definition of risk in considering factors related to people, place and property.

As these factors are different for different fire types, and because there are some fire types that present specific risks and warrant particular attention when we are planning our mitigation activity, we have considered the main types of fire risk separately, covered in the following sections.

## Fires in Dwellings

### The hazard

Fires in the home are one of the biggest concerns for our communities. Nationally, around 200 people die in dwelling fires each year. 'Dwellings' includes all homes, but doesn't include some other residential properties types such as care homes or hotels. Over the past 6 years in Berkshire there have been 9 fatalities and 167 non-fatal casualties in accidental dwelling fires. Even when there are no casualties, the impact of a fire on the lives of those involved can be catastrophic.

This hazard type represents a **normal risk** that RBFRS manage on an ongoing basis. Large incidents may be beyond normal.

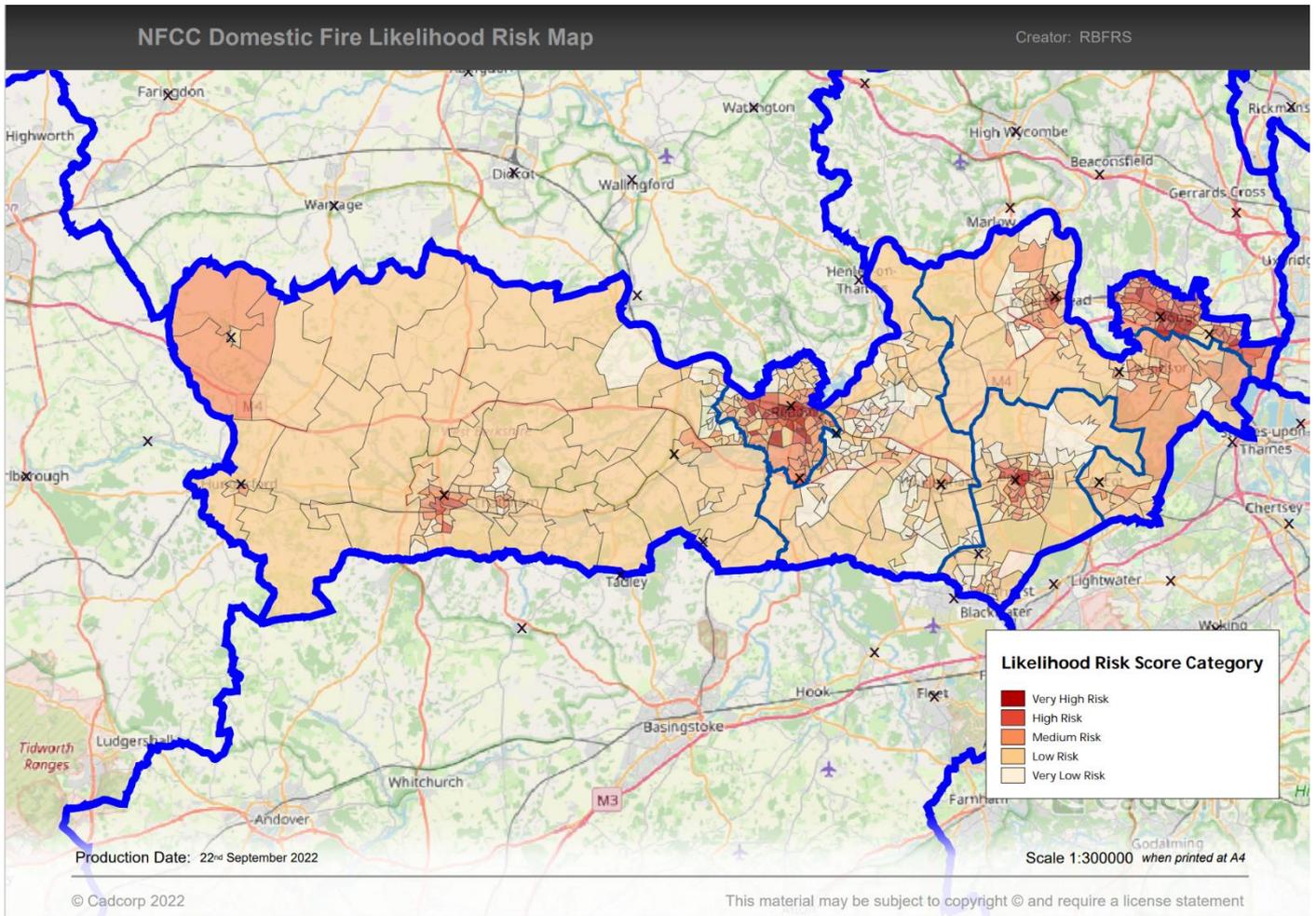
The NFCC have recently developed a Dwelling Fire Risk Model, using national incident data and demographic datasets to establish the factors that predict dwelling fire risk. This is useful because at a county level these incidents are quite unusual and whilst the historic pattern is helpful, it may not identify all high risk areas. More detail of the NFCC Dwelling Fire Risk Model methodology can be found on the NFCC website.

The Domestic Fire Risk Model looks at risk by LSOA. The model enables us to rank our LSOA areas by risk and identify those that are high risk. These are high risks relative to the rest of the county, not a comparison with other areas of the UK.

### Likelihood

Map 4 below shows the local area risk levels identified using the NFCC Domestic Fire Risk Model for incident likelihood. Each of the small areas on the map have a similar number of households or people – so where the area is small, the same number of people are affected as in a large area.

### Map 4: Domestic Fire Likelihood Risk Map

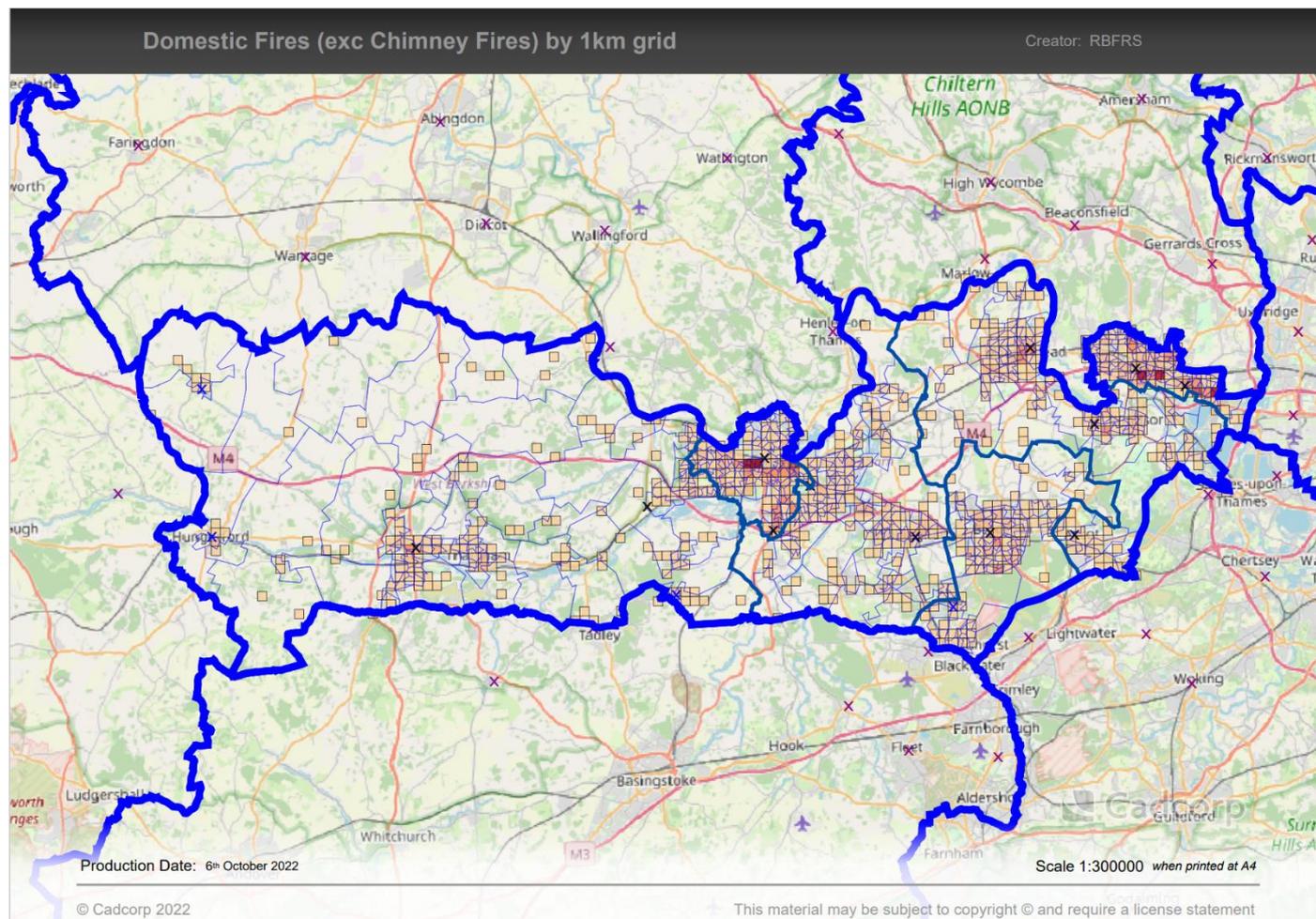


The map shows that our highest risk areas for domestic fires are, as we might expect, in our urban centres, particularly Reading and Slough.

We have compared these predicted dwelling fire risk areas to our historic incidents. Map 5 below shows where our domestic fire incidents have been concentrated in the last 6 years. This shows a good association between the predicted high likelihood areas and our historic incidents.



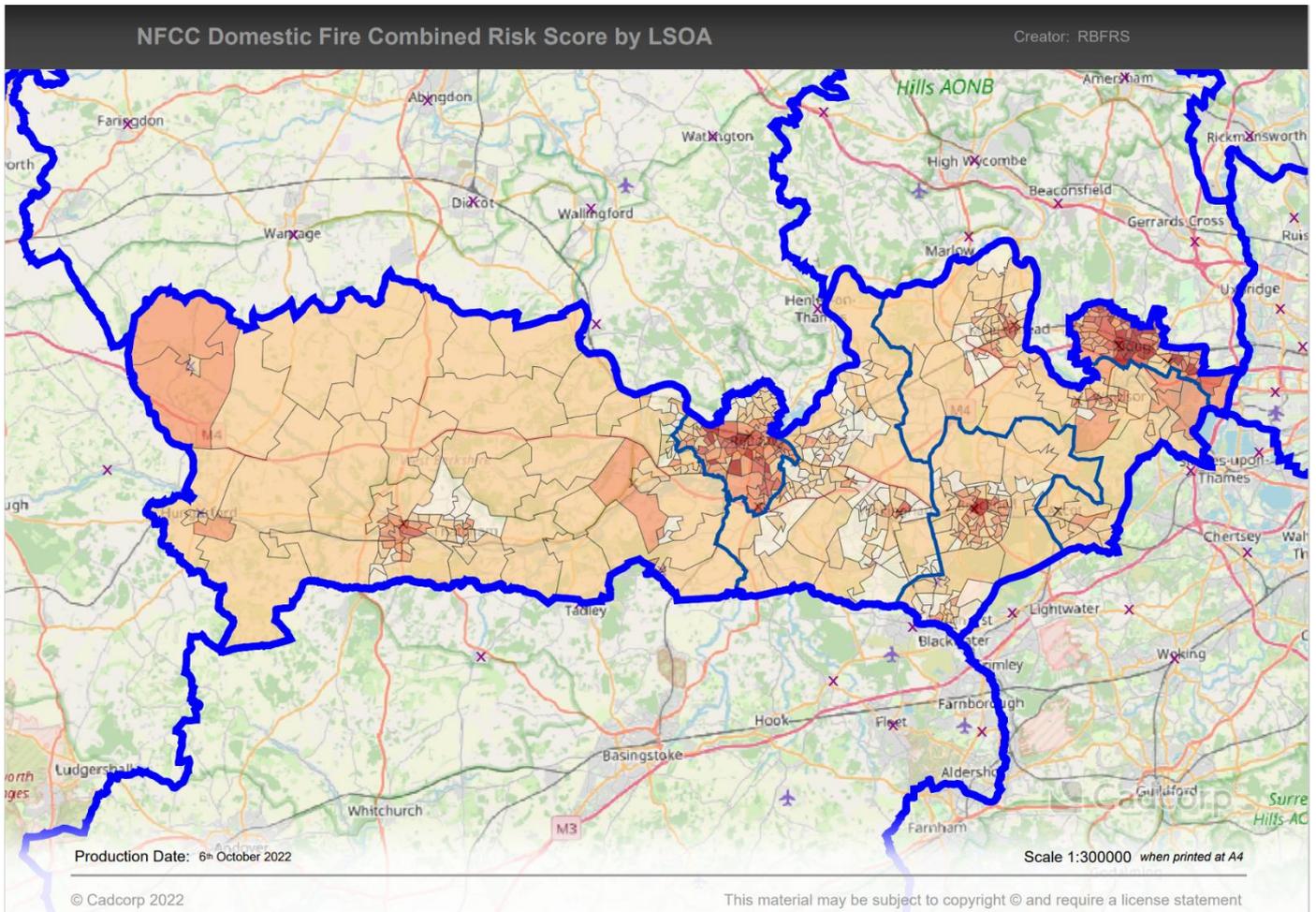
### Map 5: Domestic Fires in Berkshire



## Consequence

The NFCC model also allows us to calculate the impact or consequence of dwelling fires – to enable us to see if there are any areas where the seriousness is particularly high. The below map shows the combined risk profile of Berkshire when both likelihood and consequence are taken into account.

## Map 6: Combined Domestic Fire Risk



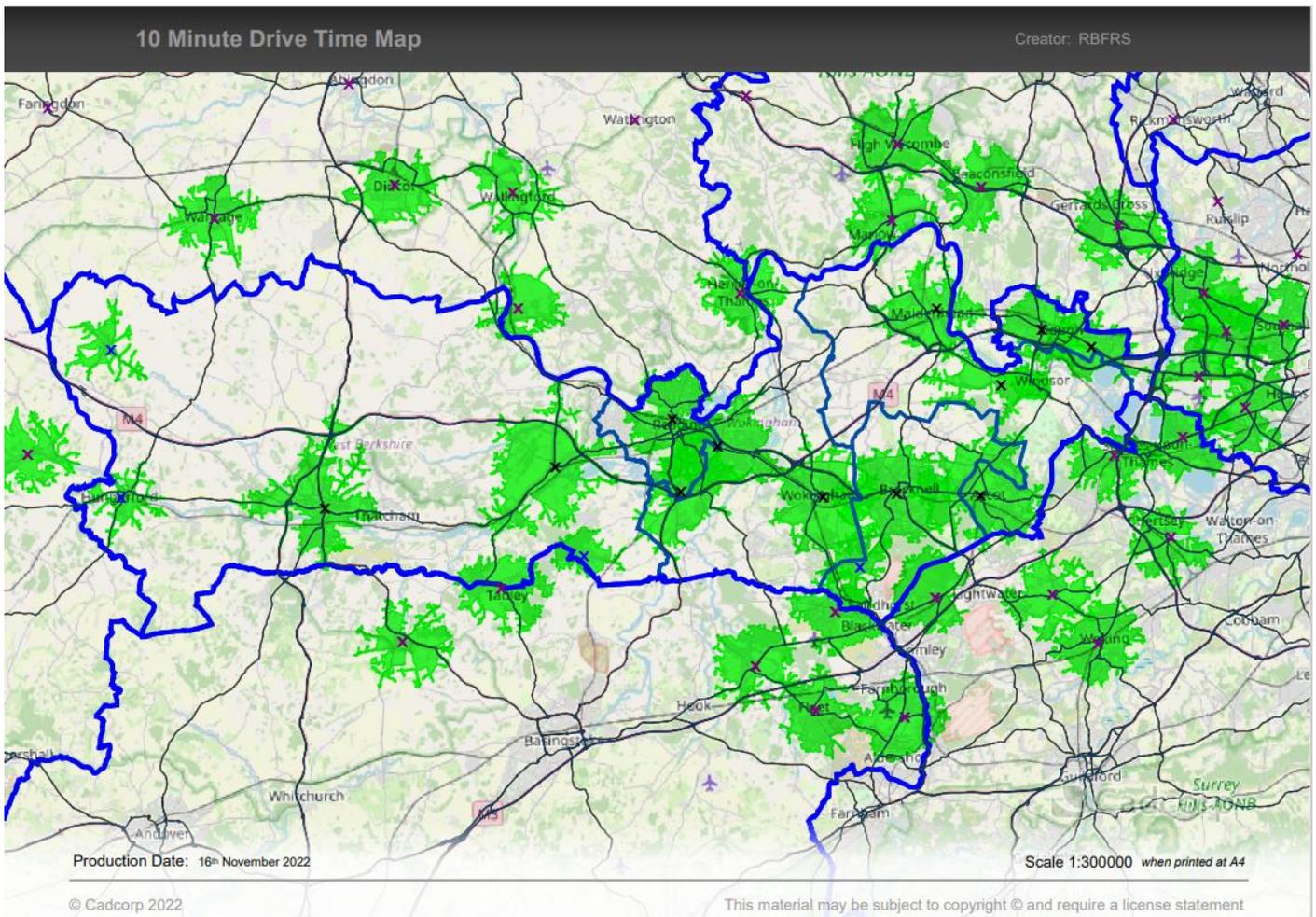
## Managing the risk

This risk model can help us plan our activity by showing where the highest risk areas are – in our urban centres, particularly Reading and Slough. These are the areas in the county with the highest population density, higher levels of deprivation and the riskiest types of housing – including the majority of our High Rise Residential Buildings. A map showing the locations of these buildings can be found in the ‘High Rise Fires’ section.

We are now able to assess our ability to respond to incidents in these areas, and also to consider how we can best target our effort to reduce the likelihood of these incidents occurring, or of them having serious consequences, through our prevention and protection activities.

Map 7 shows the areas our fire appliances and those of our neighbouring services can reach within 10 minutes of receiving a call, based on the average road speeds, and including our normal call handling and turnout times. We may be able to travel faster than this on some roads, or at night, but the map shows that almost all our high and medium risk areas are within a 10 minute travel time.

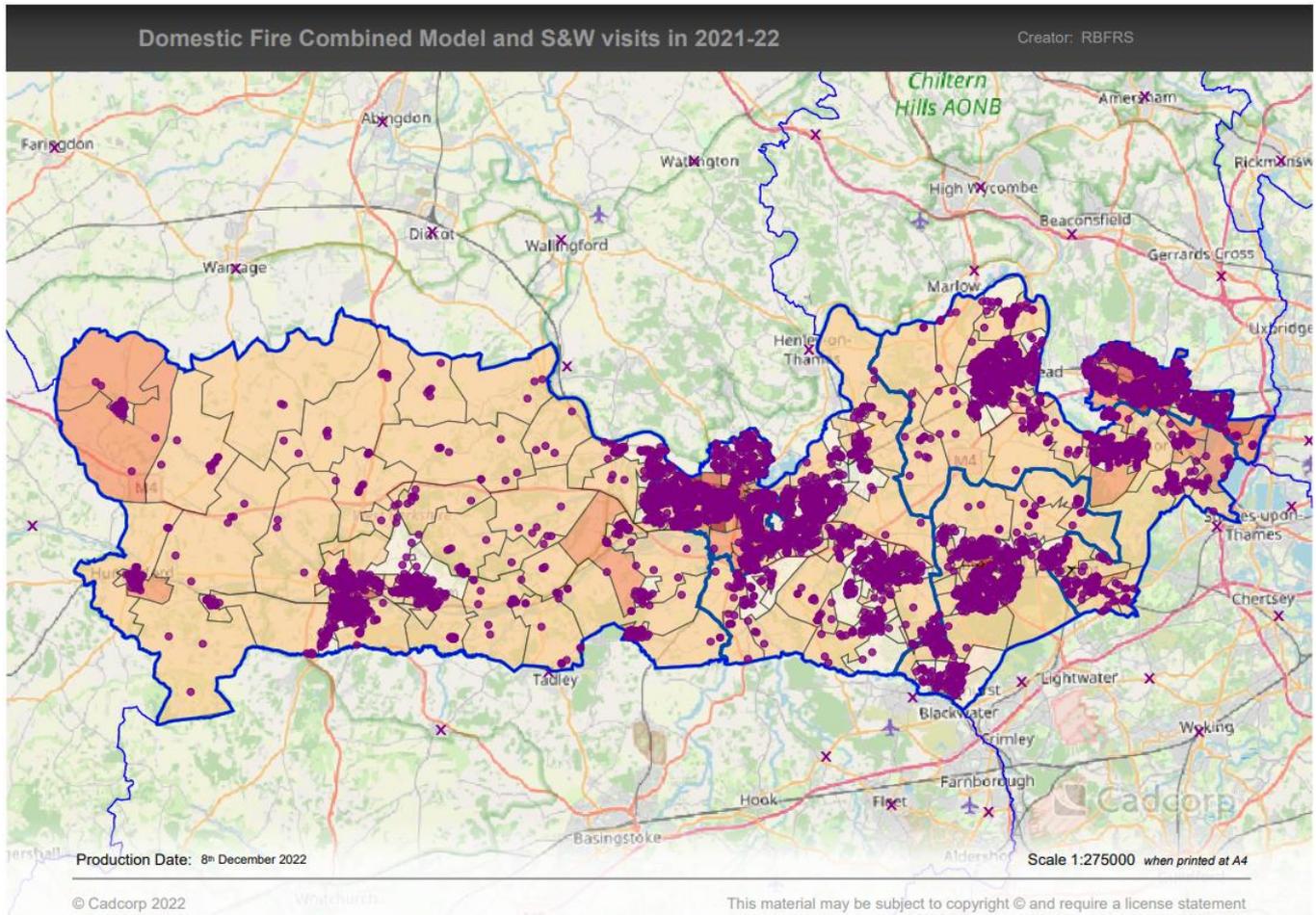
## Map 7: 10 Minute Attendance Times



The next map, map 8, shows where we carried out Safe and Well visits in the 2021-22 year (the most recent year we have examined as part of this CRMP analysis). The map shows that broadly these visits are taking place in the higher risk areas in the county. There is some room for improvement in Slough, as the rate of visits we carry out there is lower than in the other areas in the county, despite Slough having a high number of high risk areas.



## Map 8: Safe and Well Visits and Domestic Fire Risk



Our evidence suggests that we can do more to target those at greatest risk from dwelling fires. We will address this by using our understanding of risk to better inform how we approach prevention. We propose that a Risk Based Prevention Programme will help us to identify and work with those at the greatest risk from fires in the home.

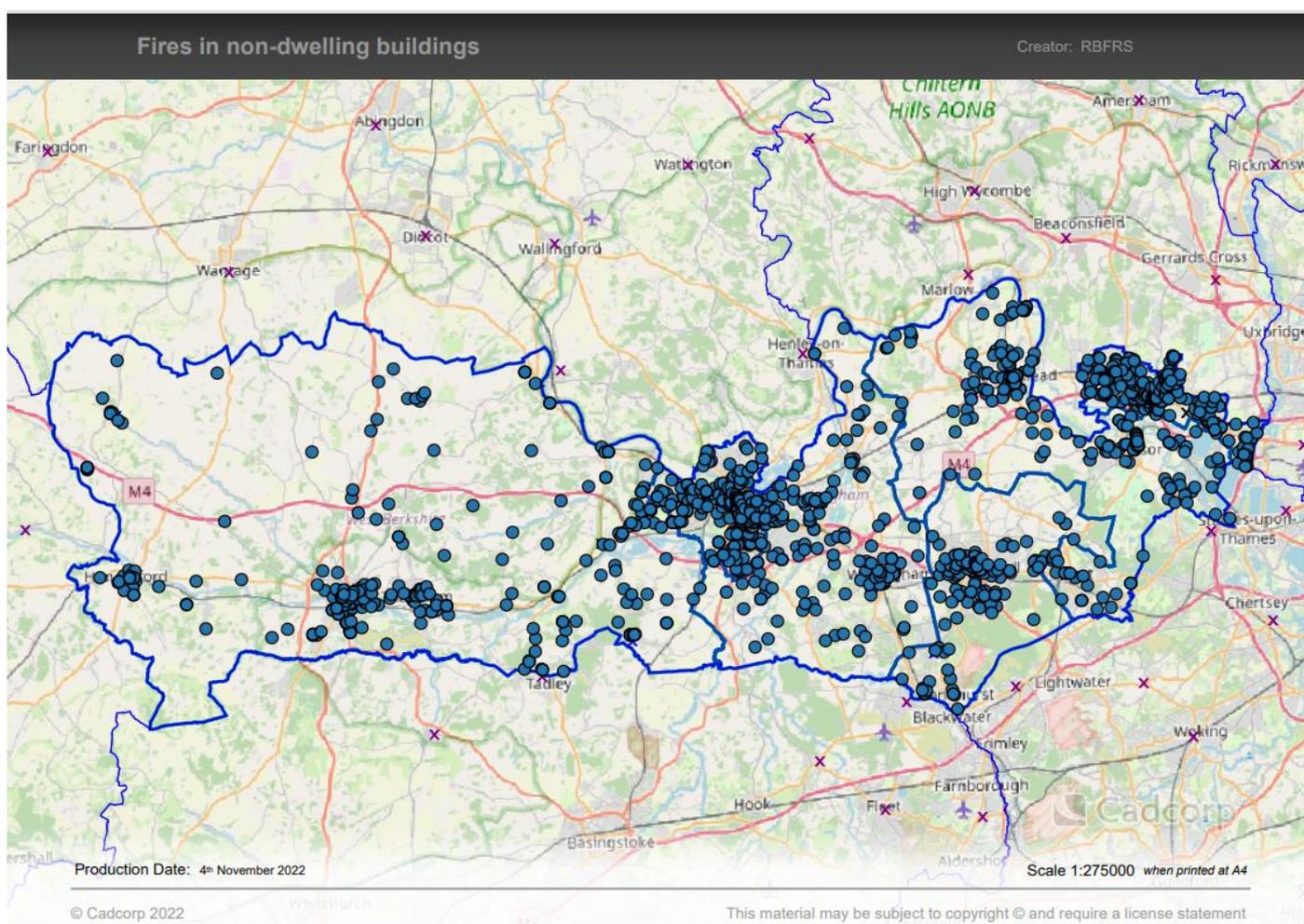
# Fires in other premises

Dwelling fires are a particular cause for concern in our communities but fires also occur in other buildings or premises, some of which also include significant risk to our communities. For example, other property types where people sleep, including hospitals, hotels and residential care homes.

## Likelihood

Map 9 shows the fires we have been called to in these premises types over the past 6 years. Similarly to domestic fires, these are concentrated in our urban areas.

### Map 9: Fires in non-domestic buildings



## Consequence

There are a large number of different non dwelling property types and each have particular risks and risk factors associated with their use. The NFCC is currently developing a non-dwelling



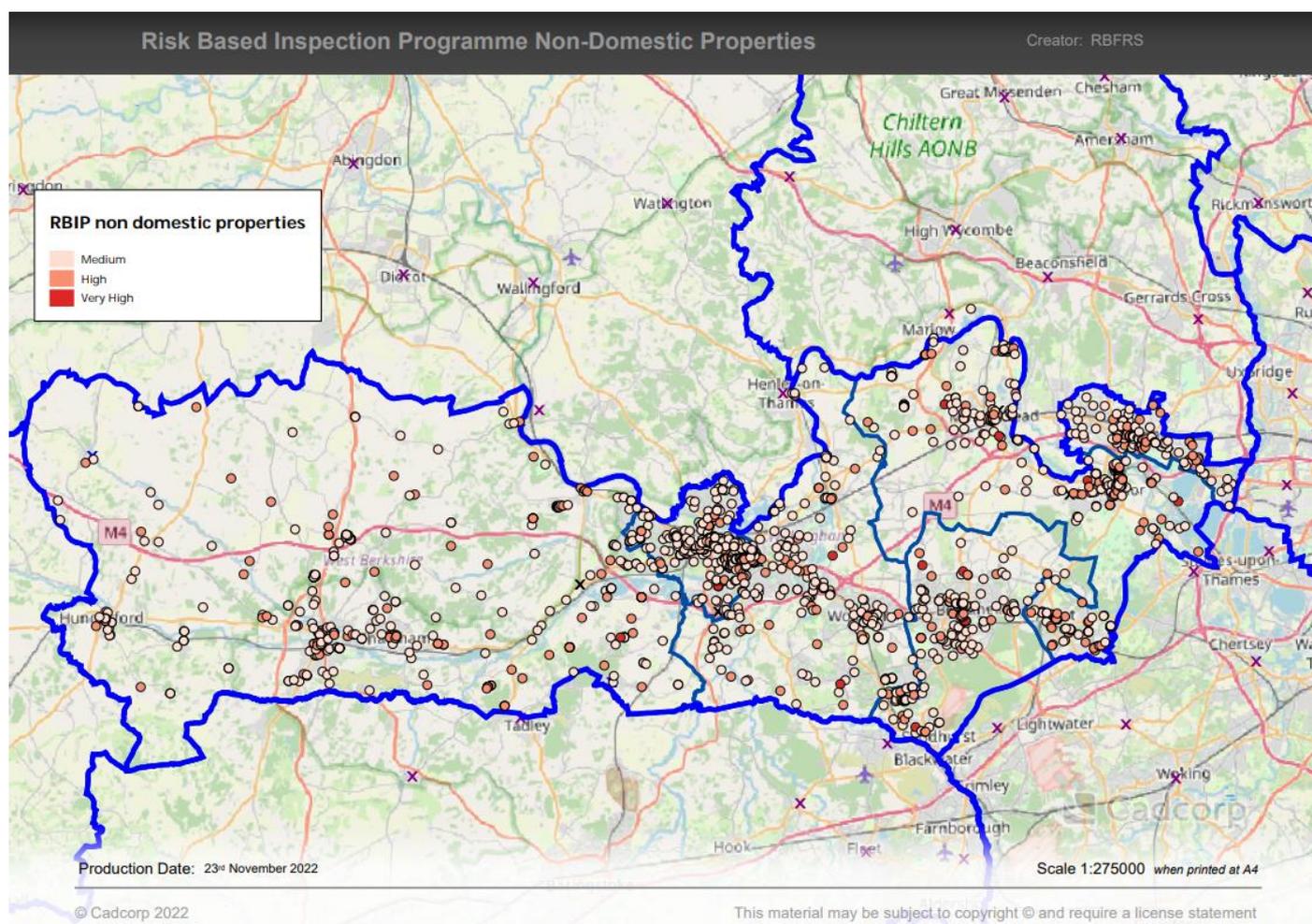
premises risk model, to be used alongside the dwelling fire model we have discussed above. However, the analysis for the model is not yet complete.

Our Risk Based Inspection Programme (RBIP) identifies property types which we can inspect under the Regulatory Reform Order which we consider to be higher risk. The RBIP methodology identifies a number of factors associated with increased fire risk and where available, assesses and scores these factors for each individual property, leading to a prioritised programme of inspection. The risk factors in RBIP include those relating the property itself, such as size and number of floors, factors that indicate previous compliance such as previous enforcement activities and local area factors including the level of deprivation.

## Managing the Risk

Map 10 shows the location of the non-domestic properties on our Risk Based Inspection Programme (Medium, High and Very High Risk).

**Map 10: Non-domestic properties RBIP properties**





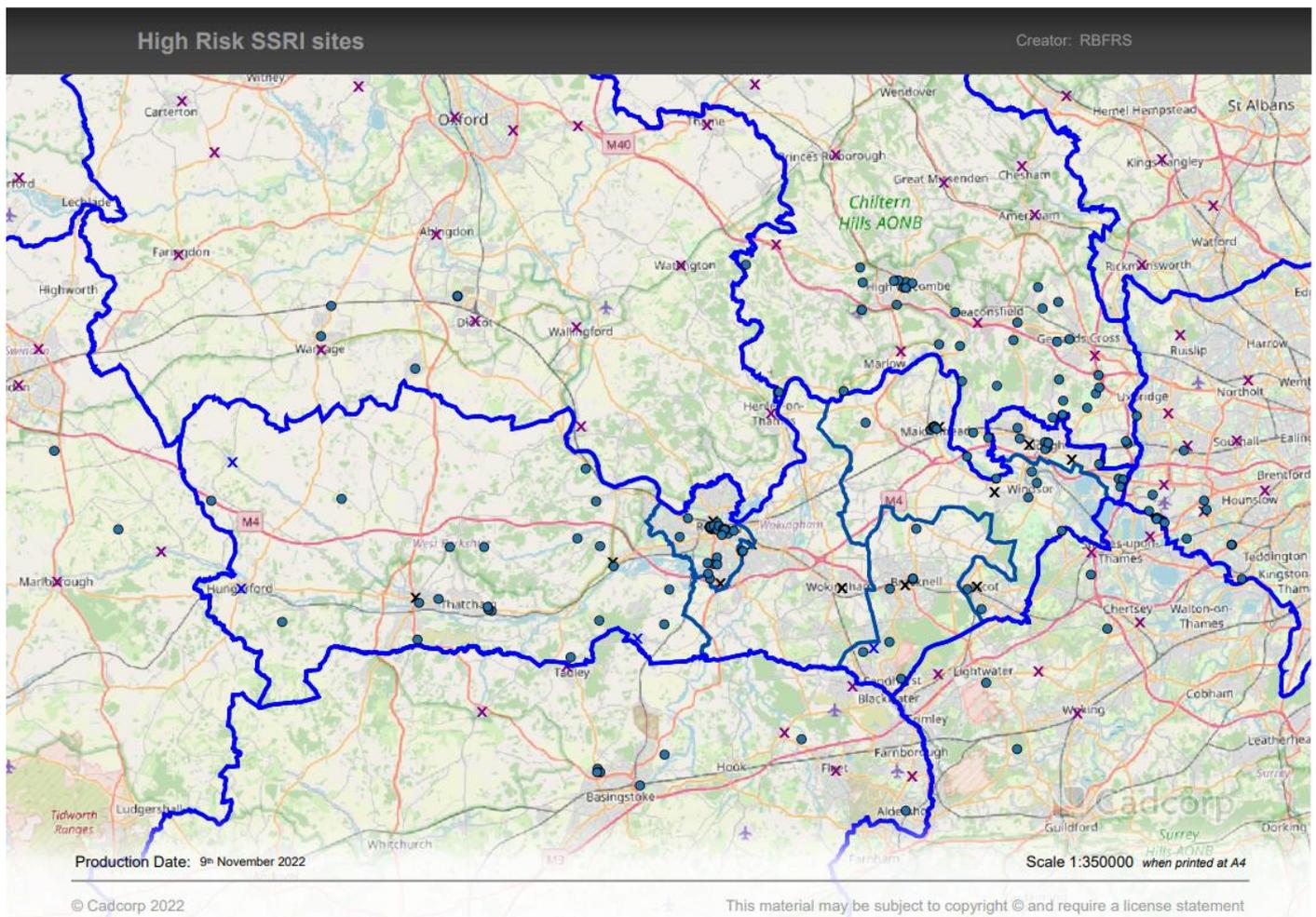
The new RBIP methodology was launched in April 2022 and will be subject to evaluation and review in 2023, which will include considering alignment to the forthcoming NFCC model, and ensuring that we are targeting those premises that represent the greatest risk and that we are making the best use of our resources.

## High Risk Sites

In addition to our Risk Based Inspection Programme, we separately identify sites that, if involved in fire (or another incident), present a significant risk to the occupants, the community or to our firefighters. We carry out risk assessment and familiarisation visits to these sites.

Map 11 shows these high risk sites, and includes those within 10km of our borders, where we also carry out visits to ensure our firefighters are prepared to attend if called to assist.

**Map 11: High Risk Sites in Berkshire and within 10km of our borders**





# High Rise fires

Tall buildings present a particular set of challenges due to the complex nature of firefighting within these premises, the numbers of people often present, and the sometimes difficult evacuation routes.

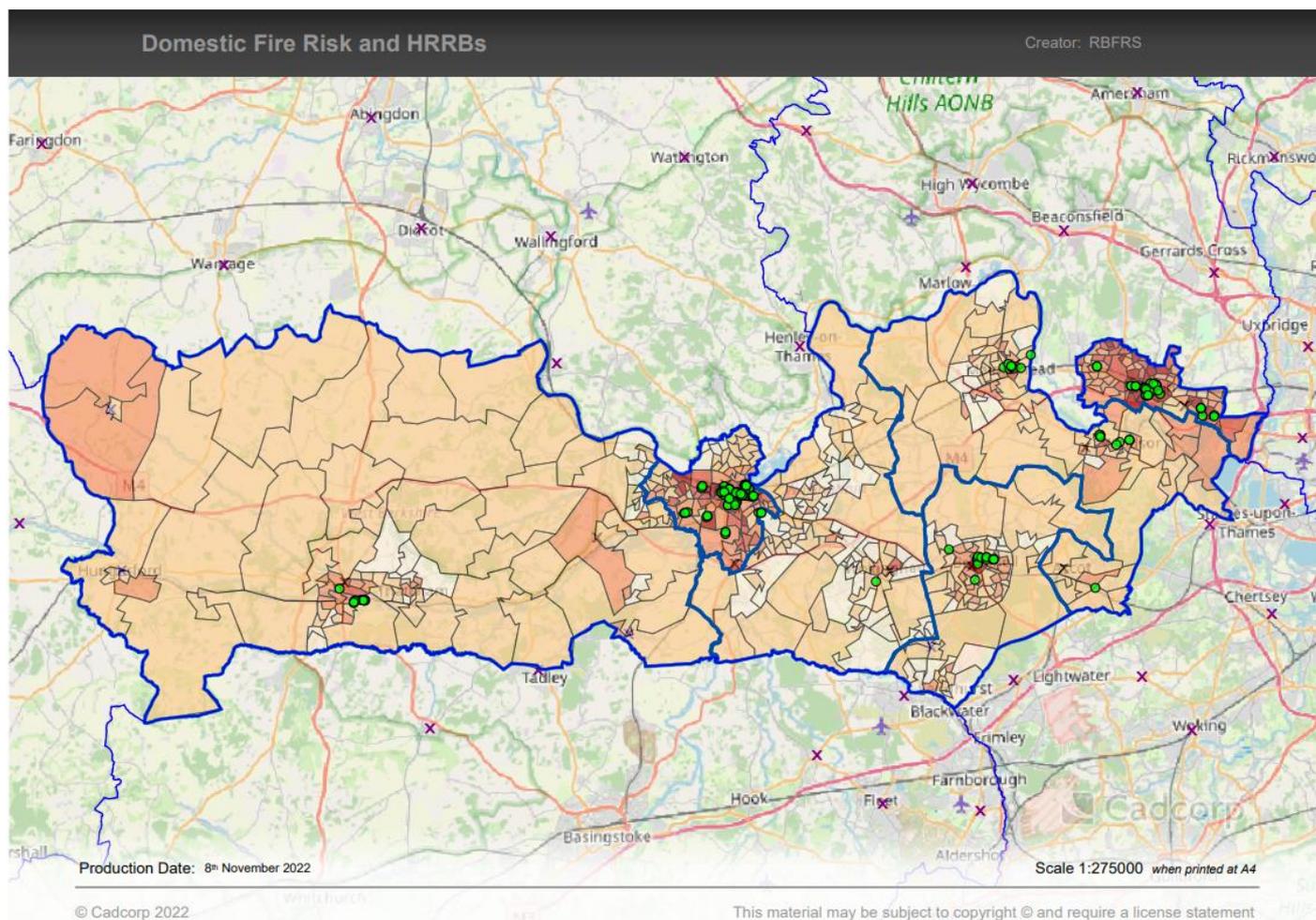
RBFRS defines tall buildings as any building that has an occupied floor more than 18m above the Fire Service access level, which generally means a building of 6 floors or more. Tall building types include residential flats, hotels, institutions, hospitals, commercial offices and mixed occupancies.

Following the Grenfell tragedy on 14 June 2017, RBFRS implemented a four-phase Built Environment Programme to ensure we are able to effectively manage the risk presented by tall buildings.

Any significant high rise fire will require the commitment of considerable operational resources. RBFRS will send a pre-determined attendance of 6 main pumps, 1 aerial appliance, 1 small incident command unit, 3 level 2 officers and 1 level 3 officer. We consider tall building fires to be foreseeable normal risk, however a confirmed fire is likely to require mutual aid from neighbouring services. It is easily conceivable that an established fire in a tall building would be declared a major incident. This progression would lift the incident beyond our normal operational planning assumptions.

Map 12 shows the location of the 170 High Rise Residential Buildings identified within the Built Environment Programme in November 2022, overlaid on the domestic fire risk map. As expected, the high rise buildings are clustered in the urban areas and many are in areas we know to be of high risk from our dwelling fire risk analysis.

## Map 12: High Rise Residential Buildings and Domestic Fire Risk



Berkshire Unitary Authority Strategic development plans indicate that a mixture of urban regeneration and new building around existing settlements is planned to meet the need for housing drive by population growth. This is likely to result in increased urban population density and will necessitate the ongoing development of tall residential buildings. These developments are often in areas we have identified as being at higher risk of dwelling fires, specifically in Reading and Slough.

Our integrated approach to risk of fire in tall buildings is to ensure the vulnerabilities associated with high rise living are accommodated in our risk based prevention programme and that our regulatory activity proactively targets high risk premises. Our response modelling helps us to understand if we have the correct resources in optimum locations to attend incidents.

We have analysed the likely response times for our PDA of 6 pumping appliances to our HRRB locations, based on point to point travel times and assuming a standard call handling and turnout time. This analysis finds two specific HRRBs where our first pump response takes longer than 10 minutes. There are other high rise blocks in these locations, and in addition there are a further three clusters where our response time is over 9.5 minutes.



When looking at the full PDA, we can ensure a 6 pump response to almost all of our HRRBs within 25 minutes. There are a cluster of properties in the Newbury area which take longer than this, up to 34 minutes. We will ensure these locations are prioritised for protection and prevention activities.

This analysis is based only on Berkshire resources, both our mobilising processes within Thames Valley and our existing mutual aid arrangements mean that in the event of an incident, the response is likely to be quicker to many of these locations due to assistance from our neighbouring services.





- 
- Carry out fire safety audits of regulated premises where they fall within our risk based inspection programme
  - Provide fire safety advice and guidance as necessary
  - Undertake firefighter risk information gathering visits as per the requirement of s7.2(d) of the Fire and Rescue Services Act 2004 including the development of tactical plans for the most complex premises
  - Support landlords, property managers and other responsible persons to produce salvage plans to help identify high value items
  - Undertake routine familiarisation visits
  - Undertake training exercises where required



# Outdoor Fires

Incidents involving fires in the open range from large wildfires as we saw in the summer of 2022, to field fires involving farm land and small fires in the open such as trees, refuse and vehicles. In Berkshire they primarily cause harm to the environment and property. During hot weather multiple fires in the open happening at the same time reduces our capacity to respond to other emergencies.

Our risk analysis has addressed large incidents of wildfire and periods of large volumes of outdoor fires during hot, dry weather.

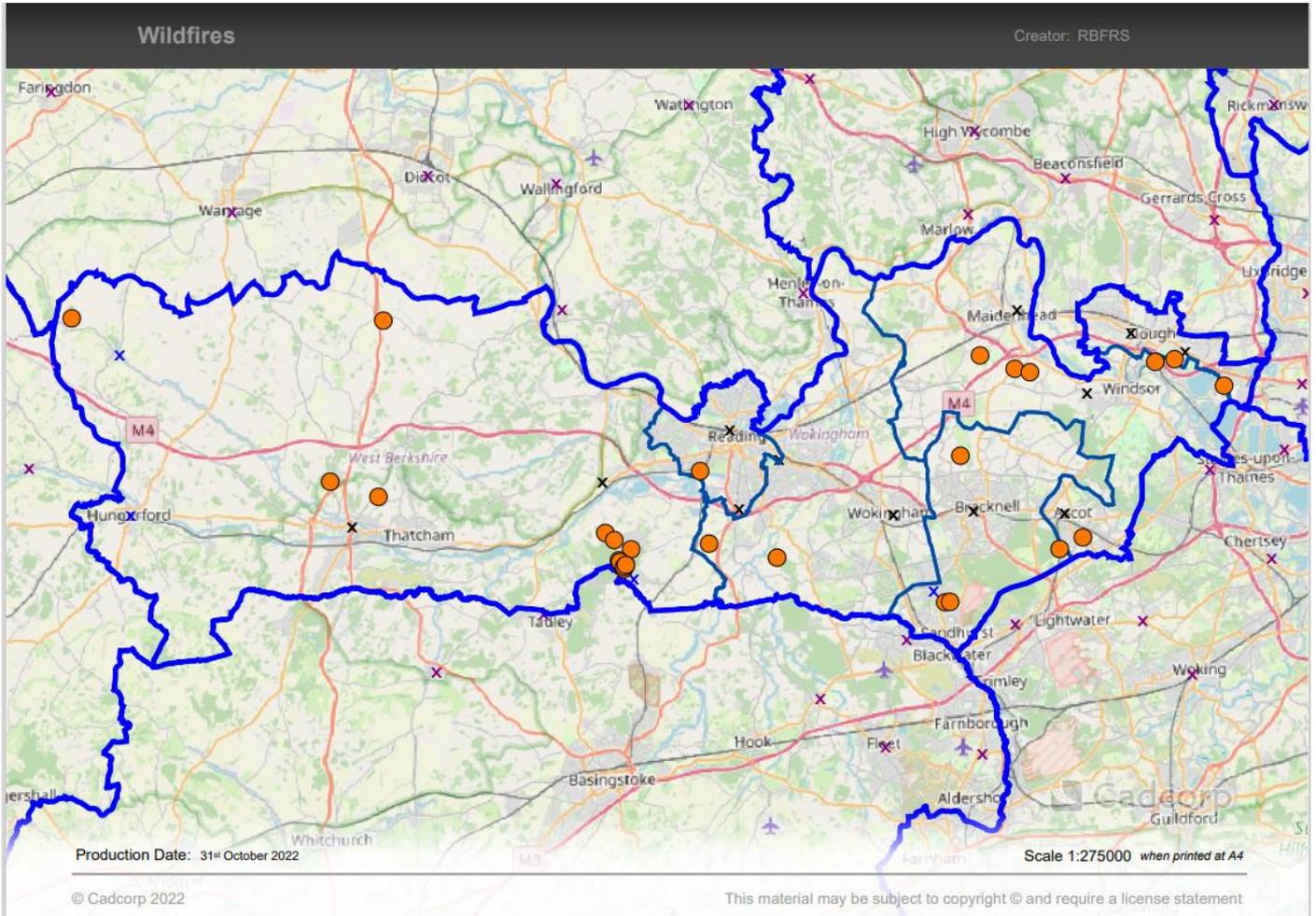
## Large incidents - Wildfires

A wildfire is defined as [“Any uncontrolled vegetation fire which requires a decision, or action, regarding suppression.”](#) But is usually considered to require either a large number of appliances or to continue for six or more hours.

Wildfires have the potential to destroy property and equipment and cause injuries, as well as being a very real threat to wildlife and the safety of firefighters and communities.

Map 14 shows the location of incidents meeting wildfire criteria in the past 6 years in Berkshire, and confirms that these incidents do usually fall outside of urban areas, although there are a number close to or on the edge of developed areas, which intensifies the potential impact.

Map 14: Wildfires in Berkshire - 6 years to March 2022



Map 15 shows the vegetation types in Berkshire which may be particularly susceptible to wildfire incidents.

Map 15: Vegetation types

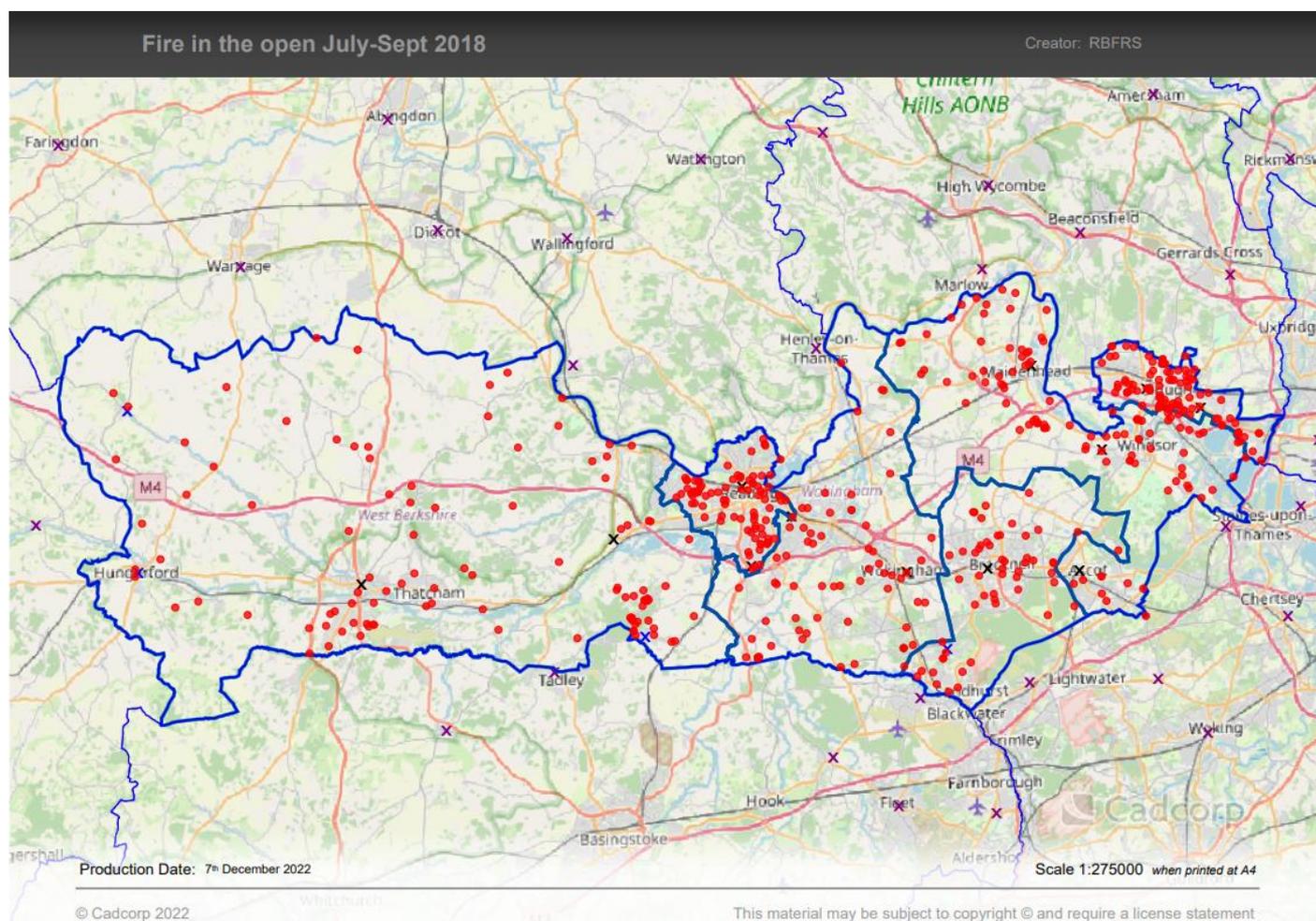


# Seasonal outdoor fires

In periods of hot, dry weather, we often see a large number of outdoor fires, which range in size and intensity, but due to the volume in a short period of time (known as spate conditions) have a detrimental and significant impact on our ability to respond. These conditions are usually also experienced by our neighbouring services, which means we are less able to rely on assistance than for periods of high demand due to other causes.

The six year period from April 2016 that we have used for our risk analysis includes the summer of 2018, which was a hot, dry summer with a very large number of incidents both nationally and locally. Map 16 shows the incidents in Berkshire during this period.

## Map 16: Fires in the open July – September 2018



Although we have not included 2022-23 data in our detailed analysis, as this year is not complete at the time of writing, the summer of 2022 was also significant, with twice the usual number of fire in the open incidents in July and August. Our response standard performance dropped to 67.2% during this period.



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The likelihood of both a large wildfire incident and spate conditions of outdoor fires is likely to increase in the coming years due to climate change, which is discussed later in this document.



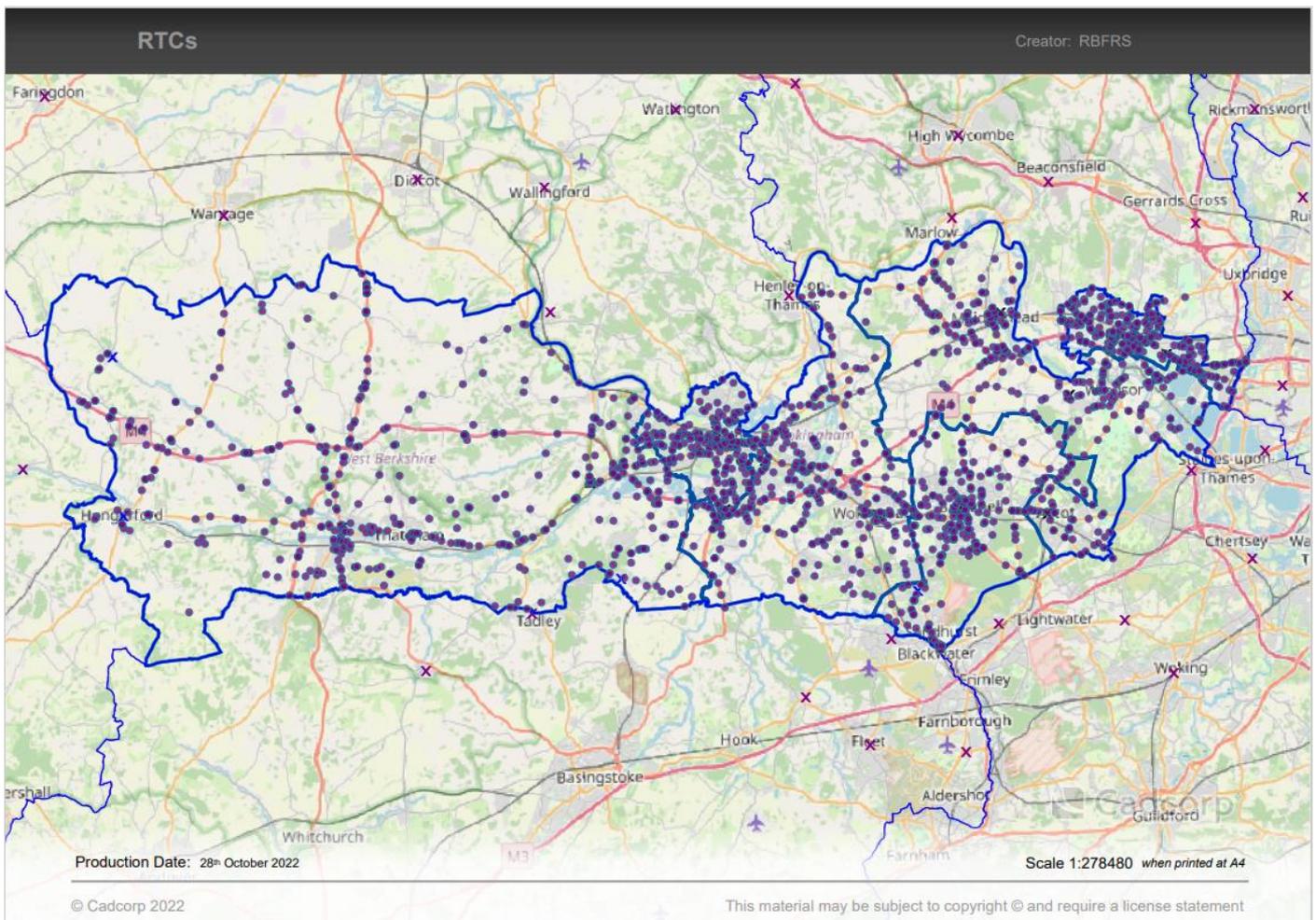
# Road Safety

RBFA is required by The Fire and Rescue Services Act to rescue people in the event of road traffic accidents, to make provision for protecting people from harm and ensuring we have the resources necessary to meet all normal requirements.

Incidents on our roads have a big impact on communities and lives of Berkshire residents.

Over the 6 year period to March 2022 we attended over 2000 road safety incidents in the county. Map 17 shows the location of these incidents which are concentrated in our urban areas, and along main roads through the county, including the M4, A4 and A34. In contrast to most of our other incident types, we see the highest number of road traffic accident call outs in the West Berkshire unitary area. This is likely to be due to a combination of the number of roads in the area due to its size, and the higher risk road types in the area, including the A4 and A34 which are both fast A-roads which have a high casualty and fatality risk. We attend more incidents on motorways per mile than other road types.

**Map 17: Location of Road Traffic Accidents – 6 years to March 2022**





Department for Transport (DfT) fatality and casualty data, which includes data for more incidents than we attend (as we are only called to more serious RTCs), and includes more details about the casualties, shows that the highest numbers of casualties occur in Slough and Reading, due to higher numbers of less serious injury incidents, and those with pedestrian casualties, which we are less likely to be called to.

Nationally, in the year ending June 2022, there were an estimated 29,804 fatalities or serious injuries in road collisions. Men between the ages of 17 and 49 are more likely to be killed or seriously injured. Car occupants make up the largest proportion of fatalities and casualties, but DfT analysis shows that motorcyclists are most at risk per mile travelled.<sup>2</sup> This is supported by DfT data for Berkshire which shows that in 2021 motorcyclists made up 35% of the total fatalities in the county, despite only representing 13% of casualties as a whole. We also know that motorcyclists make up only around 2% of the national population.

Due to the nature of road travel, many of those who are casualties on our roads will not live near the location of the incident, and many may not be Berkshire residents. However we can help reduce the harm to Berkshire incidents by targeting those residents who are in higher risk demographic groups. Some of these higher risk factors are outlined above. We also know from DfT analysis<sup>3</sup> that a higher proportion of road casualties live in areas of high deprivation than low deprivation, as measured by the Indices of Multiple Deprivation (IMD).

We will use information about these risk factors to target our Road Safety Prevention work where the risk is highest.

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<sup>2</sup>[Reported road casualties Great Britain: road user risk, 2021 data - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-road-user-risk-2021-data)

<sup>3</sup>[Reported road casualties Great Britain: casualties and deprivation factsheet \(England\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/reported-road-casualties-great-britain-casualties-and-deprivation-factsheet-england)



# Water Safety

This document differentiates between the community risk of flooding and of water rescues. Although there is a degree of commonality (flooding events often necessitate rescues from water) water rescues tend to be single site incidents with a high association with mortality where flooding is often over a wide area, with a high degree of economic loss and proportionally fewer fatalities.

Water rescue and flooding response are not statutory duties of RBFRS. The FRS National Framework states that non-statutory activities should not be carried out at the expense of services' core functions around prevention, protection and response as that is ultimately what the taxpayer funds fire and rescue services to deliver.

## Flooding

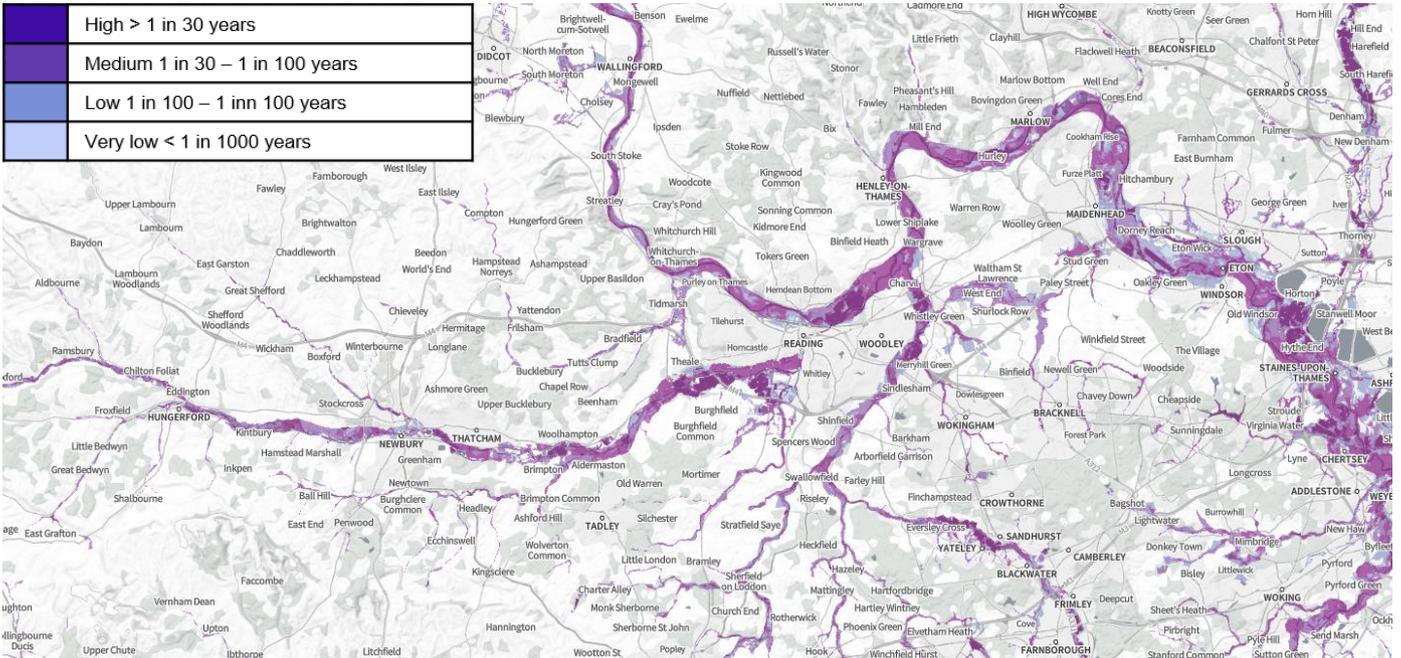
Flooding events can occur over a limited area due to heavy rain leading to surface water (pluvial) flooding, burst water mains or overflowing sewerage systems. Our incident data suggests that vehicles are sometimes stranded in water, at fords, particularly in the south of the County following periods of heavy rain. Equally a burst water main may flood a limited area necessitating a response that is within the capabilities of RBFRS. These events are foreseeable and are considered a normal risk.

Wide area flooding is less common, but is foreseeable. Rivers overtopping (fluvial flooding) or failure of flood defences causing a wide area flood will necessitate a multi-agency response. This is a complex process that requires a coordinated approach through TVLRF. The response may require the use of national assets in support of RBFRS and as such these incidents types can be considered beyond normal.

## Likelihood

Areas of Berkshire have been rated as having a high likelihood of flooding by the EA. This rating means there is a >3.3% chance of flooding each year. Wide area flooding occurred in 2007, 2014 and 2016 in Berkshire.

**Map 18: Environment Agency Flood Likelihood**



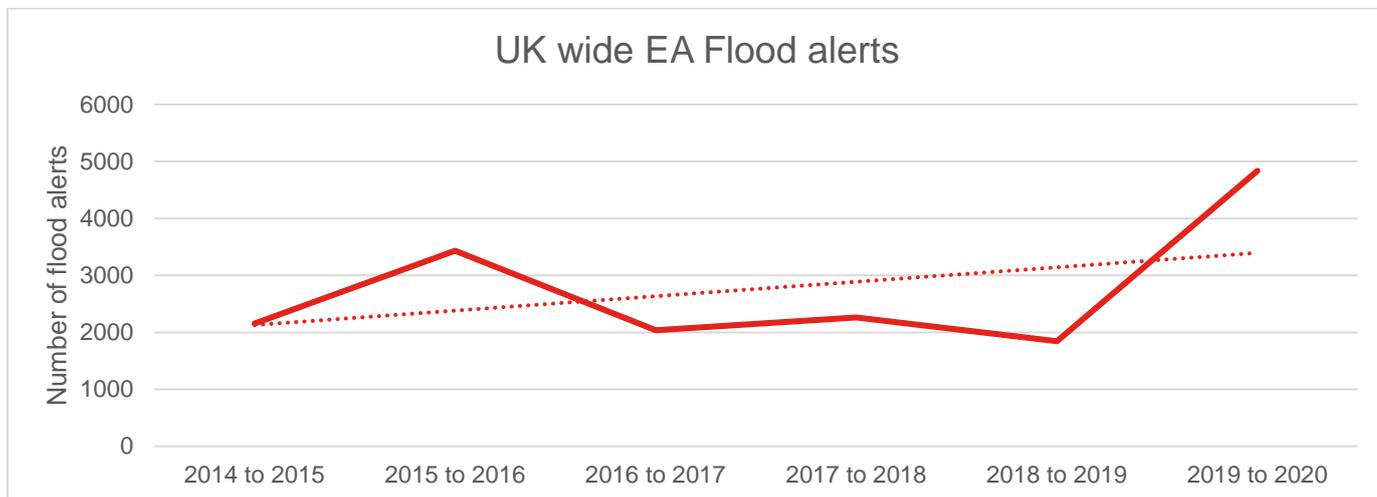
## Consequence

In rare circumstances wide area flooding can cause injuries and deaths. The most likely impact is damage to property and the environment leading to high levels of economic loss.

People	A variety of groups are at risk of harm. Residents of Berkshire, people who work in or commute in or through Berkshire. People who travel through Berkshire. RBFRS staff and volunteers. People who visit Berkshire for tourism and leisure. The primary risk is to residents, particularly those who are vulnerable and unable to self-evacuate in the event of flooding.
Place	Low lying areas, including development on flood plains, are at particular risk from flooding. Flooding has a long lasting impact on dwellings and affected business premises.
Environment	Flooding can have a negative effect on wildlife, causing drowning, disease proliferation, and habitat destruction. Floodwater can also alter the landscape, for instance, by eroding riverbanks and causing them to collapse. Floodwater can be contaminated with pollutants such as agricultural pesticides, industrial chemicals, debris, and sewage. Flood events also lead to an increase in some forms of zoonosis, such as leptospirosis.
Economy	The flooding across the UK in 2015/16 was estimated to cost the economy £1.6 billion. The economic losses from flooding between November 2019 and March 2020 are estimated to be about £333 million. Flooding has a substantial, long term impact on the economy.



The RBFRS horizon scan recognises that there is increased risk of warmer summers and wetter winters. However there [is unlikely to be an increased risk of flooding over the lifespan of this CRMP](#). However systems for warning and informing the public about flooding continue to improve and demand for response resources will continue.



## Treatment of risk: RBFRS Flood response capabilities

RBFRS work closely with the police and other partner agencies to provide a response to wide area flooding incidents. We maintain a Type B water rescue team which is available on the national asset register. This incident response will require resourcing beyond normal demands in Berkshire, especially as these incidents are likely to be protracted. It should be noted that multi-site, multi-agency flooding incidents may require many times the resources again.

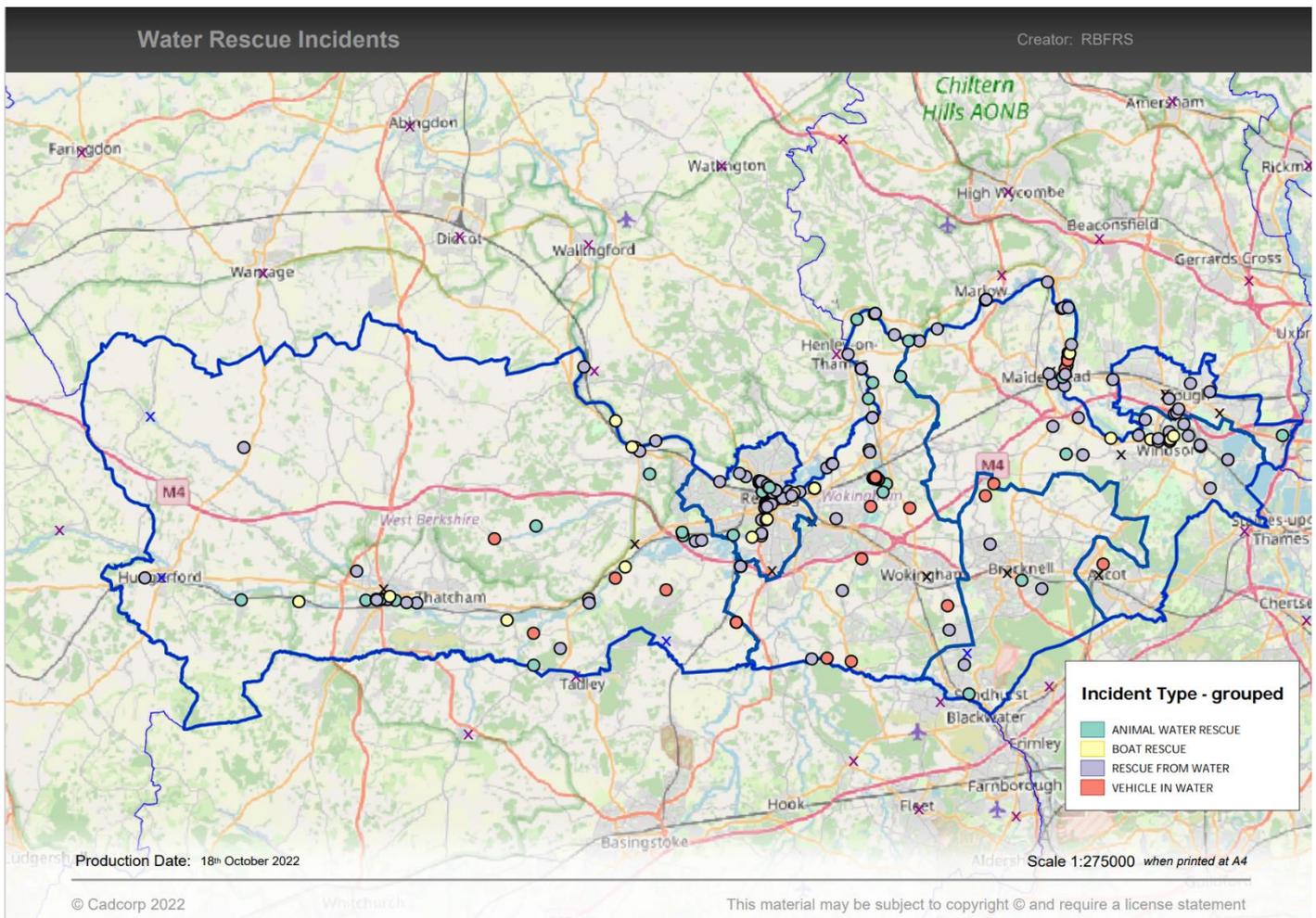
Our DEFRA Module 3 and Module 4 trained water rescue personnel with 2 powered boats and associated water rescue equipment are located at our Caversham Road station All other personnel are currently trained to DEFRA Module 2, which enables them to carry out non-buoyant rescues including wading rescues, bank-based rescues, shallow water crossings and self-rescue techniques appropriate to the risk. The training provides awareness of unstable surface hazards such as mud and ice which may also be encountered at water and flood incidents.



# Water rescue

Map 19 shows the location and type of water rescue incidents in Berkshire in the 6 years to March 2022.

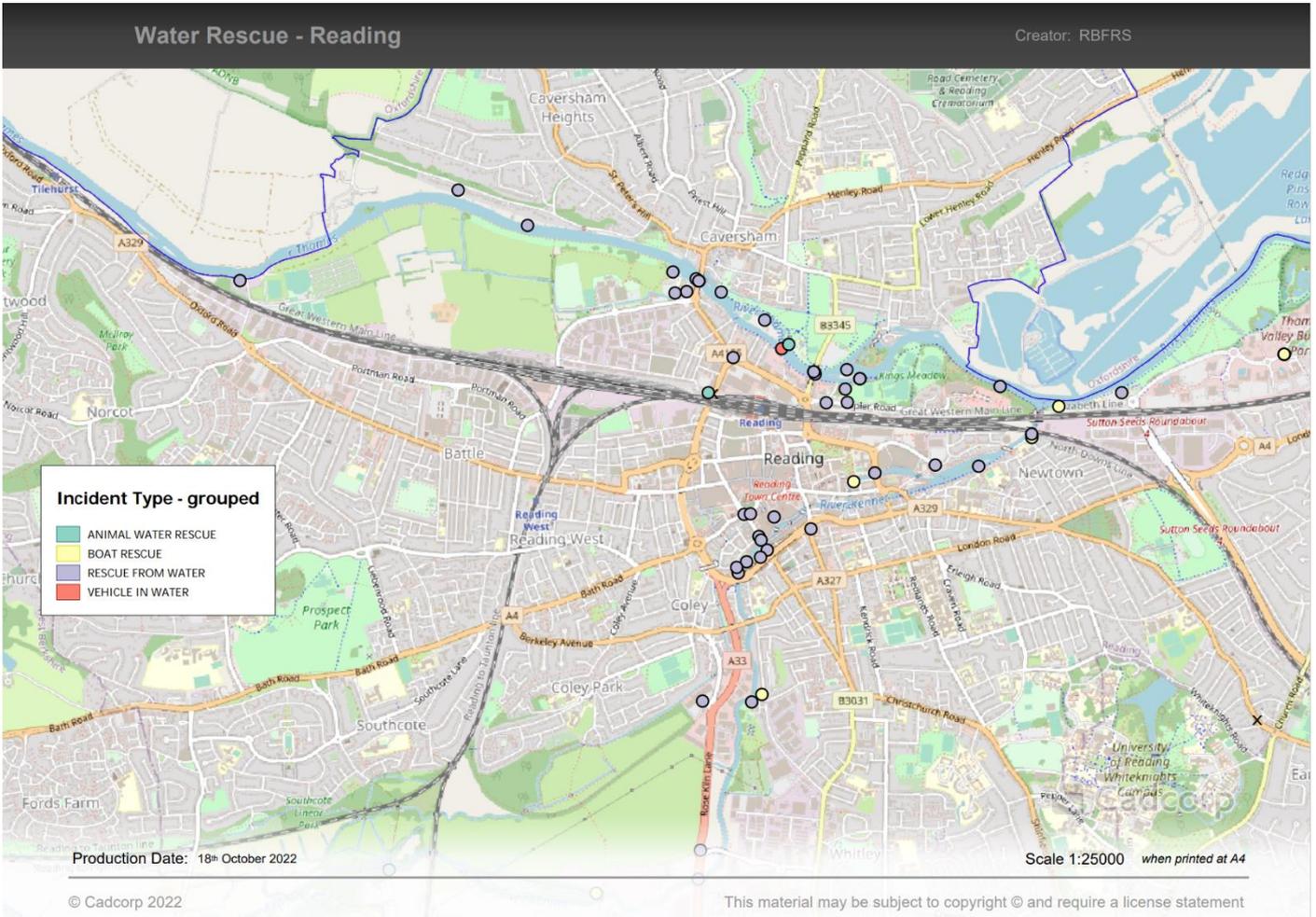
**Map 19: Water rescue incidents**



The map shows, as would be expected, that rescues are located along the main rivers and bodies of water. There are two clusters of incidents, particularly rescues of people (shown as purple dots on the map), in Reading, and in the East of the county. Maps 20 and 21 below show these areas in more detail.

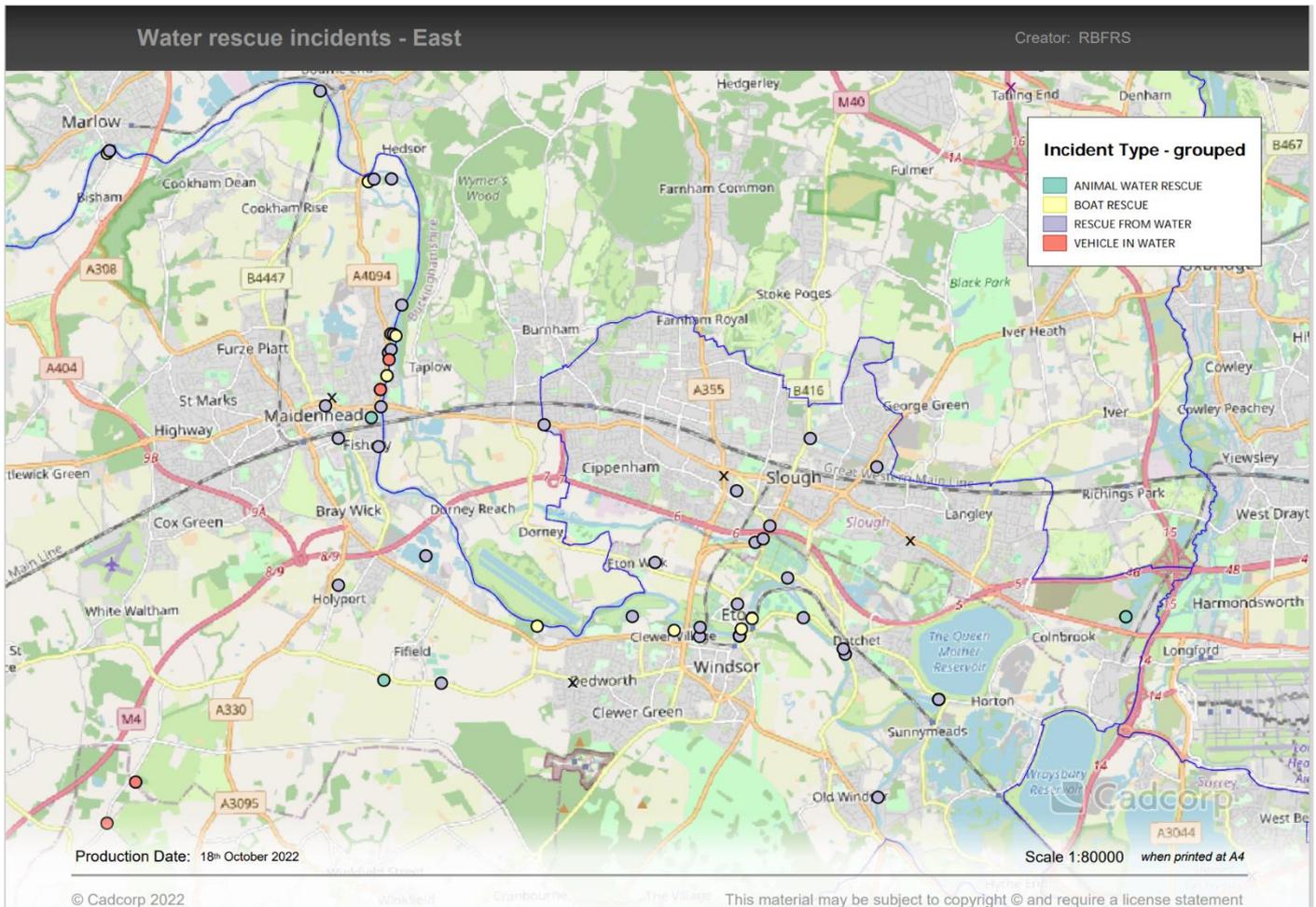


Map 20: Water Rescue Incidents in Reading – 6 years to March 2022





Map 21: Water Rescue Incidents in East Berkshire – 6 years to March 2022



Although we maintain a water rescue capability based in Reading, as set out above, water rescue is not a statutory duty for the Fire Service. Prevention activity in this area is particularly important due to the challenging circumstances of these incidents.



# Hazardous materials and decontamination

## The hazard

**Small scale hazmat incidents are foreseeable, routine incidents, and are considered normal risk.** Hazardous materials are found throughout our communities and normally are safe and well controlled, however, it is foreseeable that there will be both accidental and deliberate releases of hazardous materials into the environment that will be responded to by the emergency services. The vast majority of these incidents are small in scale or limited impact. Some incidents have larger or more complex impacts requiring a multi-agency response such as large scale chemical, biological, radiological, nuclear or explosive (CBRN(e) emergencies) are foreseeable but beyond normal risk.

The term hazardous materials means a substance that can harm people, animals, other living organisms, property or the environment. They include materials that are:

- Toxic
- Radioactive
- Flammable
- Explosive
- Corrosive
- Oxidisers
- Asphyxiates
- Biohazards

Berkshire has a large number of commercial premises that utilise materials in their processes that have hazardous properties. This ranges from premises storing and using small quantities of hazardous materials to large regulated sites and installations. Berkshire has two upper tier Control of Major Accident Hazard Regulations (COMAH) sites, 6 lower tier COMAH sites including two that are regulated by the [Office for Nuclear Regulation](#) and one MACR site. There are multiple regulated waste handling and processing sites in Berkshire. Note that hazardous materials are not exclusively found in commercial premises and are also encountered in domestic settings although usually in small quantities.

## Statutory duty

Yes, fires, road traffic collisions and other emergencies as per duties in FRSA 2004. Section 11 of the FRSA 2004 also applies as does Section 2 The Fire and Rescue Services (Emergencies) (England) Order 2007. There are further wide reaching legal duties in the Civil Contingencies Act 2004 that set out our duties in relation to emergencies.

RFRS must take all practicable steps to prevent environmental damage as a result of its activities including where there is an imminent threat of damage occurring or where some damage has already occurred and there is a threat of further damage.



## Likelihood

There were just under 700 hazmat incidents in the 6 year analysis period. The majority of these were gas release and leaks, small hazmat incidents and vehicles leaking fuel. The National Risk Register and National Security Risk Assessment highlight the threat of hazardous materials and Chemical, Biological, Radiological and Nuclear (CBRN) incidents and drive our requirement to engage with National Resilience arrangements for mass decontamination and chemical detection, identification and monitoring.

## Consequence

Incidents involving hazardous materials have a range of potential consequences depending on the quantity, location and nature of the material involved. Examples of routine incidents include:

- Fuel leaking from vehicle
- Containment of fire water run off
- Incorrect mixing of swimming pool chemicals
- Fires involving limited quantities of compressed gases such as liquefied petroleum gas
- Chemical spillage following road traffic collision

These normal risk incident types generally have a localised impact.

Hazardous material incidents may have wider and longer lasting ramifications that require a longer term or larger deployment of resources to mitigate the risk.

## What is at risk?

People	People who live, work or commute to or through Berkshire. People who travel through Berkshire. RBFRS staff and volunteers. People who visit Berkshire for tourism and leisure.
Place	Generally building or road vehicle. Hazmat incidents can result in significant cordons being put in place. These can necessitate road closures and evacuations. Potential for significant property damage.
Environment	Environmental impact depends on the nature of the substance involved. They may be low where containment and mitigation are easily achieved. May result in significant damage where watercourses, protected habitats or SSSIs are impacted. Low likelihood high consequence CBRN(E) incidents may result in both acute and chronic environmental harm.
Economy	Economic losses caused by hazardous material incidents are related to the location and extent of the incident and the materials involved. Cordons can disrupt road and rail travel and impact on the economy at a regional level leading with the potential for widespread disruption. The mitigation of environmental damage can carry high costs.



## Treatment of risk

Due to the technical nature of hazardous materials operations, RBFRS ensures that responders have access to the appropriate advice, equipment, skills, knowledge and understanding to maintain safety. All RBFRS firefighters are trained to respond to hazardous materials incidents and every fire appliance carries hazardous materials personal protective equipment and environmental protection equipment. These crews form our initial operational response. Incident commanders can access hazardous materials information sources, both printed and in electronic format. Additional RBFRS resources include:

- One Hazardous Materials Advisor (HMA) is on duty at all times – these officers provide specialist advice to the on-scene commander and where appropriate, tactical and strategic co-ordinating groups.
- Deployable hazardous materials and environmental protection equipment held at Whitley Wood Fire Station.
- Detection Identification and Monitoring (DIM) – enables unknown substances to be quickly and accurately measured and identified enabling appropriate response actions to be put in place.
- Mass Decontamination Unit – a specialist unit that enables RBFRS to decontaminate large numbers of people following contact with a substance.

When RBFRS visits premises to carry out operational information gathering we ensure we make accurate records of the presence of hazardous materials for firefighter safety and environmental protection.

Fire Safety Inspecting Officers will provide advice to landlords and premises managers which relates to the storage of flammable goods and may enforce fire safety law where they find breaches of the law.

RBFRS can also access regional and national assets to support our response at larger or more complex incidents as part of specialist operational response.

## Malicious threat

### Normal or beyond normal risk type

Beyond normal risk, foreseeable.

### Type of hazard

The [National Risk Register \(NRR\)](#) and the TVLRF [Community Risk Register](#) identify a range of malicious threats. These can be broadly categorised as acts of terrorism and cyber-attacks.

The operational principles for resolving CBRN(e) events are essentially the same as hazardous materials incidents. However, malicious CBRN(e) threats require a more specific response because of exacerbating factors.

The key difference between a hazardous materials incident and a CBRN(e) event involving deliberate, criminal or otherwise malicious intent is that the latter is declared by the police, who will



co-ordinate the multi-agency response. Many possible scenarios could lead to an incident being identified as a suspected or confirmed CBRN(e) event.

## Statutory duty

Thames Valley Police are the lead agency for terrorist incident response in Berkshire. Fire Authorities may deploy resources to this incident type under adoptive powers in S11 of the [Fire and Rescue Services Act 2004](#).

RBFRS has a duty to risk assess, plan for and work collaboratively with partner agencies to address the risk presented by terrorist incidents. These incidents fall within the definition of an emergency provided by the [Civil Contingencies Act 2004](#).

The Civil Contingencies Act 2004 places a collective risk assessment duty on all Category One responders. This process is further detailed in Chapter 4 of the [ERR Guidance](#), which details key requirements that can be aligned to the CRMP process. Summarised as follows, these require:

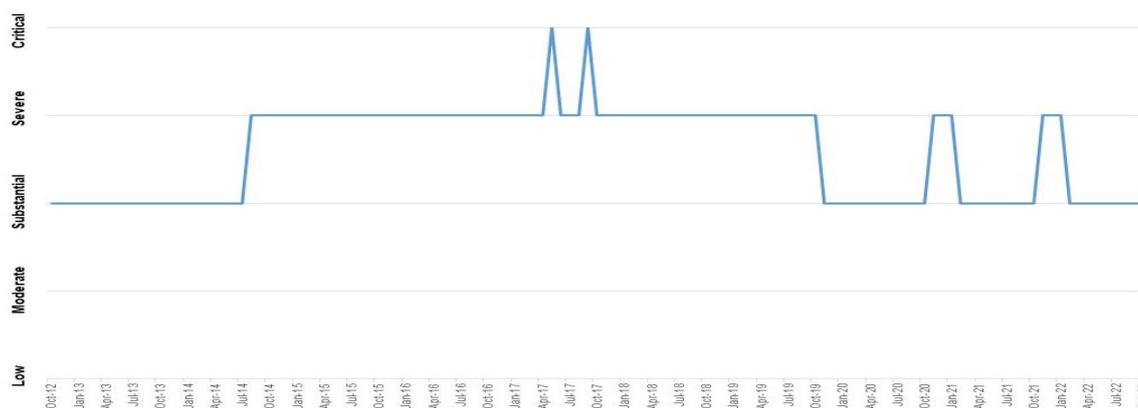
- An accurate and shared understanding of risk so plans are proportionate to risk
- A rationale for the prioritisation of objectives and the allocation of resources
- That responders assess their capabilities to identify existing appropriate control measures and any gaps in provision
- Promoting multiagency planning and consistent understanding of planning assumptions
- Provision of access to the context of emergency planning and business continuity arrangements
- Consideration of national risk assessments to support emergency planning and developing capability

## Acts of terrorism

### Likelihood

Acts of terrorism are a rare occurrence and in the absence of intelligence are impossible to predict. Ideological drivers for this type of incident may be religious belief, extreme right wing political beliefs, or left wing, anarchist or single issue such as animal rights or climate change. The Security Services use available intelligence, judgement of the terrorists' capability, the terrorists' intention and a consideration of timescale to assess likelihood. These factors facilitate the publication of a [UK Threat Status](#), which currently stands at substantial. This means an attack is likely.

In the last decade the UK threat level has not dropped below substantial and has twice reached critical which meant an attack was considered highly likely. Berkshire has suffered a recent terror attack (Forbury Gardens, June 2020) and coupled with the current threat status it is reasonable to prepare for another occurrence.



Graph showing changes to UK terror threat levels, [MI5](#).

## Consequence

The consequences of malicious action are wide ranging and various depending on the attack methodology. They vary in consequence depending on the nature of the perpetrator from self-initiated single location acts of violence, through to sophisticated state actors. Impacts include personal injuries and/or deaths, economic loss and criminal damage. May have local, regional or national level impacts.

## What is at risk?

People	A variety of groups are at risk of harm. Residents of Berkshire, people who work in or commute in or through Berkshire. People who travel through Berkshire. RBFRS staff and volunteers. People who visit Berkshire for tourism and leisure.
Place	Attack targets vary depending on a number of factors including the ideology of the perpetrator. These targets comprise high profile locations and accessible areas where members of the public gather. These include transport hubs and transit systems.
Environment	Environmental impacts are generally low. Low likelihood high consequence CBRN(E) attacks may result in both acute and chronic environmental harm.
Economy	Malicious threats present a hazard to the economy through harm to people and property.

## Marauding Terrorist Attacks

Recent terror attacks have seen an increase in low sophistication self-initiated attacks perpetrated by an individual. These events have occurred with little or no notice and have involved the use of bladed weapons, vehicles as weapons and, less frequently, improvised explosive devices and incendiaries. These attacks are known as marauding terrorist attacks (MTA).

### Counter-Terrorism and Security Act 2015



Certain bodies have a duty under the [Counter-Terrorism and Security Act 2015](#) to have due regard to the need to prevent people from being drawn into terrorism. RBFRA is not a duty holder, but [Prevent duty statutory guidance](#) states that:

“Other local authorities, including stand-alone fire and rescue authorities, are not listed in the Act and are not subject to the duty, but it is anticipated, considering their wider prevention role, that in many areas they will be partners in local efforts to prevent people from being drawn into terrorism.”

RBFRS has a well-established prevention programme, which includes training for all staff on the safeguarding of vulnerable children and adults. This process allows us to identify those at risk in our community and seek referral to partner agencies for support.

## Cyber

The risk from cyber-attack is growing and RBFRS may be subject to cyber-attack in the form of hostile actors (foreign states or criminals), computer network attack (malware or denial of service) and computer network exploitation (cyber espionage).

As an emergency service RBFRS recognises the importance of protecting our systems and data from these threats. The Service takes a holistic approach that focuses on the end user as the weakest link in the system. To help protect our systems RBFRS provides:

- Annual Staff training cyber security
- Secure network design including robust user authentication and regular security updates
- Cloud based back up
- Regular ICT health checks to improve our system security

We follow national cyber security advice and have scalable support to ensure the resilience of our systems.

# Building collapse

## Normal or beyond normal risk type

Likely to be beyond normal, but foreseeable risk.

## Type of hazard

Structural collapse of dwelling or other premises. May be the result of a variety of causes for example, fire, extreme weather and natural disaster, explosion, transport incident, malicious action or structural failure. Only the most minor structural collapse would result in an operational response that is within the bounds of RBFRS normal service delivery.



## Statutory duty

Yes, building collapse following fires or road traffic collisions and other emergencies as per duties in FRSA 2004 require RBFRS to attend. A further duty exists in The Fire and Rescue Services (Emergencies) (England) Order 2007 which requires RBFRS, to make provision for the purpose of rescuing people who may be trapped and protecting them from serious harm, to the extent that it considers it reasonable to do so, in the event of an emergency involving the collapse of a building or other structure (note this does not include tunnels or mines).

## Likelihood

Building or structure collapses are relatively rare occurrences, we attended 7 rescues from collapsed structures in the 6 year period of analysis.

## Consequence

Ranges from small single property or structural collapse with few or no injuries to major structural collapse with multiple fatalities.

## What is at risk?

People	A variety of groups are at risk of harm. Residents of Berkshire, people who work in Berkshire. RBFRS staff and volunteers. People who visit Berkshire for tourism and leisure.
Place	Buildings and structures within Berkshire, including temporary structures such as scaffolds and tower cranes. There are reports of the early failure of timber frame buildings in fire.
Environment	Environmental impacts are generally low. Low likelihood high consequence collapse, such as a high rise building, may result in chronic environmental harm.
Economy	Building collapse results in economic loss, generally insurable. Although large building collapse may cause high levels of disruption, both social and business, and consequent economic loss.

## Treatment of risk

In the event of a call to carry out rescues from a building or structure collapse RBFRS will mobilise 2 main pumps, 1 heavy rescue unit and a Level 2 Officer. The pre-determined attendance varies if there is a report of explosion, in these circumstances we will mobilise 3 main pumps, 1 Level 2 Officer and 1 HMA.

Operational crews are able to seek professional advice from Local Authority Building Control Officers with respect to structural integrity at incidents. Detailed weather analysis is also available to help incident commanders assess the impact of weather on the unstable or collapsed structure to facilitate the revision of cordons during incidents. Operational staff take part in risk familiarisation visits and exercises at high risk sites.



Prevention comprise advice to homeowners around the safe storage of flammable materials and specialist intervention regarding gas safety for vulnerable adults.

Protection Officers are able to advise responsible persons on the safe storage of flammable materials in premises that we regulate.

In the event of a large or complex building collapse RBFRS can request mutual aid from neighbouring FRS or from national assets. The available national assets for this incident type are Urban Search and Rescue Units (USAR). USAR capability is equipped, trained and available to respond to large-scale events such as collapsed structures or major transport incidents. These units can also assist with searches for missing people, technical rescue expertise, such as confined space operations.

# Non-RTC transport incidents

## Rail Incidents

### Normal or beyond normal risk type

Likely to be beyond normal, but foreseeable risk.

### Type of hazard

Incidents on the railway are a normal risk as they are relatively frequent. For clarity, this CRMP distinguishes between fires in trains, stations, on the permanent way and embankments (which are dealt with in the section on fires in the open and non-dwelling fires) and rail incidents such as derailments and collisions. This hazard concerns RBFRS's response to the latter two incident types.

These incident types cause transport network disruption and may result in injury or loss of life. They may also involve freight in transit which can include hazardous materials. Rail incidents present a risk to firefighters due to the hazardous nature of railway working. Train operators in Berkshire use diesel electric, third rail and overhead line electrification which present differing operational hazards. Major incidents are a significant but infrequent hazard, they are foreseeable but beyond normal risk.

### Statutory duty

Yes. RBFRS is required to attend emergencies as per duties in FRSA 2004. The Fire and Rescue Services (Emergencies) (England) Order 2007 requires RBFRS, to make provision for the purpose of rescuing people who may be trapped and protecting them from serious harm, to the extent that it considers it reasonable to do so, in the event of an emergency which involves a train, tram, or aircraft, and is likely to require a fire and rescue authority to use its resources beyond the scope of its day to day operations.



## Likelihood

Berkshire has 36 mainline stations. Reading is one of the busiest in the country. Significant railway incidents are a low likelihood occurrence. The Rail Accident Investigation Branch has published 4 investigation reports relating to reportable incidents in Berkshire in the last 10 years. RBFRS have been called to attend 3 train incidents in the six years from April 2016.

## Consequence

Injuries and fatalities. Damage to or loss of critical national infrastructure. Economic loss and environmental damage.

## What is at risk?

People	Rail network users and staff. Road users at level crossings. RBFRS staff and volunteers.
Place	Rail routes across Berkshire, stations, railway access points, bridges, tunnels and cuttings.
Environment	Environmental impacts due to spilt fuel or freight. May include hazmat contamination.
Economy	Disruption of rail network has wide reaching economic impact including significant remote impacts.

## Treatment of risk

Firefighters receive training in how to respond safely to incidents on the rail network. There are formal arrangements for coordinating a multi-agency response on the rail network alongside tactical commanders from Network Rail.

## Aircraft Incidents

### Normal or beyond normal risk type

Likely to be beyond normal, but foreseeable risk.

### Type of hazard

The hazard presented by aircraft includes ground incidents and crashes. Hazard type may involve civil or military aviation, fixed or rotary wing. Incident may be located on or off an aerodrome.

There are no UK Civil Aviation Authority certificated aerodromes or RAF stations in Berkshire. Certificated civil aerodromes are located in neighbouring counties: Farnborough, London



Heathrow, Oxford (Kidlington). Military aviators fly from RAF Odiham, RAF Benson, RAF Boscombe Down and RAF Brize Norton. There are numerous smaller licenced aerodromes in and around Berkshire including White Waltham which operate light aircraft, gliders and helicopters for general aviation and pilot training.

The airspace above Berkshire is busy due to the proximity to London airports. Berkshire airspace includes the Lambourne stack which is used to hold passenger aircraft waiting for clearance to land and the approach and departure flight paths from London Heathrow.

Different aircraft types present a variety of hazards. Large civilian aircraft carry a wide range of cargo as well as passengers. Military aircraft may be armed and carry a variety of weapons systems, pyrotechnics and electronics. Aircraft construction involves man made mineral fibres which present a personal and environmental hazard in the event of a crash or fire.

## Statutory duty

Yes. RBFRS is required to attend emergencies as per duties in FRSA 2004. The Fire and Rescue Services (Emergencies) (England) Order 2007 requires RBFRS, to make provision for the purpose of rescuing people who may be trapped and protecting them from serious harm, to the extent that it considers it reasonable to do so, in the event of an emergency which involves a train, tram, or aircraft, and is likely to require a fire and rescue authority to use its resources beyond the scope of its day to day operations.

## Likelihood

Incidents involving aircraft are infrequent, we attended 6 light aircraft incidents over the 6 year analysis period and no large aircraft incidents.

## Consequence

Injuries and fatalities, ranging from single figures to the low hundreds depending on incident circumstances and aircraft type involved. Economic loss and environmental damage.

## What is at risk?

People	Pilots, aircrew, passengers. Residents and other persons on the ground. RBFRS staff and volunteers.
Place	Potential to happen anywhere in Berkshire.
Environment	Environmental impacts due cargo, aircraft construction material and fuel.
Economy	Potential for significant economic loss due to disruption of air transport, damage to infrastructure, litigation and insurance claims.



## Treatment of risk

Firefighters receive training in how to respond safely to incidents involving aircraft. Provision of rescue and firefighting equipment suitable for incidents involving aircraft. Operational familiarisation visits to aerodromes and liaison with aerodrome firefighting teams.

RBFRS will mobilise the following resources to aircraft incidents:

# Animal rescue

## Normal or beyond normal risk type

Normal, foreseeable risk.

## Type of hazard

The rescue or evacuation of small and large animals in distress. May be from water, above or below ground. Protecting owner or well-intentioned members of the public from personal harm. Animals in transit may be involved in road traffic collisions. West Berkshire is a predominantly rural community with a high level of agriculture and equine industry.

## Statutory duty

No. The owner is legally regarded as being responsible for it. However FRS personnel can be responsible for the animal on a temporary basis if they are safeguarding an animal's welfare at an incident as set out in [s3 Animal Welfare Act 2006](#).

The [FRS National Framework](#) states that non-statutory activities should not be carried out at the expense of services' core functions around prevention, protection and response as that is ultimately what the taxpayer funds fire and rescue services to deliver.

## Likelihood

Incidents involving animal rescues happen relatively frequently, with around 400 incidents of small and large animals rescues (including rescues from water) over the 6 year period we have examined in our analysis.

## Consequence

Injuries and potential fatalities to members of the public, animal owners and RBFRS staff. Injury and death of an animal.

### What is at risk?

People	Animal owners, members of the public, RBFRS staff.
--------	--



Place	Not generally applicable, potential for structural damage when animals are trapped within structures.
Environment	Not applicable.
Economy	Generally low risk, may be relevant where incident involves a valuable animal or large numbers of livestock in transit.

## Treatment of risk

RBFRS staff receive training in animal rescue. Fire appliances have equipment for working at height and safe systems of work for working in, on or near bodies of water. Operational crews will undertake risk familiarisation visits which may include gaining information about the presence of animals on site.

A specialist animal rescue unit is located at Caversham Road fire station.

Specialist resources may be requested to support RBFRS at incidents involving animals, these include:

- Veterinary surgeons – including registers held by British Equine Veterinary Association (BEVA) or with the British Animal Rescue and Trauma Care Association (BARTA)
- Veterinary organisations
- Animal welfare charities and organisations
- Animal rescue specialists
- Animal keepers or handlers
- Environmental specialists
- Search and rescue organisations
- Local authorities (who may have dedicated animal welfare officers)
- Police dog handlers
- Police firearms teams
- Government departments responsible for the natural environment

# Rescue from height

## Normal or beyond normal risk type

Normal, foreseeable risk.

## Type of hazard

The rescue of persons (and by occasion, animals) who are at risk of a fall from height.



## Statutory duty

The Work at Height Regulations 2005 (WAHR) require employers and those in control of any work at height activity must make sure work is properly planned, supervised and carried out by competent people. This includes using the right type of equipment for working at height and ensuring a rescue plan is in place. It is not the duty of emergency services to rescue a worker who has fallen from a height, although they may be contacted in order to offer medical assistance to the individual who has fallen.

RBFRS does have a duty to its employees to ensure its own safe systems of work are in place for its staff who are required to work at height under The Health and Safety at Work etc. Act 1974 and associated Regulations. This includes while undertaking rescues of persons involved in emergency incidents.

## Likelihood

Incidents involving working at height are commonplace and routine for RBFRS staff. Rescues from height are less common, we attended between 16 and 31 per year in our 6 year period of analysis.

## Consequence

Falls from height resulting in injury or death, generally of an individual.

## What is at risk?

People	Members of the public, RBFRS staff.
Place	May occur at numerous locations across Berkshire, such as building sites (including tower cranes and on temporary structures), at commercial and domestic premises, persons threatening suicide from tall structures, during emergency response to fires, at RTCs in elevated positions
Environment	Limited environmental impact
Economy	Limited economic impact

## Treatment of risk

RBFRS trains its operational staff in safe working at height as part of core firefighter training. A range of suitable working at height equipment is provided, including ladders, lines, harnesses and an aerial appliance based at Whitley Wood fire station.

Risk familiarisation visits are undertaken to improve firefighter's awareness of hazards and liaison with responsible persons is undertaken during these visits where firefighter risk is identified.



# Major incidents

Major incidents are those incidents which require a level of resourcing beyond our normal planning assumptions or which will greatly disrupt our ability to provide our services. They happen infrequently and usually require RBFRS to request support from other agencies. Major incidents are often foreseeable and we have a duty to assess their likelihood and make plans for our response.

A major incident is defined as:

**An event or situation with a range of serious consequences which requires special arrangements to be implemented by one or more emergency responder agency.**

The Civil Contingencies Act (2004) and associated guidance further explains major incidents as being beyond the scope of business-as-usual operations, and likely to involve serious harm, damage, disruption or risk to human life or welfare, essential services, the environment or national security.

A major incident may involve a single-agency response, although it is more likely to require a multi-agency response, which may be in the form of multi-agency support to a lead responder. The severity of the consequences associated with a major incident are likely to constrain or complicate the ability of responders to resource and manage the incident, although a major incident is unlikely to affect all responders equally.

The decision to declare a major incident will always be a judgement made in a specific local and operational context, and there are no precise and universal thresholds or triggers.

RBFRS works with partner agencies through the Thames Valley Local Resilience Forum. TVLRF is not a legal entity, nor does a Forum have powers to direct its members. Members of TVLRF have a collective responsibility to plan, prepare and communicate in a multiagency environment.

RBFRS responds to major incidents by enacting its own operational procedures and playing its part in the TVLRF major incident plans.



# New and emerging risk

RBFRS uses horizon scanning to consider the potential impact of new and emerging risks. This helps us to think about how we may need to change and adapt our services to provide the best possible fire and rescue service for Berkshire.

We review a variety of sources:

- News coverage of local, national and international events
- National Fire Chief's Council's document "Fit for the Future"
- National Police Chief's document "Police Futures"
- National Standards for Fire and Rescue Services
- Insight delivered through the National Incident Liaison Officer network
- Berkshire unitary authority development plans
- Data from the Office of National Statistics, including census information
- Insights from professional organisations such as Pool-Re and Gartner
- The national risk register produced by the government
- The community risk register produced by the Thames Valley Local Resilience Forum
- The outcomes of our public consultations
- Local and national incident data
- RBFRS Annual Review of Risk
- Her Majesty's Inspectorate of Constabularies and Fire and Rescue Services' annual "State of Fire" report, and FRS inspection reports including our own
- The government's Brief Guide for Futures Thinking and Foresight (Feb 2021)

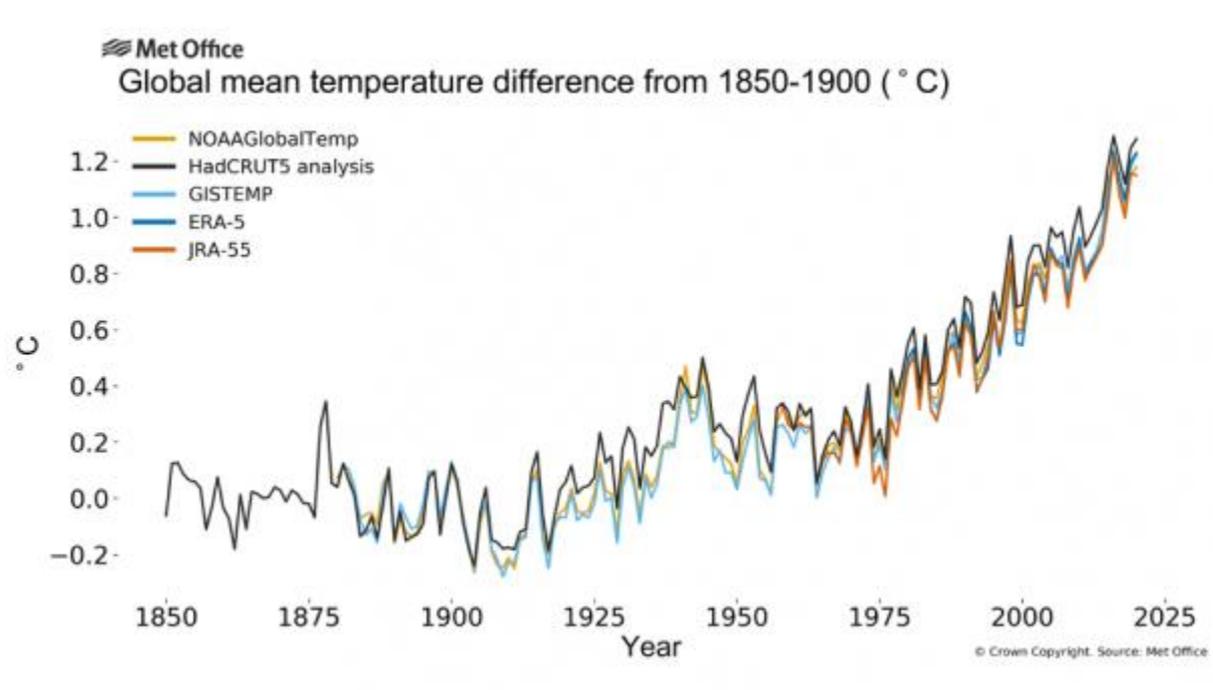
Issues we identify during our horizon scanning process are discussed by our Senior Leadership Team in order to inform long term organisational development. Many of the issues raised will take longer than the duration of this CRMP to be realised. Others may have more short term impacts.

## Climate change

Climate change refers to long-term global shifts in temperatures and weather patterns. Since the 1800s, [human activities have been the main driver of climate change](#), primarily due to greenhouse gas emissions. The Earth is now about 1.1°C warmer than it was in the late 1800s. [The last decade \(2011-2020\) was the warmest on record](#). [Provisional figures](#) show the summer of 2022, covering June, July and August, had an average temperature of 17.1C, tying with 2018 to be the warmest on record. Four of the five warmest summers on record for England have occurred since 2003, as the effect of human-induced climate change is felt on the country's summer temperatures. The summer months of 2022 represented the busiest period experienced by RBFRS over the reporting period of this CRMP (representing 6 years of data analysis). The [University of Reading](#) has indicated that future global rises in average temperature will increase the dangers of wildfires and that the absolute danger in the UK now and into the future is greatest in the south and east of England. Climate change acts as a risk multiplier for RBFRS. Extreme



weather events place extra demand on resources, increasing the likelihood of spate conditions, the severity of individual incidents and degrading our ability to respond to incidents across the County.



The [consequences of climate change](#) include, among others, intense droughts, water scarcity, severe fires, rising sea levels, flooding, melting polar ice, catastrophic storms and declining biodiversity. With increasing global warming, compound, low likelihood, or unprecedented extremes such as the European dry and hot summers of 2018 and 2022 or the extreme rainfall following storm Desmond in the UK in 2015, become more frequent. A recent [UN report](#) stated that precipitation has raised river flood hazards in the UK by 11% per decade from 1960 to 2010.

Storm Dennis triggered a national fire service response to the wide spread flooding caused by the storm and in 2018 there was a [28 per cent increase in secondary fires](#) linked to a hot, dry summer. The Toddbrook Reservoir dam in Whaley Bridge, which started to collapse following days of heavy rain in summer 2019, led to a nationally supported and coordinated FRS response. But like Toddbrook, much of our infrastructure is Victorian, it's aging and it wasn't designed for the more extreme weather climate change is causing. These factors are indicative of greater community risk. These hazards will have implications for Fire and Rescue Services. Longer term, climate change may require significant changes to appliances, to the equipment available to firefighters, to training, greater awareness of firefighters' health implications, to pumping capability and water use and Control Room capacity.

In terms of managing the impacts of climate change (both in respect to mitigation and adaptation) RBFRS faces a challenge insomuch as not only do we need to manage and maintain our own assets and resources when faced with extreme events but we are also expected to mobilise those assets and resources promptly and effectively in order to intervene and help the public,



businesses and communities when their own plans have failed. Our primary role is to help others in emergency situations when they are struggling to help themselves.

The NFCC expected FRSs will continue to build on already well-established policies, procedures, plans, capabilities and partnerships with other emergency services, the Environment Agency, councils, the NHS, utility companies and the voluntary and community sector. These will not only be focussed on dealing with extreme weather events when they occur but also on the subsequent combined efforts of Local Resilience Forums to return their communities back to normality after the emergency phase of any incident has subsided.

The anticipated increase in likelihood and consequence of climate change related incidents and the related health and wellbeing impacts both on people's physical and mental health means that RBFRS will continue to play a key collaborative role with partners at both local and regional resilience levels.



# Resourcing to Risk

## Response Requirements

When planning our resourcing for responding to incidents, we consider two primary requirements – how quickly we can get to the incident, and ensuring we provide the right amount and type of resources.

Our current **Response Standard** gives a commitment to the people of Berkshire that we will attend 75% of incidents within 10 minutes. Built into this standard is an acknowledgement that there will be some times and some places where we will not be able to attend in 10 minutes, due either to the geography of the county, or to fluctuations in the numbers of incidents happening at any one time. The response standard balances our desire to respond quickly with the resource available.

Some incidents require more than one appliance, or specialist resources or firefighting equipment. Our **Pre-determined Attendance (PDA)** identifies the resources required at the time of call for a particular emergency incident type. We have assessed our PDAs based on risk, they allow us to ensure that we scale our response and importantly, that we have sufficient resources on scene to implement safe systems of work and to manage the risk at the incident.

## Our Planning Assumptions

Our risk analysis has identified what we consider normal and beyond normal risk. We need to ensure that our resourcing is planned to meet these normal risks.

Our response resourcing needs to take into account that there are often multiple incidents of different types happening at the same time, so we need to ensure we can meet a normal level of incidents occurring in the county. Our **Planning Assumptions** set out what circumstances we expect to be able to manage without asking for assistance from neighbouring services.

### Planning Assumptions for normal conditions

Our expectations for normal conditions are:

- In most circumstances we expect to achieve our response standard consistently in any monthly or quarterly time period.
- In some circumstances, when demand is high, but still within normal conditions – for example a large incident, or a period of spate conditions, we are likely to see some impact on our ability to meet our response standard during the time the incident or incidents are occurring.
- We expect to meet our response standard over each financial year as a whole.



- During periods of normal conditions, we expect to meet the PDAs to our incidents.

Our Thames Valley Fire Control collaboration means that in practice we use borderless mobilising over the three FRSs, we also have agreements in place with other neighbouring services which mean that they are automatically called to attend depending on the location of each incident. However, the basis of our planning is our ability to respond to the incidents within our borders without assistance. In some beyond normal conditions (e.g. those related to weather events and climate change), our neighbouring services will be facing the same challenges.

Our understanding of risk and resourcing is dynamic, changing according to the specific circumstances that occur. For example, the assistance we request for an incident close to our borders is likely to be different to that we request for an incident in the middle of county.

Our planning takes into account our current and future risk analysis. Our risk analysis has shown that the risk from major hazards is broadly reflected in our historic incident patterns and this should be the starting point for planning our response resourcing.

Our risk analysis above sets out what we consider to be normal conditions and we would expect to be able to respond in these circumstances without significant assistance from our partners.

Over the past 6 years, we have been called to over 43,000 incidents in Berkshire. 2020-21 saw a particularly low level of incidents due to the Covid-19 pandemic, with fewer incidents of road traffic collisions and automatic fire alarms in particular.

The number of incidents we are called to varies by time of day and across the year. The average number of incidents per day is 22, but there are more incidents in the summer months than in winter, with the peak in July being around 40% higher than the level of incidents in the quietest month, February.

There are also notable differences between the number of incidents in the day and at night, with a lower rate of incidents occurring between midnight and 7am, with the rate slowly rising during the day, peaking between 6 and 7pm and then falling.

One of our assumptions for managing normal risk is that overall incident levels may rise in the near future due to increases in some incident types due to social, economic and climate change. Of recent years, 2018 saw a high number of incidents both within Berkshire and nationally, with a particular peak in fire incidents due primarily to hot, dry weather conditions in the summer months. The current year, 2022-23 has also seen high numbers of incidents so far, matching those in the same months in 2018-19. The incident numbers in these years can be seen as a normal expectation for the immediate future time period covered by this CRMP.

The response standard was introduced in April 2017. Performance against the standard has improved over time and for the last three years we have consistently exceeded the target.



Year	Percentage of emergency incidents attended in 10 minutes
2017-18	73.1%
2018-19	72.9%
2019-20	76.3%
2020-21	78.2%
2021-22	77.2%

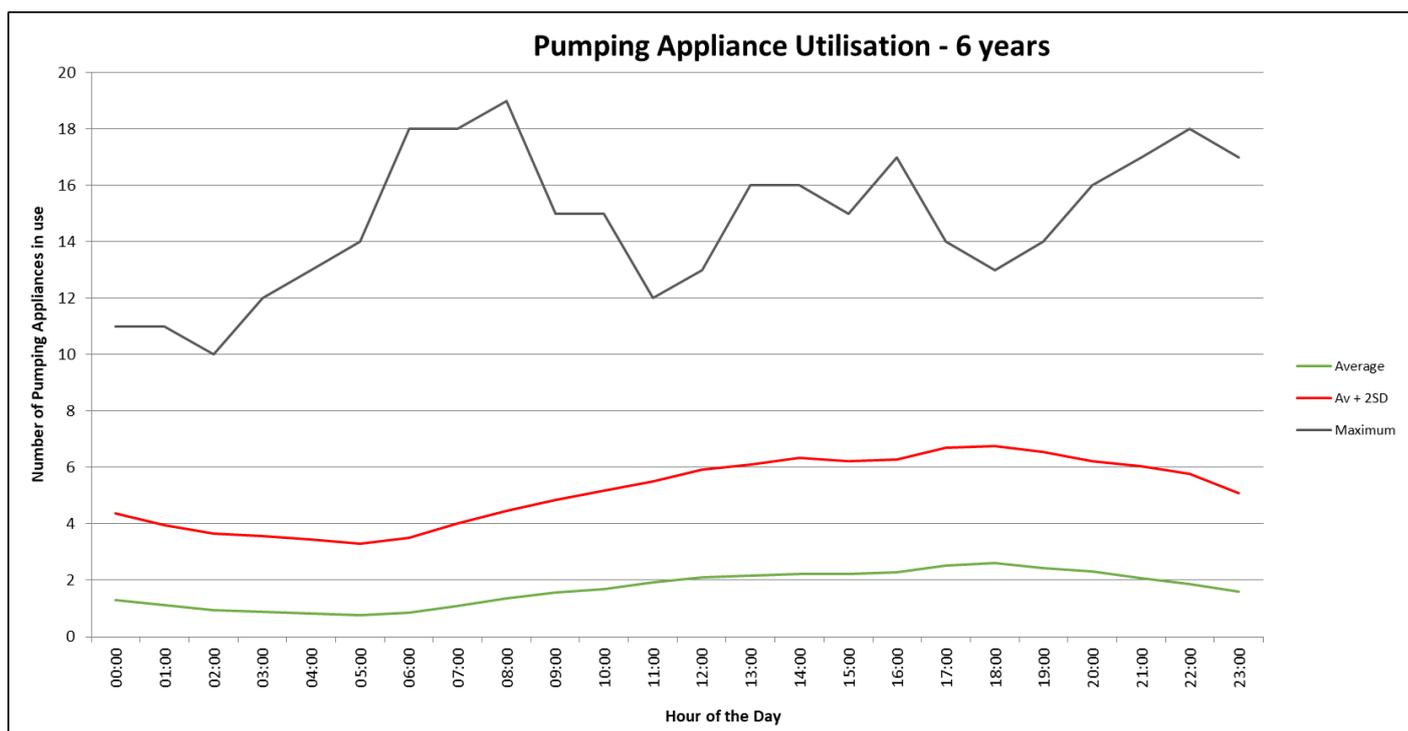
Meeting the response standard in years with higher incident numbers is a challenge, and as the historic performance data shows, this was not achieved in 2018-19. However our overall performance has improved over time which should help give us resilience to cope with a year of higher incident numbers.

In addition, this CRMP analysis identifies several areas where we intend to develop our plans to resource more efficiently to risk, for example in how we respond to outdoor fires. This will reduce the impact of these incidents on our resourcing. In addition, our plans to develop a risk based prevention programme, and refine our risk based inspection programme, should contribute to counteracting any increase in occurrences of some incident types.

We will revisit our detailed planning assumptions to incorporate pumping appliances and specialist resources during the course of this CRMP.

## Resource Requirements to meet our Planning Assumptions

The chart below shows the utilisation of our pumping appliances by hour of the day over the past 6 years (using Cadcorp Workload Modeller). This takes into account not just the number of incidents, but the number of appliances we needed to manage them. The chart shows the average number of appliances used at each hour of the day, the maximum (this could have only happened once), and a measure of 'normal range' – which tells us what number of appliances was sufficient most of the time. The chart shows clearly the difference between appliances needed at night and during the day.

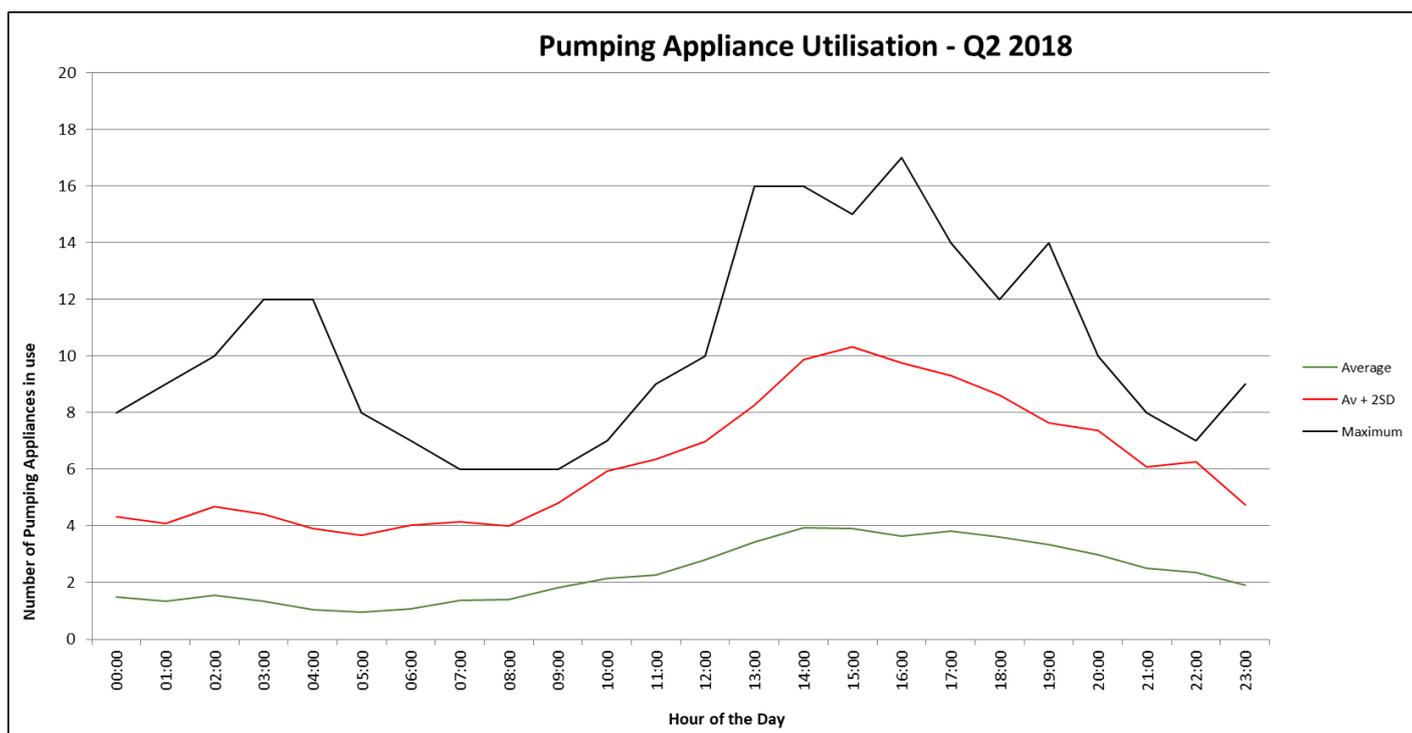


The chart shows that the majority of the time, we have up to 7 pumping appliances in use.

Responding in a timely way to incidents across the county requires additional appliances, as geographic location and travel times mean that we need appliances in key strategic locations.

We currently have 14 wholetime and 5 on call appliances in the county, and have aimed to ensure all of the 14 wholetime appliances are available at all times. We know that the current availability of our on call appliances improves our cover and helps contribute to achieving our response standard. This arrangement has ensured we have consistently exceeded our response standard target performance over the past 3 years.

The utilisation chart above shows that the average and normal range of use of our appliances varies by time of the day, corresponding to the variation in incident numbers. The second utilisation chart below shows the use of our appliances during the summer of 2018, which had a high number of incidents due to hot and dry weather conditions. Summers in general have more incidents and utilise more appliances, 2018 is an example of particularly high demand, seeing the normal range of utilisation rise from around 7 to 10.



Historically we have aimed to maintain the same cover levels during the day and at night and across the year. Our analysis suggests that further consideration should be given to whether efficiencies can be made by adopting a more tailored approach to cover. We will address this during this CRMP period.

We have used Cadcorp Workload Modeller to test our likely ability to meet demand (based on historic incidents) with different combinations of appliances available. This analysis, in combination with the utilisation analysis above suggests that as long as key locations are covered (in accordance with our degradation planning), we should be able to meet our expectations of fire cover and response standard in normal conditions with a minimum of 14 appliances.

## Wholetime and On Call

Previously, we have stated our aim to maintain the availability of our 14 Wholetime Pumping Appliances in order to meet our planning assumptions. Our 5 On-call Pumping Appliances have provided additional cover and resilience.

Our analysis suggests that we will still be able to meet our appliance utilisation levels and response standard if we include on call pumps in our 14 appliance requirement, changing our aim to maintain a minimum of 14 appliances available. This will allow us to take a flexible approach to crewing, utilise our on-call availability, and potentially reduce our wholetime overtime bill during periods when our on-call appliances are available.



In the 2021-22 year, there were over 300 shifts when at least one wholetime firefighter was brought in on overtime to ensure our 14 wholetime pumps remain available.

The likely impact of this approach on our response standard performance is small – around one percentage point based on 2021-22 availability. Our response standard performance in 2021-22 was 77.2%.

The use and impact of this change should be monitored and evaluated.

## Managing our resources - Automatic fire alarms

False alarms caused by automatic systems continue to be a real problem for businesses and RBFRS. Over a 5 year period, on average, RBFRS was called to 2937 automatic fire alarm activations each year. Only 1% of automatic fire alarm activations are actually fires. They represent a drain on our resources, reducing our fire cover and our ability to carry out essential activities such as training, risk information gathering and fire safety education.

We challenge calls to some of these types of alarms and as a result do not send a response to a quarter of them.



# Summary of CRMP proposals

The analysis and evidence in this document has informed the priorities in the Community Risk Management Plan. The priorities are summarised below, with references to the analysis and evidence in this document.

## **Priority 1. We will develop our Integrated Service Delivery Strategy to meet the changing profile of risk in Berkshire due to climate change, societal and technological shifts.**

*See sections starting pages 26, 32, 52, 57*

We anticipate that climate change and technological adaption will change the types of emergency incidents we attend. The summer heatwave of 2022, saw RBFRS fight a very large number of fires across the county. Increasingly wet winters are also predicted and we anticipate more frequent flooding. As society adapts, through increased use of alternative and renewable energy systems in vehicles, homes and businesses, we must adapt what we do to mitigate the risk. The hazards we manage are changing and we must keep pace with these changes.

We will develop our prevention activities and response model to reduce the impact of wildfires and to support our response to flooding. These changes will improve the resilience of RBFRS and the community.

We will develop our prevention activities and response model to reduce the impact of incidents from alternative fuel sources, both to the service and the people of Berkshire.

Through our annual review of risk we will continue to monitor developments in new technology.

## **Priority 2. We will develop a Risk Based Prevention Programme to target those most vulnerable and at risk from emergency incidents.**

*See sections starting pages 15, 23, 31, 37*

We will implement a Risk Based Prevention Programme which helps us identify those that are most at risk in the community. To enable us to carry out early intervention activities, preventing them from becoming vulnerable to risk. We will ensure that we use our resources and capability in the most efficient and effective way.

We will identify those most vulnerable through our various partnerships such as safeguarding referrals, to ensure that we are targeting our prevention interventions most effectively.

We will better understand our communities by using data and local knowledge to reduce the likelihood and severity of emergency incidents across Berkshire.

## **Priority 3. We will develop our response model to ensure that we are providing the most effective response to incidents within Berkshire, ensuring that it is sustainable and provides value for money.**

*See section starting page 55*



We recognise that we are entrusted with public money and have a duty to spend it wisely. In order to ensure we provide our services efficiently we will seek to ensure that we deliver good value for money.

We will develop our response model to ensure its effectiveness in responding to incidents. We will match our resources to the risks within the county. By ensuring our fire appliances, specialist vehicles and staff, are best placed to respond to incidents.

We will ensure that we will continue to maintain our response standard of the first fire appliance arriving at the incident within 10 minutes on 75% of occasions is maintained or improved with any development of our service.

**Priority 4. We will review the incidents we attend and reconsider whether we should continue to go to those that do not form part of our core statutory responsibilities.**

*See sections starting pages 32 and 48*

We will work with our partners to develop the most effective approach to resolving incidents that currently are not part of our statutory duties. We will do this through our targeted prevention activities and after careful consideration our emergency response model. These changes will support us to use capacity to deliver our other priorities.

**Priority 5. We will develop our Fire Protection service to support the resilience of businesses, to ensure the safety of all people using buildings covered by the Fire Safety Act 2021, Building Safety Act 2022, and Regulatory Reform (Fire Safety) Order 2005 and to ensure that our enforcement role is effective and clear.**

*See sections starting pages 18 and 60*

We will develop and build upon our Risk Based Inspection Programme to ensure we are targeting those premises with the greatest risks and using our inspecting officers' skills to regulate where they are most needed.

We will review our operational response to unwanted fire signals (automatic fire alarms) to reduce the impact on the service and public, whilst working with businesses to educate them on their responsibility under the Regulatory Reform (Fire Safety) Order 2005.

Sprinkler systems within buildings are an effective initial intervention in reducing the impact of fires in commercial buildings, we will strength our campaign for introducing these in buildings that it is not currently a requirement.

We will work with the Building Safety Regulator within our capacity under the new Building Safety Act 2022.

We will develop our way of working to be able to enforce the Regulatory Reform (Fire Safety) Order 2005.



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**Priority 6. We will provide a minimum of 14 frontline fire appliances utilising our Wholetime and On-call staff as effectively as possible.**

*See section starting page 57*

We will aim to crew all 19 of our frontline appliances, however this is not always possible due to unforeseen short term staff absences and training. As a baseline service provision we will provide a minimum service of 14 frontline fire appliances utilising our wholetime and on call crews, ensuring that we continue to maintain our response standard of the first fire appliance arriving at the incident within 10 minutes on 75% occasions.

We recognise that we are entrusted with public money and have a duty to spend it wisely. In order to ensure we provide our services efficiently we will seek to ensure that we deliver good value for money.



# Glossary of terms

Accidental fires	Accidental fires include those where the motive for the fire was presumed to be either accidental or not known (or unspecified).
CBRN(e)	A term used to describe Chemical, Biological, Radiological, Nuclear and Explosive materials. CBRN(e) terrorism is the actual or threatened dispersal of CBRN material (either on their own or in combination with each other or with explosives), with deliberate criminal, malicious or murderous intent
COMAH	The Control of Major Accident Hazards (COMAH) Regulations 2015 ensure that businesses take all necessary measures to prevent major accidents involving dangerous substances and limit the consequences to people and the environment of any major accidents which do occur.
Consequence	The outcome of an event. Specifically, the severity or extent of harm caused by an event.
Deliberate fires	Deliberate fires include those where the motive for the fire was 'thought to be' or 'suspected to be' deliberate. This includes fires to an individual's own property, others' property or property of an unknown owner. Despite deliberate fire records including arson, deliberate fires are not the same as arson. Arson is defined under the Criminal Damage Act of 1971 as 'an act of attempting to destroy or damage property, and/or in doing so, to endanger life'.
Emergency	The Fire and Rescue Services Act 2004 defines an emergency as an event or situation that causes or is likely to cause one or more individuals to die, be seriously injured or become seriously ill, or serious harm to the environment (including the life and health of plants and animals).
Foreseeable	Sufficiently likely to occur such that a reasonable person would take it into account in reaching a decision.
Hazardous event	A potential event that can cause harm
Hazmat	Abbreviation for hazardous materials although it is commonly used in relation to procedures, equipment and incidents involving hazardous materials where the origin of the incident is not thought to be malicious.
HMA	Hazardous Materials Advisor – Specialist fire service officer, able to advise on incidents such as chemical spills, radiation and explosives.
Likelihood	The chance of something happening. May be described by the probability, frequency or uncertainty of events.
MACR	Ministry of Defence - Major Accident Control Regulations. Analogous to COMAH Regulations.
NFCC	National Fire Chiefs Council
On call firefighter	Professional firefighter who trains once a week at a fire station and responds to emergencies via a pager message
Prevention	Providing education about fire safety to the public and businesses
Primary fire	Primary fires are potentially more serious fires that harm people or cause damage to property and meet at least one of the following conditions: <ul style="list-style-type: none"><li>any fire that occurred in a (non-derelict) building, vehicle or (some) outdoor structures</li></ul>



	<ul style="list-style-type: none"><li>• any fire involving fatalities, casualties or rescues</li><li>• any fire attended by five or more pumping appliances</li></ul>
Protection	Reducing the likelihood and impact of fires through the regulation and enforcement of fire safety law
RBFA	Royal Berkshire Fire Authority
RBFRS	Royal Berkshire Fire and Rescue Service
Response	Sending pumping appliances, specialist vehicles and officers to resolve emergency incidents
Secondary fire	Secondary fires are generally small outdoor fires, not involving people or property. These include refuse fires, grassland fires and fires in derelict buildings or vehicles, unless these fires involved casualties or rescues, or five or more pumping appliances attended, in which case they become primary fires.
UA	Unitary Authority
Wholetime firefighter	Professional salaried firefighter working a full time 42-hour week

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