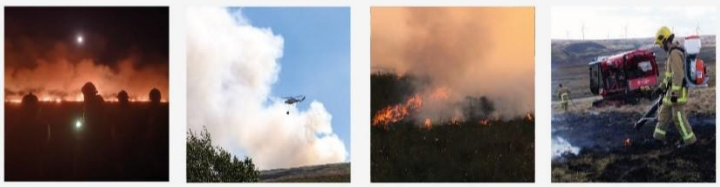
Appendix 1

Lancashire Fire and Rescue Service



2022-2027

Climate Change Operational Response Plan

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Executive summary

Our Strategic Assessment of Risk identified the increasing impacts and consequences of climate change in terms of both prevalence and duration of large-scale flooding and wildfire events in the county.

In our Community Risk Management Plan (CRMP) 2022-27 we share our high-level ambitions in response to these emerging risks and this Climate Change Operational Response Plan (CCORP) 2022-27 aims to provide a more detailed overview of how we will strengthen the provision of services to our communities to ensure that we remain best placed to plan and respond to incidents of these types.

The Intergovernmental Panel on Climate Change[1] (IPCC) earlier in 2021, shared a view on the current 'State of the Climate':

"The scale of recent changes across the climate system as a whole and the present state of many aspects of the climate system are unprecedented over many centuries to many thousands of years.

"Many changes in the climate system become larger in direct relation to increasing global warming. They include increases in the frequency and intensity of hot extremes, marine heatwaves, and heavy precipitation, agricultural and ecological droughts in some regions, and proportion of intense tropical cyclones, as well as reductions in Arctic Sea ice, snow cover and permafrost".

A key element of their observations was that:

"Continued global warming is projected to further intensify the global water cycle, including its variability, global monsoon precipitation and the severity of wet and dry events".

Armed with this insight and to ensure our preparedness and response capabilities, this five-year plan details our ambitions in response to emerging evidence and warnings on the likely impacts of climate change.

As the extremes of foreseeable weather events are evident, this action plan will consider flooding and wildfire as two separate areas of focus, whilst recognising that some of the proposed actions we will take, will serve to mitigate aspects of both risks in tandem.
In delivering against this plan, we aim to:

- Reduce the threat to the communities in Lancashire
- Improve firefighter safety
- Reduce the costs and impact upon LFRS, partners and our communities

[1] https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Headline_Statements.pdf

Key principles

The integration of activities across preparedness, prevention, protection and operational response forms the basis of this action plan.

Several key principles guide our activities:

1. Working in partnership with other agencies and/or private bodies to make our communities safer
2. Delivering prevention activities serves to educate and inform and thereby reduce potential risks
3. Empowering communities to play their part can increase local resilience and assist planning and response
4. Utilising operational debriefing and learning supports continuous improvement in the delivery of our services
5. Working to support local, regional, and national policy design through learning and sharing areas of best practice
6. Responding effectively when required, with the right vehicles, trained staff, best equipment, and operational tactics

About Lancashire

The county of Lancashire sits in the Northwest region of England and is the 17th largest county, covering an area of 3,079 sq. km.

The overall population is circa 1.498 million although there is great variance in population density, from highly populated urban areas of industrialisation through to more rural areas used for agricultural crop growing and recreational activities.

Lancashire is defined by the Irish Sea to the West, into which most Lancashire rivers and their tributaries drain westwards from the West Pennine Moors. The remainder of the county is bordered by Cumbria to the North, North and West Yorkshire to the East and Manchester and Merseyside to the South.

The county has 14 districts within its boundaries, these are Blackburn with Darwen, Blackpool, Burnley, Chorley, Fylde, Hyndburn, Lancaster, Pendle, Preston, Ribble Valley, Rossendale, South Ribble, West Lancashire and Wyre.

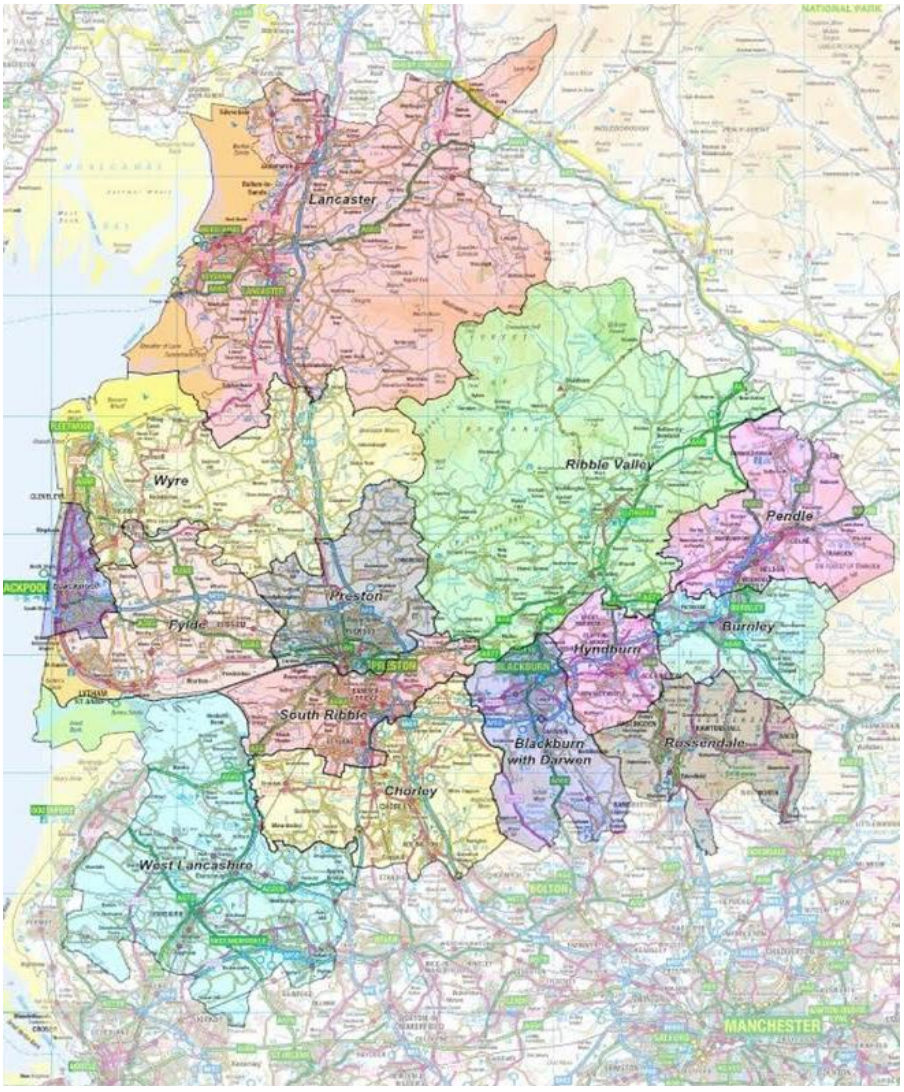

Figure 1 - Lancashire District map

We have a remarkably diverse landscape; to the west of the county are the West Lancashire and Fylde coastal plains, along with the Morecambe Bay area which receive water from the catchment areas within the Ribble Valley, Wyre Valley, and the Lune Valley.

Aside from the coastal resorts, these areas are largely rural with land devoted to agricultural purposes such as cattle farming and the growing of vegetable crops.

In the north-west corner of the county, straddling the border with Cumbria, the Lune Valley encompasses the Arnside and Silverdale Area of Outstanding Natural Beauty (AONB), characterised by its limestone pavements and home to the Leighton Moss nature reserve.

To the east of the county are upland areas leading to the Pennines.

To the north of the Ribble Valley is the Beacon Fell Country Park and the Forest of Bowland, another AONB.

Much of the lowland in this area is devoted to dairy farming and cheesemaking, whereas the higher ground is more suitable for sheep grazing, and the highest ground is uncultivated moorland which provides Lancashire Fire and Rescue Service (LFRS) with the extensive challenges of wildfire incidents.

Legal matters

Various pieces of legislation are relevant to the role we play in managing flooding and wildfire risk.

The Fire and Rescue Services Act 2004 (FRSA) places a legal requirement on all fire and rescue services to plan, prepare and respond to a range of operational incidents.

Under the FRSA, the Fire and Rescue Authority has the power to provide its services to others and to take any actions on its own part that it considers appropriate in response to events or situations that are likely to cause death, injury or illness to people or harm to the environment.

The Civil Contingencies Act 2004, along with supporting regulations and statutory guidance on 'Emergency Preparedness' establishes a clear set of roles and responsibilities for those involved in emergency preparation and response at a local level.

LFRS is defined as a Category 1 responder under the Act and are part of a multi-agency response to civil emergencies.

Our role includes:

- Assessing the risk of emergencies occurring and using this to inform contingency planning
- Putting in place arrangements to make information available to the public about civil protection matters and maintaining arrangements to warn, inform and advise the public in the event of an emergency
- Putting in place emergency plans
- Putting in place business continuity management arrangements
- Sharing information and co-operating with other local responders to enhance co-ordination and efficiency

Our activities are also directed by The Environmental Protection Act 1974 and The Heather and Grass etc. Burning (England) Regulations 2021 which also have implications regarding some of our preventative and operational undertakings.

Causation factors

It is predicted that the UK will continue to be considerably affected by the impacts of climate change.

Extreme weather events such as high temperatures and low rainfall in spring / summer, and conversely wetter winters with high rainfall are highly likely to feature.

Risk from flooding and wildfires tend to be seasonal and our strategy recognises this with a shift in operational preparedness occurring at regular points throughout the year.

Flooding

Flooding has a variety of causes including:

- **River flooding**

River flooding (also known as fluvial flooding) is very common in the UK. This is where a river's flow will breech the bank sides and cause damage or obstruction to nearby homes and businesses.

River flooding is often fast flowing due to currents from the river and poses a particular risk to those walking or driving near a flooded area. The flowing water can carry obstacles which pose a risk to life and may damage elements of infrastructure.

- **Coastal flooding**

Coastal flooding affects communities situated close to the sea and occurs because of high tides and/or stormy weather. It is a major hazard for many areas of the UK. Seawater often over-tops coastal defences causing significant building damage and disruption to communities.

The primary focus is to mitigate the impacts of coastal flooding by building appropriate flood defences.

- **Surface water flooding**

Surface water (also known as pluvial) flooding can affect anyone, irrespective of proximity to a river or the sea. Surface water flooding occurs after periods of heavy rainfall where excess water cannot drain away effectively.

Often the cause can be as simple as blocked drains or just excessively high rainfall.

Surface water flood maps are available in the UK, but as housing and commerce development continues, the flood risks change, and new areas come under threat.

- **Groundwater flooding**

Groundwater flooding can affect homes and businesses although it is not the most common cause of flooding. For groundwater flooding to occur, the water table must rise because of

increased rain.

When the water table rises sufficiently, there comes a point where it is above the ground level and the water flows over the surface as it can no longer escape to ground.

Unlike other types of flooding, groundwater flooding can be mitigated by internal measures being taken within homes and businesses such as membranes/barriers which prevent water from rising.

- **Sewer**

Sewage flooding is rare but extremely unpleasant and can be a dangerous type of flood due to the high levels of bacteria that can spread. The risk of this type of flooding is low due to proactive measures taken by water companies and local authorities.

Wildfires

Wildfire risks typically increase during warm spring and summer months due to the dry fuel loads being vulnerable to ignition, whether that be because of inappropriate land management, deliberate acts, or accidental human interactions.

Incident demand

We use the Incident Recording System (IRS) to record data on all the incidents we attend, including flooding and wildfires. The following tables detail information on types of incidents attended during the periods of:

- 1 January – 31 December 2019
- 1 January – 31 December 2020
- 1 January – 31 December 2021

Flooding

The table below details the increase over recent years in our attendance to flood incidents.

As the data from our Strategic Assessment of Risk considered, the prevalence of flood events in Lancashire is on the increase.

Table 1 - Flood related incidents attended by LFRS

Source of flooding (IRS)	2019	2020	2021	Total
Flooding – 'making safe'*	156	156	192	504
Surface water	46	101	39	186
Burst pipe	30	25	34	89
Rising river level	9	45	3	57
High tide	1	1		2
Total	**242**	**328**	**268**	**838**

*Storm Ciara was declared a Major Incident across all areas in Lancashire in 2020.

Table 2 - Prevalence of protracted flooding incidents

Prevalence of protracted flooding incidents	2019	2020	2021	Total
Incidents of 6+ hours	**5**	**24**	**4**	**33**

Wildfires

The following table demonstrates an increasing trend in wildfires.

Historically, the temperate climate of the UK has limited these incident types, but recent climatic change and longer dryer periods has led to an increase in numbers of wildfires that we attend, many of which require vehicles and other assets to bring the fire under control.

Table 3 - Wildfire related incidents attended by LFRS

Wildfire related incidents attended	**2019**	**2020**	**2021**	**Total**
Grassland, pasture, grazing etc	91	88	82	261
Heathland or moorland	29	36	14	79
Woodland/forest – broadleaf/hardwood	1	2	0	3
Woodland/forest – conifers/softwood	1	3	3	7
Total	**122**	**129**	**99**	**350**

Recent examples of large-scale protracted Wildfire incidents in Lancashire include:

- Anglezarke Moor, March 2011
- Darwen Moor, April 2016
- Winter Hill, June & July 2018
- Stones Bank Wood (Plantation), Darwen, May 2020
- Darwen Moor, May 2020
- Longridge Fell (Plantation), May 2020

When wildfires meet the NFCC wildfire definition**, they are reported into the National Resilience Assurance Team (NRAT) for tracking and recording purposes.

The following table illustrates the number of those incidents over recent periods:

Table 4 - Wildfire related incidents reported to NRAT

	2019	**2020**	**2021**	**Total**
Total number of Wildfire incidents reported to NRAT	**14**	**21**	**10**	**45**

**NFCC wildfire definition:

- Involves a geographical area of at least one hectare (10,000 square metres)
- Has a sustained flame length of more than 1.5 metres
- Requires a committed resource of at least four fire and rescue service appliances/resources
- Requires resources to be committed for at least six hours
- Presents a serious threat to life, environment, property, and infrastructure

Impacts of flooding and wildfire incidents

The impact of climate change is increasingly being experienced in the context of local and wide area flooding events and wildfires and when they do occur, these events can lead to significant risk to life, damage to communities and infrastructure.

LFRS is part of the Lancashire Resilience Forum and works with upper and lower tier councils and a wide range of partners to ensure communities are prepared. Areas of Lancashire which are known to be particularly vulnerable have established flood action groups and community resilience plans.

The wider risks and impacts of flooding and wildfires from a societal and economic perspective is not widely known within the UK, however, it has been evidenced that there are a range of long-term impacts, not just in terms of restoration of the landscape, but also on resource demand, public health, air quality, water quality and business.

Research has confirmed that there is more carbon locked up in UK peat soils than in all the trees in Britain and France together, with a significant amount of the upland in Lancashire containing sites of "deep peat."

Release of carbon dioxide from wildfire events is significant; peatlands represent a significant store of carbon, with close to an estimated 20 million tonnes locked up within the Active Blanket Bog (ABB) habitats of the Peak District National Park alone.

In 2018, a case study[2] concluded that a 61 hectare fire in an ABB habitat had the potential to release up to 11,431 tonnes of carbon dioxide into the atmosphere.

LFRS have experienced several wildfires involving 'Sites of Special Scientific Interest' (SSSI), many because of deliberate or accidental human intervention. For example, wildfires had a significant impact on Winter Hill in 2018 and Darwen Moor in 2020.

Property and infrastructure

Lancashire faces a particular threat from flooding and wildfire due to the proximity of rivers, forestry and heathland to property and major transport routes.

Large areas at risk from flooding and wildfire are directly adjacent to commercially and residentially developed areas, consequently a major event has the real potential to damage an assortment of buildings and property.

Considerable amounts of critical infrastructure in Lancashire are located on or adjacent to rivers, forestry, Ministry of Defence training sites and other rural land; all of which are susceptible to flooding and wildfires.

This infrastructure is vital to the region's economy and societal needs and can play a critical role in our response to emergency incidents.

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[2] MoorLIFE-2020-A-case-study-estimating-the-amount-of-carbon-released-from-The-Roaches-wildfire-in-2018.pdf (moorsforthefuture.org.uk)

Temporary closure or damage to infrastructure has occurred in recent years, as experienced during the Winter Hill wildfire which had the potential to cause serious disruption to Lancashire's telecommunications infrastructure and result in significant economic consequences.

Additionally, much of our critical infrastructure, such as power lines, transport networks and utilities run via pipelines through or over rural locations to supply vital services to the urban areas. These can easily be affected by both floodwater and wildfires.

Given the density of major highways in Lancashire, the risk and impact of flooding and wildfires can be particularly acute.

National Highways have undertaken several modelling scenarios to estimate the cost of closing a variety of roads within the UK. This work identified that closure of a single main route, such as the M6 motorway can result in economic financial impacts of up to £1m per hour.

Social

Flooding and wildfires pose a direct and indirect risk to the communities we protect. Directly there is the risk to life; indirectly large-scale events can seriously reduce our emergency resilience to respond to other incidents, especially during periods of high demand e.g., school holidays, periods of sustained rainfall or high temperatures.

Many sites that are at risk of these events are also heavily used for recreation, putting walkers, cyclists, and dog owners in danger. In the worst-case scenario, these incidents could result in serious injury and the loss of life.

The risk of wildfire can create a conflict between the interests of landowners and managers and those who wish to access our countryside.

Landowners/managers can be keen to protect their assets and to protect the biodiversity, however, access to our stunning countryside is as a key priority for promoting health and recreation objectives.

This potential for conflict could be considerably reduced through improved public understanding of the risks and impact of wildfire on these areas.

Economic

The topography of Lancashire is simply magnificent with a number of tourism hotspots which together with the areas of Arnside and Silverdale, the Forest of Bowland and the Forest of Pendle are Areas of Outstanding Natural Beauty (AONB).

These areas together with circa 90 square miles of upland area of the West Pennine Moors subsequently attract large numbers of local people along with visitors from much further afield for recreational purposes.

Therefore, incidents of flooding and wildfire have the potential to impact hugely with wide-ranging economic costs:

- Loss of income from the land - a flood or wildfire can be seriously detrimental to agricultural land and livestock, eliminating income for many years
- The costs of resourcing large scale protracted incidents are high due to the amount of personnel and equipment required
- Damage to property. The costs associated with initial repairs and restoration during the recovery phase can be huge and extremely time consuming
- Disruption and closure of local businesses adjacent to or within a risk area
- Land and homeowners may be unable to obtain flood or fire insurance cover at a reasonable cost

The combined effect of these costs can severely impact the viability of commercial enterprises, threatening jobs, which in turn could damage the sustainability of local economies.

Prevention, protection and education

Flooding

LFRS has already made significant improvements in how we work with partners and use modelling information to inform our prevention activities. This includes working alongside partners such as the Environment Agency, Met Office, and utility providers in the Lancashire Resilience Forum (LRF) and utilising specialist weather-based applications such as 'Hazard Manager' to support pre-planning and forecasting information.

The Environment Agency co-ordinate the national flood alerting system and send alerts direct into LFRS officers.

Following a level 1 notification LFRS representatives may consider utilising software applications to monitor water/river levels.

Upon receipt of a level 2 or 3 notification, representatives from the Environment Agency can request LFRS dial into a flood advisory service call where response arrangements may be agreed.

- **Flood alert – level 1 notification (Green alert for LFRS)**

This means that flooding is possible, be prepared. It is used two hours to two days in advance of flooding.

- **Flood warning – level 2 notification (Amber alert for LFRS)**

This means that flood is expected, and immediate action is required. It is used half an hour to one day in advance

- **Severe flood warning – level 3 notification (Red alert for LFRS)**

This means that there is severe flooding and a danger to life. It is used when flooding poses a significant risk to life or significant disruption to communities.

In some high-risk areas in Lancashire our staff are embedded within community flood action groups. This encourages positive community engagement and supports the ability to communicate our prevention strategies.

We also engage with partners such as United Utilities to install water safety notice boards fitted with a life ring and throw rope; these can be a critical resource at known risk sites.

As the risk of fire significantly increases during flooding events; our fire protection teams now utilise flood risk as part of the risk-based approach to delivering our fire safety inspection programme.

Our aspirations

Over the course of this Climate Change Operational Response Plan, we intend to reduce the number, scale, and impact of flooding events by:

- Exploring the establishment of a Lancashire water safety partnership

- Continuing to work within the Lancashire Resilience Forum framework and with other key partners to reduce the risk to life and property arising from flooding events
- Implement an effective education and communication strategy to engage and educate communities and partners regarding flooding prevention and water safety. This will consider local, national, and international best practice in relation to flooding and water safety
- Working with communities and partners to support proactive measures during times of heightened weather alerts and warnings
- Considering the role played by our business safety advisors in providing additional business continuity advice in known locations of flood risk
- Delivering targeted home fire safety checks in domestic premises in known flood risk areas
- Further embedding staff within community flood action groups

Wildfire

Although these incidents can start naturally, the majority are caused either accidentally or deliberately by people. Increasing leisure activity on open access land, in conjunction with societal trends such as careless use of disposable barbecues and campfires, has only escalated these risks.

LFRS regularly work alongside partners from the Lancashire Fire Operations Group (LFOG) to prevent wildfires from occurring and provide safety advice to representatives of our local communities in preventing the ignition of wildfires and mitigating the effects of them if they do occur.

Annual wildfire prevention campaigns are delivered to local communities and the wider public across a variety of physical and social media platforms.

LFOG members and landowners such as United Utilities along with Lancashire Constabulary have actively contributed to the production and delivery of such media material.

LFRS staff also currently deliver prevention education in secondary schools using partner resources and our own teensafe wildfires module.

LFRS works closely with LFOG members and local volunteer groups such as Darwen Moorwatch who patrol predetermined risk areas during times of high risk. These volunteers offer wildfire safety advice to members of the public.

Should an incident occur they also provide early notification to North West Fire Control (NWFC) thus enabling LFRS to deploy a rapid response thereby preventing fire spread.

Our aspirations

It is acknowledged that our staff already undertake a range of successful activities in relation to wildfire prevention.

These will be strengthened by:

- Working with Lancashire Constabulary Rural Task Force to investigate the cause of wildfires and prosecute those responsible for deliberate fire setting and illegal off-road activities
- Supporting partners to implement the use and enforcement of public space protection orders banning the use of barbecues and campfires and restricting access to areas at high risk of wildfires
- Considering the creation of wildfire toolkits enabling LFRS staff and resources to support partnership prevention through activities such as prescribed burning and flail cutting for landowners / managers as per the South Wales FRS model.
- Working with landowners and Natural England for effective application of the burn code
- Working with public and key partners to change legislation and/or influence societal trends. This could include the development of a land use framework used to inform decisions on how land is used, managed, and protected
- Raising public awareness of wildfire safety
- Supporting the development and implementation of a UK fire danger rating system
- Working with local authorities to create designated barbecue areas in country parks
- Implementing an effective intelligence led education and communication strategy to engage and educate communities regarding wildfire prevention such as the national firewise campaign
- Considering the role played by business safety advisors in providing additional business continuity advice in known locations of wildfire risk
- Delivering targeted home fire safety checks in domestic premises in known wildfire risk areas
- Working with volunteer groups to expand prevention activities such as Darwen Moorwatch into other identified risk sites

Emergency planning

Flooding

The Lancashire Resilience Forum (LRF) has a specific flooding group that brings together stakeholders from across all sectors and ensures that the various agencies have effective, co-ordinated plans in place to prepare and respond to incidents of this type.

These plans are merged to form the LRF multi-agency flood plans, part 1 and 2 which are available on the shared platform, Resilience Direct.

Testing and exercising plans is key to the effectiveness of the response, with recommendations and improvements driven at all levels to ensure matters relating to planning and response arrangements are robust.

The Environment Agency has installed telemetry devices at several locations throughout Lancashire where rivers are prone to flooding and data from these is used to provide an immediate flood warning to Category 1 responders.

LFRS appliances have Mobile Data Terminals (MDT's) which record and store rapid response catchment area flood plans for these river locations. On receipt of a flood warning in a rapid response catchment area, NWFC automatically mobilise the nearest fire appliance.

The incident commander follows the instructions on the flood plan to enable a multi-agency response to be instigated. This early notification provides LFRS with valuable time to prepare prior to a flood related incident occurring.

Loss of power during severe flooding events significantly increases fire risk within a commercial environment, therefore LFRS protection staff review the flood risk as part of the risk-based inspection programme during fire safety inspections.

Our aspirations

During this plan, we will:

- Undertake operational risk assessments which will support the creation of tactical plans for known high risk locations
- Review the advice and signposting capability provided by business safety advisors when conducting protection activity in recognised flood risk areas
- Review the targeting and prioritisation of home fire safety checks in relation to the increased risk experienced by households in recognised flood risk areas

Wildfire

To support the national approach, our lead wildfire tactical advisors attend the England and Wales Wildfire Forum and the National Wildfire Conference along with supporting implementation of the Natural Hazard Partnership and Fire Severity Index (fire danger rating system).

This allows LFRS to identify the potential for significant wildfire events and prepare its wildfire units and staff for deployment.

The Daily Hazard Assessment (DHA) allows LFRS to determine the likelihood of a significant event and carry out preventative measures and increase our presence in known wildfire locations, this includes the use of volunteer groups undertaking firewatch activities between significant hours and informing people of the risk during community engagement events.

Locally our managers (supported by wildfire tactical advisors) are embedded within many groups which enable a pre-planned and co-ordinated response to incidents.

This work includes chairing the Lancashire Fire Operations Group (LFOG), supporting the South Pennine Fire Operations Group (SPFOG) and Cumbria Fire Operations Group (CFOG) whilst engaging and supporting partners from United Utilities, Mountain Rescue, volunteer groups (Darwen Moorwatch), local authorities (Emergency Planning) and the Lancashire Constabulary Rural Task Force.

LFRS always has a nominated Command Support Officer on duty who receives notification from the Met Office of potential severe weather events.

These officers liaise with partner agencies to understand the scope, potential impacts and operational requirements that may be required to effectively deal with an ongoing situation. This usually involves the standing up of our Command Support Room where activities are co-ordinated from.

LFRS continues to utilise a range of websites and application's including Natural Hazards Partnership, Met Office, Sentinel Hub, and the Fire Information for Resource Management System (FIRMS) for early warning notification and forecasting.

Through Resilience Direct (RD), LFRS has access to the National Asset Register and the LFOG asset list, from which we can draw upon vehicles and equipment from partners, landowners, and external contractors.

Our aspirations

During the term of this plan, we will:

- Review our reporting/monitoring processes to demonstrate the impact of weather-related incidents
- Undertake operational risk assessments which will support the creation of tactical plans for known high risk locations
- Continue to invest in technology to support preplanning activities

Training

LFRS seek to deliver the highest standards of operational response by continuously planning and preparing, including internal and external training exercises for emergencies, so that we are best able to respond efficiently and effectively to any flooding or wildfire incident.

Flooding

LFRS personnel are trained to the following competencies:

Level 1 – Floodsuit responder (FR)

Completed by staff at all stations except Swift Water Rescue (SRT) and boat locations. Floodsuit responder is our equivalent of the basic national standard Water and Flood Awareness qualification.

Level 2 - Swiftwater and flood first responder (SFR)

This qualification permits our high volume pump crews to work safely in and near water no deeper than their waist. They are only taught swimming techniques for the purpose of self-rescue.

Level 3 - Swiftwater and flood rescue technician (SRT)

We currently have SRT trained staff geographically distributed at strategic locations across the county.

Level 4 - Swiftwater and flood rescue boat operator (SFRBO)

Staff at strategic locations are trained to SFRBO which allows them to safety deploy and operate the rescue boats that we have in county. As a prerequisite, these staff also receive SRT training, although they are not utilised for standard SRT operations.

Level 5 – Flood water incident management (FWIM)

Operational middle managers undertake this training to support operational activity in a rescue and flooding environment.

Level 6 – Flood water incident manager tactical advisor

These subject matter advisors can be requested to support a complex incident via National Resilience.

Lancashire has recently hosted a DEFRA assurance visit that assessed our assets against the DEFRA Concept of Operations released in late 2019.

The visit confirmed that LFRS aligns firmly with the requirement of DEFRA standards.

Our aspirations

It is our intention to maintain existing skillsets and with this in mind we will:
Train a further cohort of level 5 Flood Water Incident Managers (FWIM's).

Develop several officers presently qualified to FWIM standard, to level 6 Flood Water Tactical Advisors, for use in county or as part of National Resilience arrangements.

Wildfire

The current wildfire response identifies the levels of wildfire training in LFRS from 'Wildfire awareness' to 'Wildfire Burn Supervisor'.

Level 1 - Wildfire awareness training

- Undertaken by all operational crews
- Skills maintained through local training and exercises
- Annual e-learning module

Level 2 - Wildfire teams

- An initial course for new personnel
- Skills maintained through local training and exercises
- E-learning training package

Level 3 - Wildfire manager (internal tactical advisors)

- An initial wildfire managers course
- Skills maintained through local training and exercises
- Attend a refresher course

Level 4 - Advanced wildfire manager/National Fire Chiefs Council (NFCC) wildfire tactical adviser

- An advanced wildfire managers course
- Maintain skills through training, exercises, and national forums
- Attend annual wildfire tactical advisor conference / course

Burn team

- An initial burn supervisor course
- Skills maintained skills through training and exercises
- Annual development requirement

- Three yearly international training

Our provision and distribution of these specialisms will be reviewed on an ongoing basis aligned to any change in risk in Lancashire.

Engagement with the NFCC Wildfire forum will ensure that there is effective liaison and exchange of information between the England and Wales Wildfire Forum (EWWF), Scottish Wildfire Forum (SWF) and other relevant organisations and agencies to maintain appropriate situational awareness.

Our aspirations

During this plan, we will:

- Review the disposition of specialist wildfire officers and tactical advisors, specialist skill sets such as burn team capability, and our off-road driving capabilities
- Consider enhancements in training which may arise because of international/global changes in wildfire firefighting techniques

Operational response

We presently utilise a range of fleet assets to deliver our operational response to flooding and wildfire incidents.

As part of our Emergency Cover Review, and this response plan, we commit to keep under constant review, the suitability, size, and distribution of such assets aligned to risk in Lancashire.

Furthermore, we will monitor technological developments to identify possible improvements in firefighting capabilities which could further strengthen our response arrangements.

Flooding

Our present flooding assets include:

- Fire engines with a pumping capability of 2000 litres per minute (lpm). All crew-members (other than SRT crews) are issued with flood suits and life jackets which permit crews to wade up to waist deep in still water (figure 2)
- Water Tower (Stinger) appliances with a pumping capability of 5000 lpm (figure 3)
- A high volume pump which is a National Resilience asset with an output of 7000 lpm (figure 4), deployed with the hose box which can deliver up to 3km hose for an incident
- Water rescue pump units located at SRT stations. These appliances carry a variety of equipment including dry suits, helmets, floating lines, and rescue sleds (figure 5).
- Rescue boats (figure 6)
- Rescue rafts (figure 7)
- Flood water incident managers
- Access to externally provided assets to support flooding response
- Specialist national support via National Resilience arrangements

Our aspirations

Over the duration of the CCORP we intend to:

- Review the suitability, number, and disposition of flood resources in line with the Emergency Cover Review and Special Appliance Review. This will include enhancing our transportation and off-road capabilities, to support improved operational response to flooding incidents in rural locations
- Purchase two Hagglund off-road vehicles for use in flooding incidents or wildfire environments (figure 8)
- Develop our incident command and Command Support Room capability through evaluating the use of new technology, body worn cameras and personal tracking devices as per mountain rescue to improve situational awareness and health and safety of staff
- Evaluate the provision of evacuation sleds

Wildfire

We presently maintain a range of fleet vehicles dedicated to wildfire response; these include:

- All front-line fire appliances are equipped with a selection of small tools, beaters, aqua leader water packs
- Hagglund tracked vehicles provided by third party organisations transported to incidents by a beavertail flatbed transporter (figure 9)
- Polaris (figure 10), a six-wheeled vehicle with 250 litre water tank and high-pressure fogging system
- Wildfire support 4x4 (figure 11) carrying various pieces of wildfire equipment including blowers, small pumps, and other ancillary equipment
- Water bowser (figure 12) with 9000 litre water capacity, which will supply vast amounts of water to remote and hard to reach areas or areas with low water flow
- Burn team comprising staff trained to undertake controlled burns as part of our suite of tactical options to deal with wildfires
- Internal wildfire tactical advisors
- National wildfire tactical advisors (WFTA)
- Access to externally provided assets to support wildfire response

Our aspirations

We aim to further develop our wildfire operational response by:

- Working with communities and partners to support joint operational response to incidents
- Considering development of our burn team capability across other areas of the county
- Reviewing the provision of LFRS assets to ensure that our 4x4 vehicles remain amongst the most versatile and reliable during wildfire conditions
- Review our existing wildfire team resources with a view to developing a flail / cutting capability. This will enable us to manage fuel loading, without the impact from controlled burning in locations where Natural England have designated SSSi and deep peat sites
- Working with neighbouring FRSs, partners, researchers and manufacturers, utilising advancements in technology and equipment to develop enhanced solutions incidents
- Taking the opportunity to learn from local, regional, and national response and best practice

Personal protective equipment (PPE)

As a Service which seeks to continually learn and improve from our experiences, we actively debrief incidents attended to identify opportunities for improvement to practices and Personal protective equipment.

Flooding

All operational staff are equipped to operate as part of an initial crew responding to floods. This includes the provision of flood suits, life jackets and throw lines for all first responders. Swift water rescue (SRT) crews have dry suits, safety footwear and helmets issued.

High volume pump crews (HVP) are issued flood suits and a selection of drysuits with integral boots and floatation devices as worn by SRT crews for use during National deployments.

Our aspirations

We will continue to utilise incident debriefing along with regional and national learning to review the provision of personal protective equipment for staff at flooding incidents.

National guidance regarding the use of personal floatation devices for evacuees during flooding is currently being updated; we intend to evaluate a suitable provision for this purpose.

Wildfire

Following feedback from previous incidents and exercises, we have recently issued all operational staff with Altberg safety boots which provide enhanced ankle support over rough terrain and can be worn at a variety of incidents.

We have also made good progress with the first phase of our PPE improvement ambitions, by providing dedicated wildfire PPE to members of our burn team along with the Hagglund operators.

Our aspirations

We aim to broaden the rollout of specialist wildfire PPE, underpinning our aspirations to protect the health, safety, and wellbeing of firefighters against smoke, radiated heat and climatic heat exposure when operating at wildfire incidents.

Welfare

Welfare of our staff is of primary significance particularly when operating over protracted periods in arduous conditions.

Basic needs provided by LFRS include provisions such as water bottles, sun hats, creams, and insect repellents which are readily available for all staff attending flooding and wildfire incidents along with extended deployment bags for those deployed out of county.

For protracted incidents we can deliver welfare arrangements at scene via external contractors and volunteers from the Salvation Army.

In recent years, LFRS have made considerable advances, including the implementation of a dedicated welfare / rest unit and use of generators, powered cool boxes, individual food ration packs and shelters.

These resources allow for a forward control/welfare point to be established at an easily accessible location on the fireground.

Our aspirations

Over the course of this Climate Change Operational Response Plan, we aim to constantly review and improve these facilities based upon our operational learning from incidents and advancements locally, regionally, and nationally across the fire and rescue service sector.

Achieving our goals and reporting our progress

Lancashire Fire and Rescue Service is well prepared to respond to flooding and wildfires when they occur.

However, due to climate change the risk of flooding and wildfire is ever increasing and hence, continued investment in training, equipment, education, and community resilience is required to ensure that we, partners, and our communities are not only prepared for future incidents but have also done everything possible to mitigate the impacts of flooding and wildfires should they occur.

The Combined Fire Authority (CFA) sets the Service challenging targets for a range of key performance indicators (KPI) which help us to monitor and measure our performance in achieving success and meeting our priorities.

Performance against these KPIs is scrutinised every quarter at the CFA Performance Committee.

Over the course of this Climate Change Operational Response Plan, we will use incident data to track and measure our performance throughout the year.

Delivery against the ambitions contained within this Climate Change Operational Response Plan will also be made available via our Annual Service Report.

Appendices

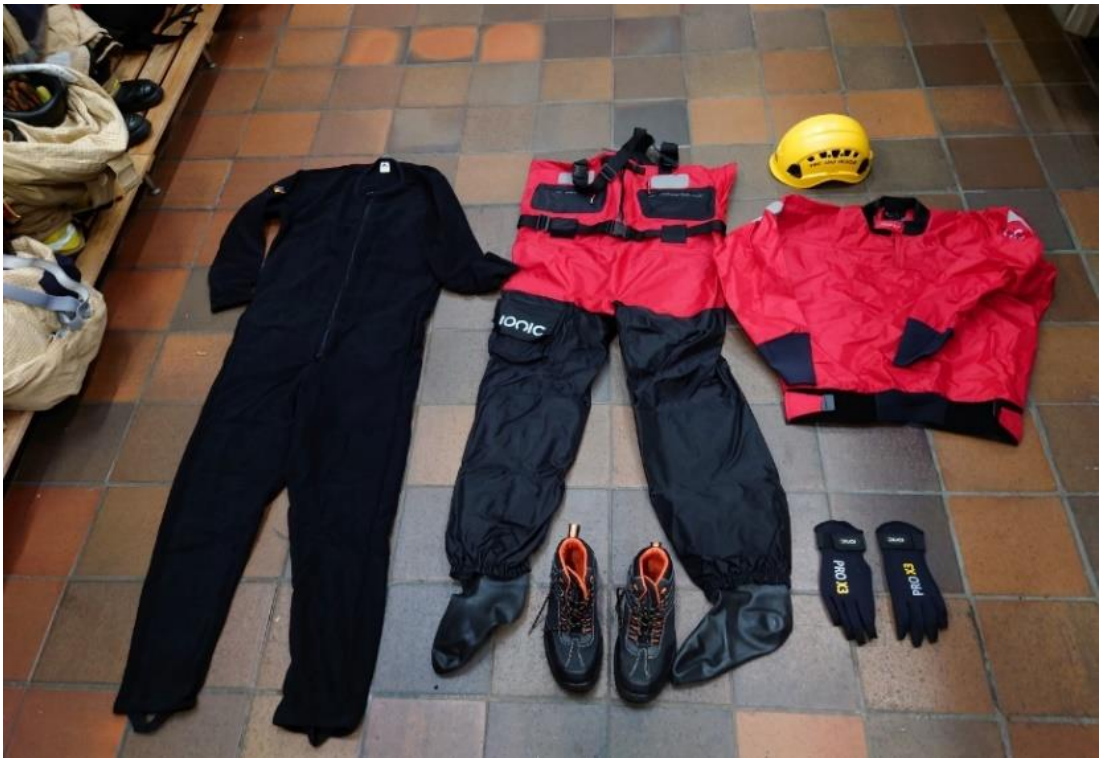


Figure 2 - Flood suit equipment

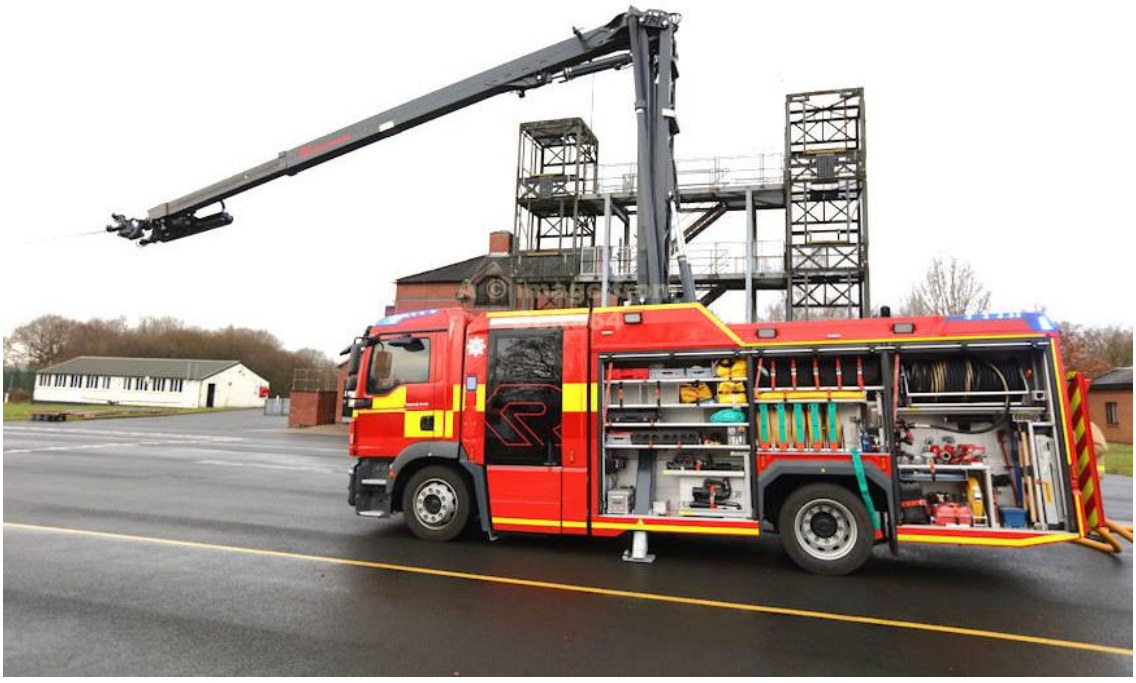
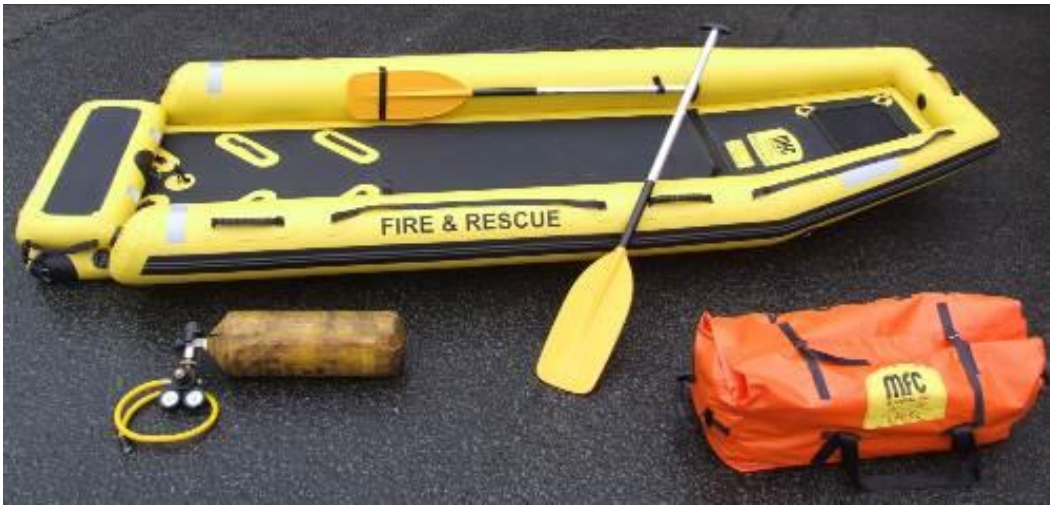


Figure 3 - Water Tower (Stinger) pumping appliance

Figure 4 - High volume pump



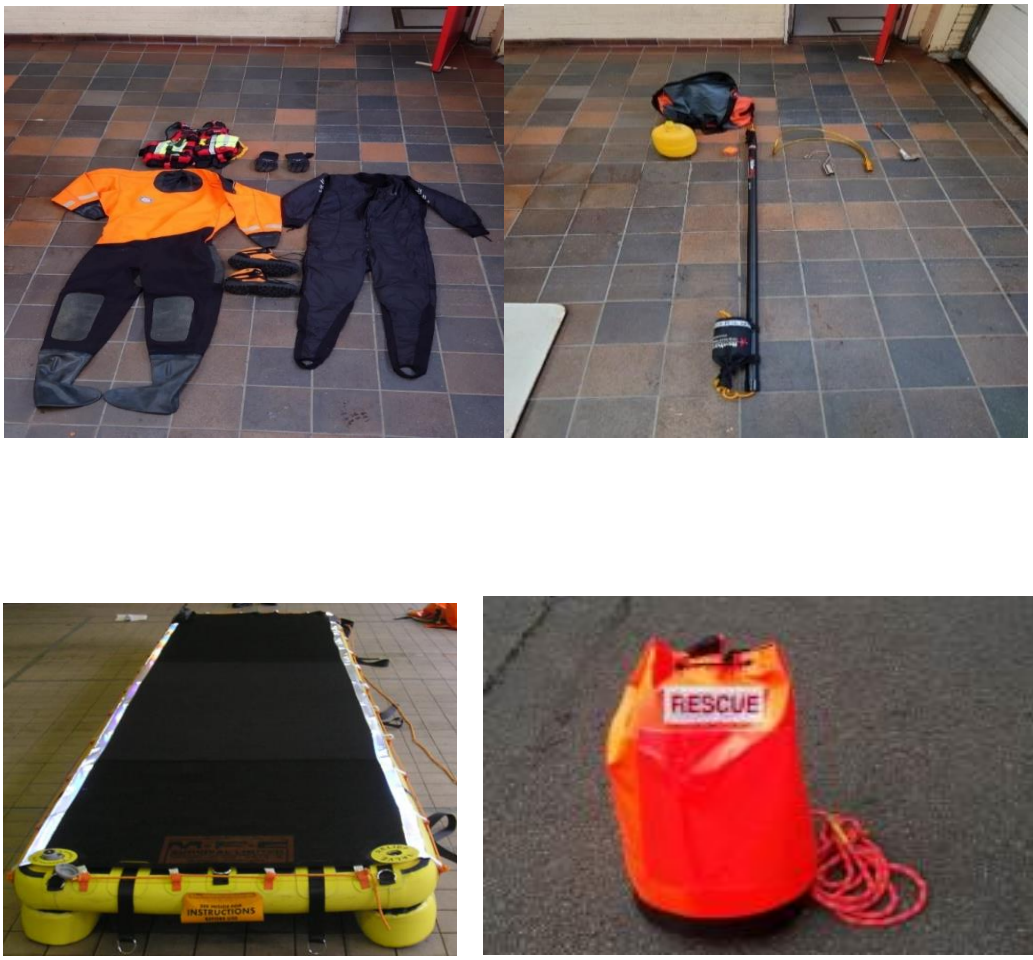


Figure 5 - Selection of equipment carried on water rescue pumps

Figure 6 - Type B rescue boat

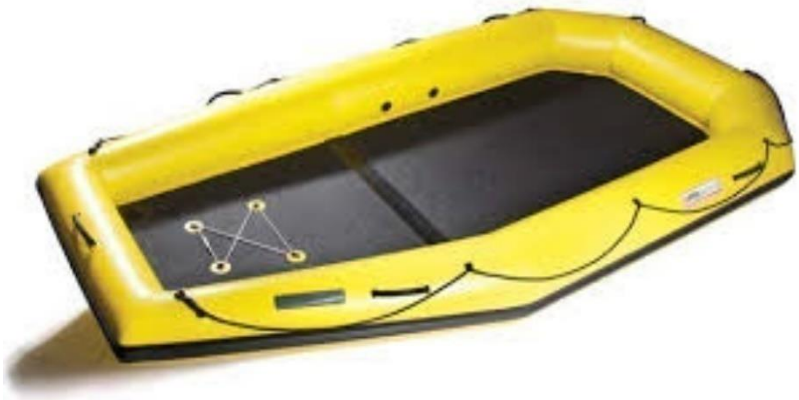


Figure 7 - Type C rescue raft

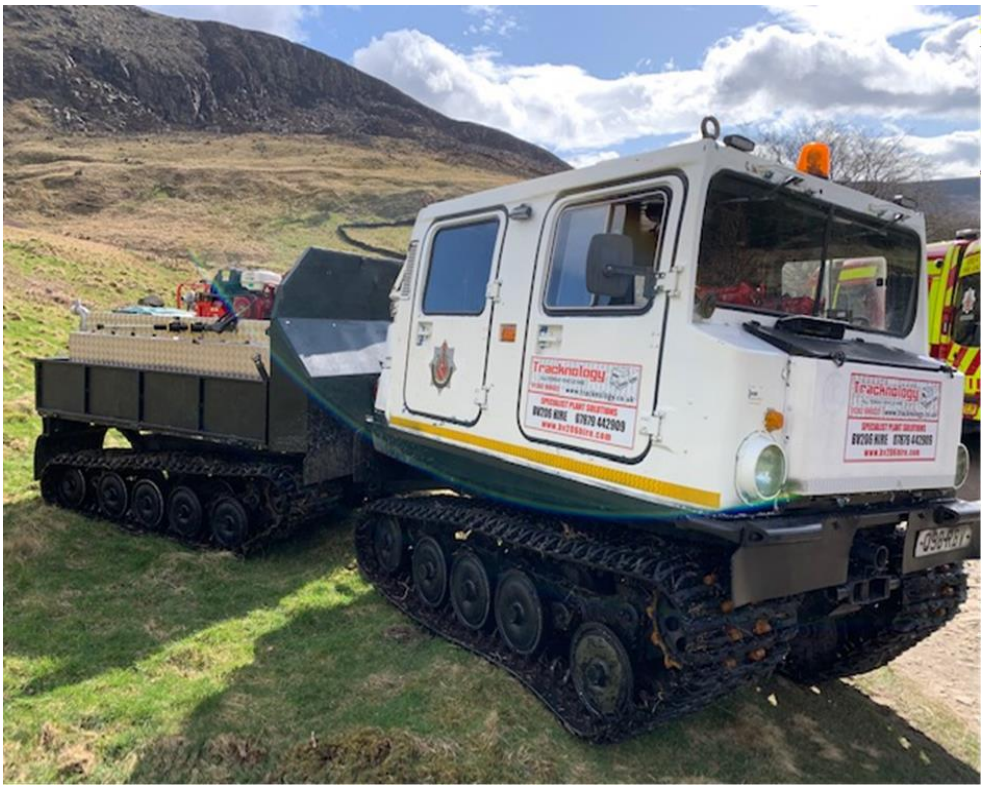


Figure 8 - Example Hagglund vehicle

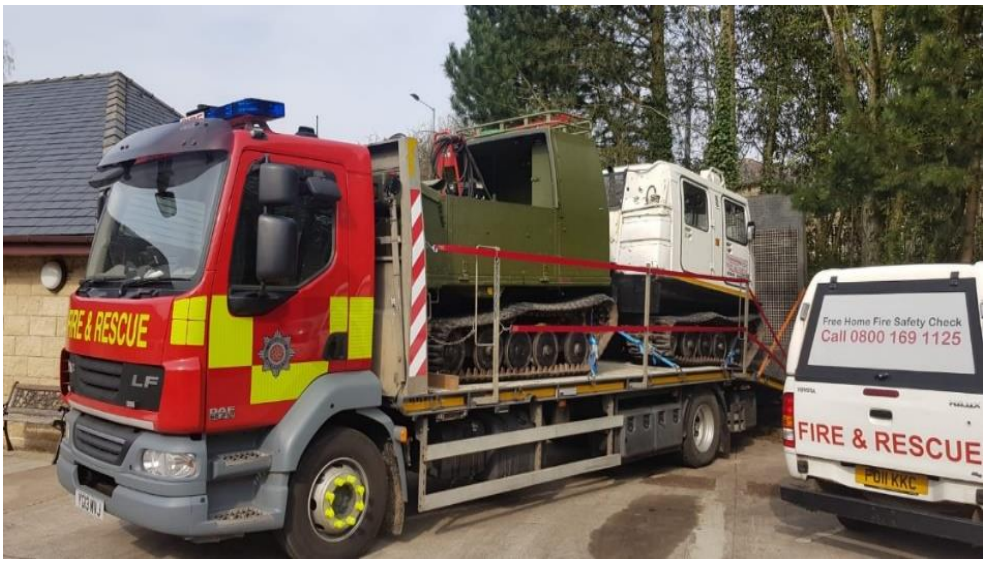


Figure 9 - Beavertail transport for Hagglund vehicle

Figure 10 - Polaris vehicle

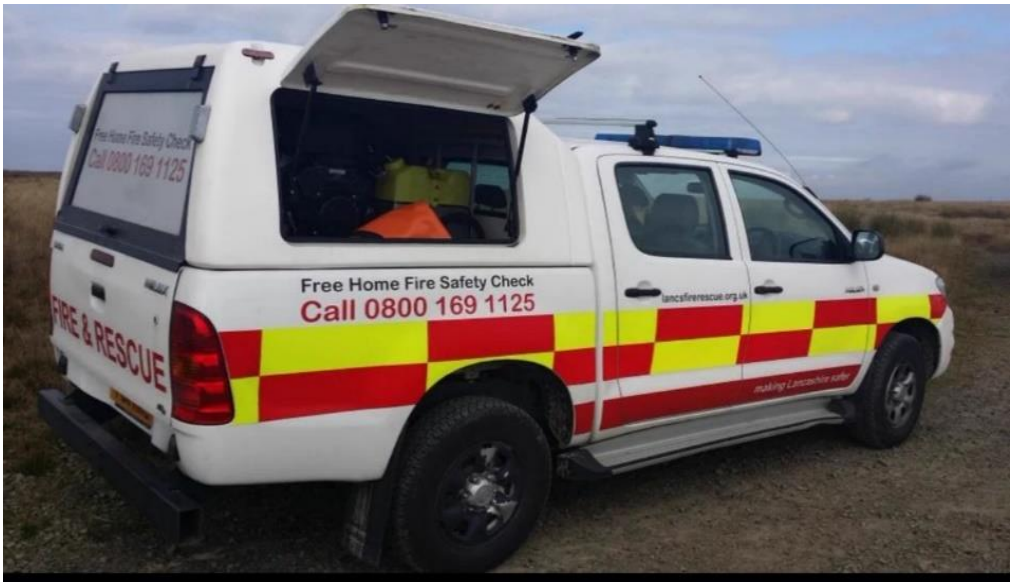


Figure 11 - Wildfire support 4x4

Figure 12 - Water bowser