DORSET & WILTSHIRE
FIRE AND RESCUE

Wareham Forest

Major Incident Report

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FOREWORD

At just after midday on Monday 18 May 2020, and during the national Coronavirus pandemic, a call was received about a fire within Wareham Forest in south Dorset. The forest is of national ecological importance and a much cherished beauty spot for local residents and visitors. Initial attending crews were met by a rapidly developing wind driven fire within a tree plantation that was spreading onto open heathland and moving towards high voltage power lines crucial to the national grid and the supply of electricity to the south west of England. Within the forest there are also a number of domestic premises, a number of small holdings, protected rare wildlife, a large solar farm, a water treatment works, three large touring caravan sites and the A35 major trunk road.

Due to the protracted dry spell and high winds the fire spread quickly, requiring the incident to be declared a major incident and necessitating the involvement of a large number of partners and specialist resources from other fire and rescue services including Avon, Devon & Somerset, Hampshire & Isle of Wight, Royal Berkshire, South Wales and West Sussex. At its height, over 250 firefighters were on scene with water being pumped six miles over land via four high volume pumps. Over the eight weeks during which the fire continued, the general and specialised resource deployment significantly challenged the Service. Undoubtedly, the recent combination of the two former fire and rescue authorities to create a larger, stronger, and more sustainable fire and rescue service assisted considerably in bringing this extremely large incident to a successful conclusion.

This report outlines the main challenges and key observations associated with one of the largest fires in Dorset in recent years. To ensure that the lessons learnt were appropriately captured, feedback was received from over 250 sources including:

- Staff questionnaire
- Ten focused debrief sessions
- National Fire Chiefs Council – Wildfire Tactical Advisor feedback
- National Fire Chiefs Council – High Volume Pump Tactical Advisor feedback
- Audit and review of operational paperwork
- Local Resilience Forum debrief report
- Devon & Somerset Fire & Rescue Service structured debrief report
- An internal audit of internal processes and procedures

Debrief sessions were conducted using staff trained by the National College of Policing as facilitators and scribes to ensure accuracy and quality in the process.

To further strengthen the debrief process, all aspects were subject to peer review by an Operational Assurance Officer from Devon & Somerset Fire & Rescue Service who is also a member of the National Fire Chiefs Council South West Region Operational Assurance Group.

We would like to introduce this report by expressing our appreciation for the actions of all those who responded to the fire. As well as our own colleagues, we would also like to extend our deepest thanks to the many partners, agencies, and landowners that helped bring this extremely large wildfire to a successful conclusion.

BACKGROUND

Wareham Forest

Wareham Forest is a significant heath area in south Dorset containing a mix of low-lying vegetation, gorse, grassland, tree plantations and agricultural land. It is a site of Special Scientific Interest (SSSI) and a habitat for some extremely rare and endangered spiders, rare birds, plants and reptiles as well as the UKs rarest reptile. The forest area also includes historic sites which are all primarily managed by the Forestry Commission and Natural England. In addition, the area also contains a number of domestic dwellings and a caravan park and is bisected by a mains electrical pylon supply critical to the south west of England, as well as a gas pipeline and major roads between the east and west of the county. The terrain in and around Wareham Forest is very undulating and has limited defining landmarks and access.



Figure 1. Area of forest involved in fire (in black outline).

Dorset & Wiltshire Fire and Rescue Service

The Service serves an area of some 2,500 square miles with a population of around 1.5 million residents, which expands significantly during the summer months. It covers the unitary areas of Bournemouth, Christchurch, Poole; Dorset and Swindon and Wiltshire and compromises of 50 fire stations and over 1,100 firefighters. 47 of the 50 fire stations are either wholly or partially supported by on-call firefighters who respond from their homes or workplaces when required. It should also be noted that, due to the national pandemic and lockdown restrictions, the Service had higher than usual levels of availability within its on-call sections.

The incident: A brief overview

In the days prior to the incident, Dorset had been subject to an extended period of fine weather that was above the normal seasonal average. This had dried out the heathland and created ideal wildfire conditions. There was also a reduction in relative humidity and a light south westerly wind. These changes in conditions resulted in a number of Fire Severity Index warnings being issued for the local area, including Wareham Forest, and the instigation of a Local Resilience Forum Pre-Event Assessment Teleconference.



Figure 2. Wareham Forest.

At 12:21 on Monday 18 May 2020, Fire Control received a call to a wildfire within Wareham Forest. Initial attending crews were met by a rapidly developing wind driven fire. In conjunction with firefighting operations, an assistance message was made for additional appliances, including 4x4 capable vehicles and water carriers to support the initial tactical plan that was quickly put in place.

Due to the severity of the incident and its rapid development, an assistance message of ‘make pumps 25’ was made and this was followed initially by a ‘Major Incident Standby’ declaration and then sometime later by a formal declaration of a Major Incident. The response to this incident ran in conjunction with the ongoing Major Incident in place to support the Service’s response to the national Coronavirus pandemic.

The Service instigated well versed and practiced command, control, and coordination structures via the Local Resilience Forum in the form of Tactical, Strategic and Recovery Coordination Groups. Whilst the incident was fire led, a large number of organisations and other interested parties were significantly involved throughout this incident. These longstanding partnership arrangements enabled the Service to limit the effect of the fire and protect key infrastructure, while keeping the public and category 1 and 2 responders updated on the status of the incident and managing wider community challenges.

To bring the fire under control, a range of general and specific tactics were used included wildfire firefighting, fire break creation, controlled burning, ground saturation and ground clearance. These tactics supported the established 'battle rhythm' of increasing resources in the morning, incident escalation from lunchtime until early evening due to weather conditions and a scaling back of resources during the night to conduct damping down operations.

Over the full eight weeks of this incident, over 220 hectares of forest and lowland heath area were affected. Personnel and resources from every single fire station within the Service were used and, in addition, a number of other specialist appliances and resources from other fire and rescue services were deployed from Avon, Devon & Somerset, Hampshire & Isle of Wight, Royal Berkshire, South Wales and West Sussex. Additionally, a helicopter sourced by the Forestry Commission was extensively used, and national resilience arrangements were called upon to secure a number of national assets including four additional high volume pumps.

This fire was one of the largest in living memory for those in and around Dorset. It proved to be both challenging and resource intensive for all involved. The following table provides a sense of scale.

Area affected	220 hectares
Personnel movements	1050
DWFRS Stations deployed	50
Firefighters at height of incident	250
High volume pumps	4
Miles of hose to support firefighting	6
Helicopters	1
Vehicle movements	300
Fire and rescue service partners	6
Total direct additional costs of incident	£570,000

Figure 3. Resources and costs associated with the incident.

The risk of further wildfires remained high both in Wareham Forest and other areas of open land and heath for many weeks. Indeed, the Service needed to deal with a number flare ups within and around this seat of fire. Key partners worked together with the Service to consider and implement immediate opportunities to mitigate the risk of further wildfires being generated by irresponsible behaviours and activities such as the use of disposable barbeques in high fire risk areas.

Formal control of the forest was returned to the Forestry Commission on 4 June 2020, however the incident remained open due to the significant risk posed by deep-seated hotspots and sustained dry weather causing localised re-ignitions. On 14 July 2020, after 57 days of firefighting, the incident was finally closed.

Whilst the complexity of the incident naturally draws out a large number of learning points, the following sections raise the key observations, along with the required action. We have also taken the opportunity to set out some of the progress made since this incident.

PREPARATION AND TRAINING

Response to Fire Severity Index messages. Like a number of organisations, the Service receives Fire Severity Index messages which are used to formulate pre-determined attendance for heath fires and large fires in the open. These warnings also relate to actions within the plans agreed at local resilience forums. The Service's response to such messages is used to make ready

operational resources and to initiate prevention activities such as heathland patrols and public awareness messaging particularly limiting the inappropriate use of barbeques or campfires in high risk areas. While it was acknowledged that the information is beneficial to the Service, it was identified that action taken on receipt of a notification is often inconsistently dealt with and needed to be more organisational coherent and assured.

Key observation 1:	There is a need to make the system of triggering Service action for Fire Severity Index messages more systematic such that it better informs prevention and preparedness actions by operational crews, Fire Control, and the media and prevention departments.
Action required	Introduce a more systematic and organisational response to external Fire Severity Index messages.
Action taken since incident:	A system is now in place that better supports public prevention and operational preparedness. The duty Group Manager now coordinates the Service preparation through a standardised briefing tool advocated by JESIP[1].

Training and awareness of wildfires across the Service. The awareness of wildfire and the potential risks posed by them continues to be strong on stations within areas of the Service where the local topography is more susceptible to this type of incident. The Service and partner agencies have much in place to ensure arrangements to manage incidents within these high risk areas. Operational staff based in the south of the Service have historically received extensive training in appropriate tactics for firefighting which has included a number of internal and multi-agency exercises to test various parts of the Service response in areas such as high volume pump positioning and deployment. Northern based operational staff, who traditionally did not experience many wildfires, have identified that training was limited to online information with limited or no practical input and not timed to the 'wildfire season'.

Due to the identified risk posed in Dorset there has been a degree of pre-planning in relation to the design and location of suitable firefighting appliances with a number of off-road appliances, a specifically designed off-road Unimog pumping appliance and Land Rover appliances located in close proximity to the main heathland areas. Stations neighbouring heathland risks have been trained in the vehicle usage and all associated driver requirements. It was however identified that this previously extended to other adjoining stations to ensure resilience arrangements but had reduced due to staff movements this resulted in the number of staff with the required competencies reducing.

[1] https://jesip.org.uk/briefing.

Key observation 2:	Operational crews in the northern stations had not received the same level of practical training as firefighters in the southern part of the Service, including the use of LACES[2] briefings. There is also a need to make all wildfire training more cyclical and more explicitly related to the wildfire seasonal risk.
Required action:	Further train and develop stations who have not traditionally responded to wildfires to add greater resilience to the Service.
Action taken since incident:	All crews Service-wide have access to the updated wildfire training package located on the learning hub. A level 2 wildfire course is being developed to enhance operational crews knowledge and understanding of the incident type. Wildfire training has a one year refresher date within the competency management system (Gartan Expert) and included as part of routine maintenance of skills training.

Key observation 3:	Although Wareham Forest is a known risk and local crews had familiarised themselves with the area, there was no effective large-scale exercising against available plans that would have supported appliance deployments, location of fire breaks, water supplies for crews and HVPs. There is also a need to more systematically extend this specific to all stations bordering this wildfire risk.
Action required:	Exercise at a greater scale for managing large wildfires.

[2] 'Lookouts, Awareness, Communications, Escape' routes safety briefings for wildfire.

Action taken since incident:	Operational crews who are likely to be the initial attending appliances to this type of incident have visited sites to familiarise themselves and update operational risk information held. This intervention links in with the land managers work on site to manage fuels and ensure access is maintained for appliances. The Group Manager for Dorset is working with a National Fire Chiefs Council wildfire tactical advisor, based in DWFRS, to plan multi agency tabletop exercises over the next 12 months. Wildfire exercising will be built into the new wildfire framework; the frequency will be determined by the outcomes of the first exercise, changes in risk, management or equipment.

Organisational learning. A number of local exercises have been held in the Dorset group, most notably Exercise Erica. The learning and observations were fed into the operational effectiveness database (OED) which was developed in 2018. This improvement database has strong support from within the Service and it is widely promoted across all staff groups. It has also received high plaudits from the British Standards Institution as part of the Service's attainment of ISO 45001 in Health and Safety Management. The database and associated management processes have led to a large number of operational improvements. However, upon closer examination, learning from Exercise Erica has not been fully implemented, most probably due to the resources taken to combine the two former fire and rescue services.

Key observation 4:	There is a need to ensure that previous learning from wildfire exercises is fully implemented.
Required action:	Ensure recommendations arising from Exercise Erica are fully discharged.
Action taken since incident:	Following a Service restructure, sufficient resources have been allocated to support the audit, exercising and the Operational Effectiveness Database.

INCIDENT COMMAND AND TACTICS

Major incident command. The Service has a comprehensive suite of incident command procedures and arrangements in place. As part of the forming the new Service, a significant amount of work and investment has gone into incident command at all levels. As part of this effort and drawing upon leaning in the South Western Ambulance Service Trust, the Service introduced the ability of an incident commander to declare a 'Major Incident Standby' mode. This declaration allows the Service to start standing up the organisational and operational arrangements associated with a major incident. The Wareham fire was the first activation of this incident command mode since it was implemented in 2018. The ability of the Service to refer and utilise these procedures was seen as a positive by all persons interviewed and provided a good basis for the wider management of the incident, partnership working and political requirements.

The incident starting at 12:23 with the formal declaration of a 'Major Incident Standby' at 15:07 to enable the wider updating of internal departments and partner agencies of the potential for an escalation in resource requirements. The Tactical Coordinating Group was established early on in the incident with full partner engagement around the delivery of the tactical plan. The formal declaration of a Major Incident was made at 20:15 for the purposes of strengthening the strategic liaison with key partners and to ensure that they were clear about the impacts upon their own organisations. Although it is understood that all category 1 responders should have suitable arrangements in place to provide a 24/7 response, it was felt that declaring a Major Incident at 20:15 in the evening did cause unnecessary logistical issues with partners being able to provide quick and timely responses.

In addition, within the Significant Events and Business Continuity procedures there are clearly defined roles and responsibilities set out for all managers and staff. It was identified that there is a need to create an even more explicit mechanism to inform internal departments that a Major Incident (including Standby) has been declared. The lack of early organisational awareness amongst supporting departments meant that a number of key teams were unaware of the potential impact on them. Key examples of this were workshops, who were only made aware of the incident when a fuel bowser was requested, despite the large number of resources in attendance, and the finance department who were unable to start accurately capturing costs from the outset.

Key observation 5:	Although Major Incident requirements are clearly understood within the Service, the addition of 'Major Incident Standby' needs to be further embedded.
Required action:	Communicate more widely 'Major Incident Standby'.
Action taken since incident:	The Service has embedded the procedures through a series of training events. All operational officers qualified at incident command level 2 and above have attended rota group training specifically around the procedures. An e-learning package and an improved command wallet have been produced and it is an operational competence

	requiring training to be completed for all operational staff qualified to level 1, 2, 3 and 4 incident command.

Key observation 6:	The Major Incident and Significant Events procedures provide a sound basis to manage such events. It is recommended that both procedures are reviewed to include clearer direction for informing key supporting departments. In addition, the review should also look at further clarifying actions for Fire Control and improving resilience arrangements for decision making if the Duty Area or Brigade managers are deployed to the incident.
Required action:	Revise the Major Incident and Significant Events procedures to help inform key supporting departments of major incident declarations.
Action taken since incident:	The Service has strengthened the Significant Events procedure. The Major Incident procedure is being updated to reflect the issues raised within this debriefing process.

Incident tactics: The incident was initially sectorised and assets deployed to meet the initial tactical plan as supported by the UK Wildfire Prediction System[3]. To ensure that effective command and control of the incident was established, it was sectorised with a Level 2 commander in charge of each sector.

There was a clear recognition from the outset that the incident was significantly escalating. Initial attempts to contain were proving largely unsuccessful and the awareness of wind, slope and aspect resulted in a rapid increase in resources. The presence of high voltage power lines which supplied large areas of, and which were crucial to, the south west of England were also an early consideration and



Figure 4. Helicopter deploying water

[3] A system designed to provide fire service personnel with a tool to explain present fire behaviour and predict likely changes to fire behaviour.

measures were put in place to protect these, including having the power isolated.

Evidence of rapid fire development, beyond what was expected by initial crews, was also identified by the requirement to relocate the command vehicle on more than one occasion to take into account the approaching fire and risks posed by the powerlines.

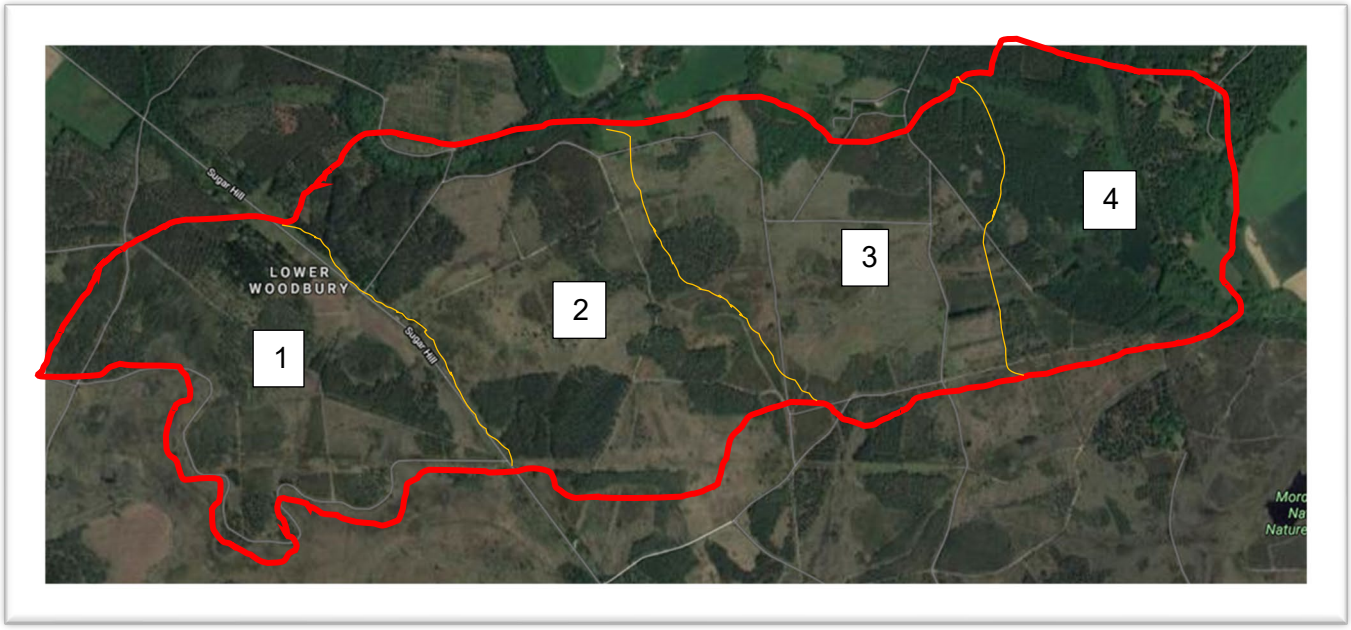


Figure 5. Sectorisation of Wareham Forest incident.

The escalation of the incident meant that tactical and strategic coordination groups[4] (TCGs and SCGs) were established with partner agencies. It was identified that communications between the fire ground command team and these groups was, on the whole, effective but that sometimes the messages and direction from these groups was not fully publicised or quickly translated to responding crews. This was felt to be in part due to command vehicle capability, the highly dynamic nature of the incident in the early stages.

Feedback from representatives at TCG and SCG was that it was initially difficult to get a full understanding of the incident and its requirements solely from the METHANE[5] and informative messages that were being sent. As the incident progressed, it was also identified that the same multi-agency message was being repeatedly sent with no adaptations to reflect changes in activity or risk. More detailed and operational specific fire and rescue informative messages continued in the normal way.

[4] As advocated within the Civil Contingencies Act 2004.
[5] METHANE is a mnemonic to help structure a multi-agency message as advocated through the JESIP initiative.

Specialist Wildfire Tactical Advisors. To support the tactical plan, specialist wildfire tactical advisors were requested and used at an early stage, providing the ability to predict fire development and spread. As the incident progressed, this information assisted with adjustments to the tactical plan, the deployment of resources and the establishment of a clear 'battle rhythm'. Based in part on guidance from these advisors, the incident soon established a rhythm of increasing and decreasing resources in line with operational requirements and time of day, with resources being scaled back at night then increased in the daytime to ensure a suitable response could be maintained when conditions would support flare ups. This rhythm was supported by a range of additional activities such as boundary cooling, ground clearance by the Forestry Commission and landowners, as well as the establishment of fire breaks using plant machinery.



Figure 6. Managed burn back.

The wildfire tactical advisors also recommended the implementation of tactics which had not been used previously within the Service, such as controlled 'burn backs' and the use of a helicopter to deploy large amounts of water to areas of difficult terrain. This was identified as a positive approach and addition to existing practices. As these tactics and resources were new to the Service, there was a limited understanding on 'burn backs' and also no direct link to the helicopter existed to direct water to the requirements of the sector commanders. The specialist wildfire advisors from South Wales Fire and Rescue Service acted in a very supportive and professional manner to guide the incident commander's plans.

Key observation 7:	The Service needs to increase the resilience of its own wildfire advisory capability.
Required action:	Increase the resilience of the wildfire advisory capability to support each rota group.
Action taken since incident:	The Service is currently identifying and training additional National Fire Chiefs Council wildfire tactical advisors. By ensuring an even disposition across the officers rota groups, the Service will be able to utilise this specialist advice 24/7 from in-house staff increasing the resilience of this capability.

SITUATIONAL AWARENESS

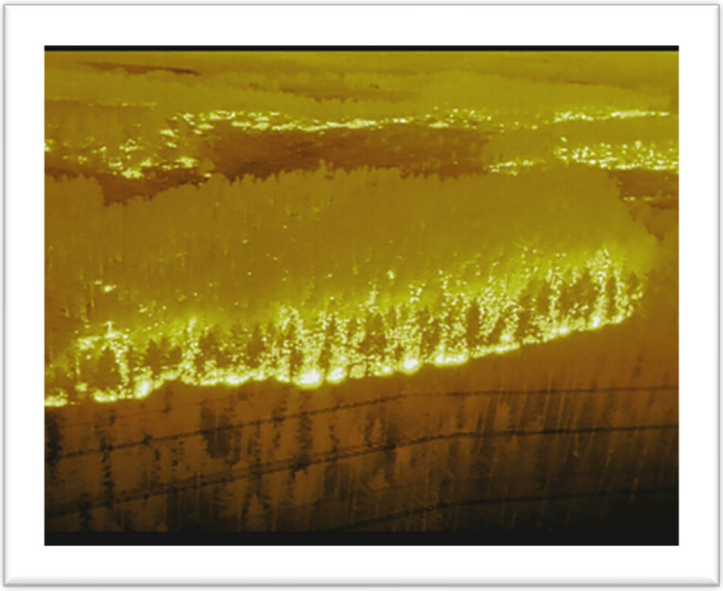


Figure 7. Heat. camera from NPAS helicopter.

Technology. Like all complex and fast moving incidents, situational awareness was required very early on by the incident commander and wildfire tactical advisors. A National Police Air Service (NPAS) helicopter and Service drone were deployed to provide a visual overview of the incident ground. The use of the drone continued throughout the entire incident and was supported by teams from Dorset and Wiltshire police forces at various stages. These proved effective at providing an overview of the incident, locating 'flare ups' and identifying hotspots (through the use of thermal image cameras) as part of the incident closure process. An identified weakness was the ability to display information to incident commanders on scene and to remote locations such as TCG and SCG. No link between NPAS and the command vehicle was possible and drone imagery could not be displayed due to a lack of suitable ICT (large scale monitor screens and laptop). This was partly addressed by the use of police vehicles with suitable monitors and ICT capability. In addition to this technology, Service and police drones also proved very helpful in securing greater situational awareness.

CONTROL AND COMMUNICATIONS

Communications with Fire Control. The Service is part of a successful Networked Fire Services Partnership (NFSP) with Hampshire & Isle of Wight and Devon & Somerset fire and rescue services. This partnership allows for calls to be handled consistently across the partnership and supports both borderless mobilising and nearest assets to be deployed. Such was the volume of calls and requests from fireground managers and other departments that Fire Control were soon inundated in the early stages of the incident. This impacted onto their ability to support the incident and maintain 'business as usual' (BAU) arrangements and the implementation of tried and tested business continuity measures to hand over BAU to Devon & Somerset and Hampshire & Isle of Wight control rooms. In addition, due to the size, duration and complexity of the incident, the Capita Vision command and control system log reached capacity and had to be closed with a new incident created.

Fireground communications. Communications played a key part of the incident management and the capability of the analogue fireground radios was soon exceeded. Radios were an identified weakness during the incident, due to the difficult and undulating terrain where crews were often out of a 'line of sight'. Airwave radios provided an effective solution but could not provide a 'demountable solution' for crews working remote to the appliance(s). Additional Airwave radios were provided by Dorset Police which enhanced the incident ground communication.

As part of the debrief process it was identified that the utilisation of a third-party communications providers (such as, Raynet[6]) could have assisted with establishing wider communications

[6] RAYNET is a national body of radio amateurs who are pledged to provide communications in times of emergency.

capabilities on the fireground. Airwave radios and messaging via the MDT[7]s were utilised, but experienced difficulties in the early stages. It was identified that the AVLS[8] function was 'refreshing' too regularly, this was creating a backlog of messages and status changes and required the function to be de-activated. The removal of this capability meant that detailed vehicle location information was not available throughout the incident.

Key observation 8:	The limitations of analogue radios hampered fire ground communications.
Required action:	Purchase and roll out digital radios to frontline crews and officers.
Action taken since incident:	Digital radios have been purchased and issued across the Service with accompanying training. The feedback from operational staff has been very positive.

NATIONAL SUPPORT

National support. A formal offer of help from the National Fire Chiefs Council's (NFCC) national resilience lead was received by the Chief Fire Officer at 22:10 on 18 May 2020 and arrangements made via the National Coordination Centre to utilise a range of national assets to assist with the initial response, ongoing support, and resolution of this incident. The main requirements were the need for more high volume pumps (HVP) (including tactical advisors) and wildfire tactical advisors to support the Service's own subject matter expert.

Initial HVP usage was made through the Service's Fire Control and utilised assets and resources within the Networked Fire Services Partnership (NFSP). The sharing of resources is an agreed practice within the NFSP and was utilised on this occasion. All of the national teams that arrived were very supportive, positive, knowledgeable and could operate with a high degree of autonomy. This made the role of incident command easier and was very welcomed by them. A formalised debrief report has been submitted to the NFCC. The main observations for those support national mutual arrangements are:

[7] Mobile data terminals are computers on-board appliances that are used by operational crews.
[8] Automatic vehicle location systems help to track vehicle movements.

Key observation 9:	(i) To ensure the continued success and development of the wildfire tactical advisor role, the Service and the NFCC wildfire lead should ensure that learning from this incident is incorporated into future deployments. (ii) Consider a process of cleaning / decontamination of equipment in the 'home' service to enable a speedier return to operational readiness of the HVPs. (iii) Consider and agree a standardised approach to services within strategic partnerships who regularly use each other's resources to ensure national availability is maintained.
Action taken since incident:	(i) This is covered by effective debriefing and use of the Operational Effectiveness Database system and National Operational Learning. A DWFRS wildfire tactical advisor regularly provides feedback to the National Fire Chiefs Council on many aspects of incidents. (ii) As detailed with the National Coordination and Advisory Framework (NCAF) Recovery & Repatriation Guidance for Fire & Rescue Services following Major Emergencies, the recovery and repatriation process is the responsibility of the affected FRS. As such, DWFRS cannot expect the 'Host' FRS (the FRS loaning the asset) to undertake this task. Devon & Somerset FRS and Hampshire & Isle of Wight FRS did volunteer to support the recovery and repatriation process which enabled assets to be made available in good time. No further action required. (iii) DWFRS are aligned to the NCAF arrangements. Resources across the NFSP are available but, as was the case with this incident, those registered as 'national assets' will be mobilised through NCAF.

SITE MANAGEMENT

Cordon Control. The size, location and resultant public interest in the incident meant that cordon control was extremely difficult to maintain effectively throughout the duration of the incident. Road blocks were quickly established by Dorset Police and effective road closures implemented by Dorset Council, but these did not restrict access via numerous footpaths and byways.

The difficulty with providing and maintaining a suitable cordon created challenges with members of the public encroaching onto the fireground to observe the fire or undertake physical exercise as part of a relaxation national Coronavirus 'lockdown' restrictions. A number of members of the public also had well intentioned attempts to 'rescue' affected animals. There was also an issue in the early stages of the incident with landowners entering the affected area to remove livestock or undertake their own measures to limit fire-spread with little or no interaction with fireground commanders. As the incident progressed, more effective control of personnel entering the fireground in an official capacity was established. This was in part due to effective working between the Service and the Forestry Commission and Natural England representatives.

The presence of press photographers on the fireground was also an issue with images being published outside of Service or partner control. It was felt that this did have the potential for confused messages to be released into the public domain. To help reduce fireground media intrusion, the Service took a proactive approach with early press releases on news, radio and social media outlets, and shortly after produced regular podcasts and YouTube videos linked to an agreed strategy seeking to limit public presence.

As with all incidents, the Service has defined systems and processes in place for managing operational personnel and partner agencies entering and leaving the incident ground. These are coordinated through the command unit. It was identified that while crews would 'book in' and be assigned to an area of operations, due to the massive scale of the incident and the difficult terrain, there was a recurring issue of crews organising their own reliefs, leaving the fireground to source fuel or moving between sectors without updating the central log. This sometimes resulted in inaccuracies in the record of personnel details and numbers on the fireground.

Partner agencies were also entering the incident and not booking in with the command unit. This situation improved as the incident progressed and more established mechanisms were implemented.

Key observation 10:	There is a need to further strengthen early arrangements with partners to effectively manage personnel entering the incident ground and ensure that they have suitable safety briefings.
Required action:	Develop and communicate a protocol with partners to ensure that they centrally book into the fireground and receive a safety brief.
Action taken since incident:	The process for attending an incident has been reinforced to partner agencies attending JESIP training and exercising.

Key observation 11:	Operational crews did not always notify command support when leaving the fireground to source fuel or moving between sectors.
Required action:	All operational crews are to be reminded to maintain the discipline of booking in and out of the fireground through command support.
Action taken since incident:	This standard approach has been further embedded through training after it became apparent that a level of self-deployment was experienced during this incident.

Terrain. The terrain in and around Wareham Forest is mainly heathland, managed woods, marsh and agricultural land with limited defining landmarks and access off Sugar Hill Road being via gravel and earth tracks located behind locked security gates. The only main tarmac hardstanding was Sugar Hill Road. All other access to the fireground was via forestry tracks that were not always clearly defined or recognisable on available maps. In the initial stages of the incident, access tracks were suitable for appliances to gain access to various areas. However, as the incident progressed and appliance usage increased these became damaged and, in some cases, inaccessible to certain vehicle types. This created issues with deploying resources and moving vehicles particularly as high rates of vehicle movement on the forestry tracks caused damage to the surfaces rendering some areas impassable. This meant that appliances and officer cars were committed to situations that sometimes exceeded the capabilities of these vehicles and drivers, requiring the on-going assistance of workshop technicians. This also presented issues with appliance and landrover crews attempting to 'self-rescue' vehicles that had become stuck rather than requesting the assistance of a workshop technician. On occasion this led to further, avoidable damage being caused to some vehicles as a result of incorrect techniques being employed to rescue them. More regular updates and signage around areas that were impassable would have helped reduce this requirement. Landowners and the Forestry Commission kindly provided support by applying additional ballast to these areas.

Mapping was available in the early stages but did not clearly define any ground or elevation changes and was not consistent with changes to tree plantation and access track amendments. This included a lack of clarity around incident sectorisation, what resources were deployed, where they were deployed and safe access and egress routes to affected areas. There are also elevation changes with a highpoint located in the middle of the area that obscures the view from one side to the other. These factors made gaining an awareness of any affected area, direction of travel and likely progress routes challenging when observed from ground level. Terrain awareness and the affect the topography has on fire development and spread would have assisted with pre-planned response activities, including the positioning of fire breaks, and areas of increased or reduced fire load. This awareness could have formed part of initial operational tactic considerations. The NPAS helicopters and Service and police drones proved very helpful in understanding these factors. As

the incident progressed and incident command and staff awareness of the terrain and its associated complications increased, these complications were reduced.

The terrain also had a significant detrimental impact on effective fireground communications with radios that work best through 'line of sight' and are not able to work effectively in wooded or undulating terrain. This was addressed by the increased use of Airwave radios but created additional complications covered elsewhere in this report. The use of mobile phones and mobile data was also compromised with areas of poor or no signal being identified across the incident ground.

Figure 8. Woolbarrow Hillfort, a significant historical and ecological site.



Key observation 12:	Appliance and Landrover crews attempting to self rescue vehicles that had become stuck, without requesting the support of a vehicle technician led to avoidable damage being caused to some vehicles.
Required action:	Reinforce the communication of Service procedures to ensure staff are aware of the need to avoid attempting self rescue of vehicles and request the support of a workshop technician.
Action taken since incident:	Communication has been circulated to staff to reinforce Service procedure RE3SI Driving and manoeuvring paragraph 1.4.5 which outlines the need to request the support of a workshop technician if a vehicle becomes stuck. Reference is now incorporated into the driver training courses delivered to acquisition and refresher training courses.

Key observation 13	There is a need to ensure that command support better forecast and manage the access and congestion issues faced by this challenging terrain including the more systematic use of location apps such as 'What3Words'.
Required action:	Strengthen Service procedures to ensure access and site management at large incidents do not cause congestion or obstruct firefighting resourcing.
Action taken since incident:	A review of Level 2 risk information held on MDTs for Heathlands is being undertaken. Revised risk information will include additional map layering to define access and safe places for firefighting appliances. In addition, work is underway to improve on site information through the provision of hard copies of plans stored at each location in specially designed holders. These holders would be maintained and updated by the land manager for DWFRS use.

PEOPLE

Covid-19. The requirements for social distancing in line with Covid-19 restrictions were a significant challenge throughout the incident and formed a large part of the decision-making process for relief crews and the incident working strategy. The management of personnel on the fireground and across the wider Service was a significant area of focus and was further complicated by the requirement to limit movement and interaction of personnel in line with Covid-19 guidance. A main area of concern raised was the command vehicle, where it was observed that large groups would congregate regularly in the rear of the vehicle for extended periods of time. During the emergency phase of the incident it was not possible to adhere to all infection prevention and control measures at all times, however, additional PPE was provided, social distancing encouraged and welfare facilities, including access to hand washing provided.

A dedicated welfare unit was provided by Devon & Somerset Fire & Rescue Service and the teams that arrived were very supportive, positive, knowledgeable and could operate with a high degree of autonomy. This made the role of incident command easier and was very welcomed by them.

Workforce resourcing. A Resourcing Cell was established to balance the operational personnel deployments for the incident whilst maintaining business as usual across the Service area. This cell was co-located with Fire Control and included corporate staff. The challenges faced by the team

were considerable, especially in light of the continued variances in operational tactics and requirements, relief strategy, station availability, wider interaction with other such as fire and rescue service, NCAF, partner agencies and the continuous requirements to manage and maintain business as usual.

Although the intent and requirement of the resourcing cell was clearly defined, the lack of detailed procedures at times led to some confusion between managers. A single contact number for the cell would also have improved communications between personnel. As the incident unfolded, the addition of a Control Operator in the command vehicle to manage messages and resources was a positive for improved quality and content of messages and resource requests.

Key observation 14:	The use of Control Tactical Advisors and Control Room Advisors was seen as a positive but needs to be exercised more to ensure greater consistency and the maintenance of skill sets required for this role.
Required action:	Exercise more frequently the roles of Control Tactical Advisors and Control Room Advisors.
Action taken since incident:	A series of training packages have been delivered to new Control Room Advisors (CRAs) to ensure they are fully conversant with the role and have specified maintenance of skills criteria.

Key observation 15:	A procedure should be produced that clearly defines the remit, role, reporting structure and contact mechanisms (including the establishment of a contact number email address) for the Resourcing Cell. This procedure should be supported by regular training and exercising to ensure a speedy and consistent implementation when required.
Required action:	Develop and communicate a procedure to support the Resourcing Cell.
Action taken since incident:	A Resourcing Cell has now been permanently added to the organisational establishment. Dedicated email addresses and telephone numbers are widely known and used by staff and the team of corporate and uniformed staff are in a position to support BAU and any significant incidents as required.

Health and safety. During the entire incident only 20 accident reports were raised. This included 15 vehicle damage or failure, two near miss occurrences, two injuries or harm (one reported under RIDDOR[9]) and one equipment failure. This relatively low number in relation to the number of appliances and personnel deployed underlines the 'safe culture' applied by all personnel attending the incident. The main concerns that arose was the need to ensure that sectors were kept to a manageable size and that a LACES[10] safety brief was maintaining for all operational crews and partners. In addition, there is a need to further strengthen the registration of staff entering and leaving the fireground through command control when large areas of heathland were affected.

Welfare. An incident of this scale and duration created considerable challenges for ensuring the welfare of attending crews and was a key area of focus for incident commanders. The time of call meant that many of the appliances responding in the initial stages of the incident had not had any lunch. This required crews to use appliance resources but highlighted an inconsistency in what is carried across the Service's fleet with older Dorset appliances not having access to 'Hot Packs' or a suitable kettle to boil water. There was also a temporary shortage of drinking water after initial appliance stocks had been used.

[9] RIDDOR - Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
[10] LACES is an internationally recognised safety protocol, adopted in a number of countries worldwide to improve and manage safety at wildfire incidents

As the incident progressed the Welfare Unit from Ferndown fire station arrived. This vehicle has a supply of hot packs, water (including hot water), hot drinks and fitted toilets. This vehicle was identified as being suitable for smaller scale incidents but did not have sufficient capability or capacity to cater for large quantities of personnel over an extended period of time. This unit was eventually supplemented then replaced by the welfare pod from Devon & Somerset Fire & Rescue Service. The crew from this received praise from personnel for their efforts and support. Welfare was also provided by charitable organisations such as Rapid Relief, the Salvation Army and supplemented by local business and members of the public. Our thanks are extended to them all and to a local landowner who financially supported some of these facilities.



Figure 9. Devon and Somerset FRS welfare unit

The elevated temperatures were of significant concern for responding personnel, creating increased risk from heat exhaustion and exposure. Drinking water and assorted soft drinks became readily available on the fireground and were supported by regular charitable donations from local suppliers. Sun lotion and hats that are not standard issue were also provided but these soon ran out and did not reach all crews. Establishing cooling stations, with basic provisions, around the fireground would have been beneficial and removed the requirement for appliances to return to the Control point. Through the debrief it was recommended that better pre-planning would have identified a suitable welfare area, away from other areas to remove the possibility of site congestion. In addition, it was also identified that the toilets were not fully supportive of female firefighters and their potential sanitary requirements. Once raised this was quickly resolved at the incident.

Key observation 16:	Not all appliances had the same level of welfare provision in relation to hot packs and drinks and additional measures had to be introduced to meet the needs of our female firefighters.
Required action:	Ensure consideration is given to the provision of welfare facilities to support a diverse workforce when the specialist vehicle review is undertaken, in addition, ensure all new appliances can support hot packs and drinks.

Action taken since incident:	A specialist capability review is being undertaken that incorporates our approach to incident ground welfare and considers a wide range of criteria, including diversity and inclusion requirements. The outcome of the review is likely to be the provision of dedicated welfare vehicles to be used at protracted incidents. The new fleet of appliances being introduced to the Service have improved welfare provision including, for example, an inbuilt water boiler and hot packs.

VEHICLES

Command unit. The Command Unit used for this incident was a basic vehicle and fitted with white boards, a Mobile Data Terminal (MDT) and Airwave radio. The vehicle has been designed to provide a range of roles and has been used on a number of incidents to good effect.



Figure 10. Command unit used during incident

The basic functionality of the command vehicle often limited the efficiency of capturing, dissemination and recording of a large amount of information. It also made the maintenance of an auditable log more difficult.

As outlined earlier, it would also have been advantageous to have been able to display and transmit information to remote locations to support off scene situational awareness including the pinpointing of critical national infrastructure or other significant strategic risks. The command support vehicle was used as a central point for a number of officers and specialist roles. With this increase in numbers there was an equivalent increase in the requirements to charge electrical devices and insufficient outlets to support this. The vehicle is enclosed and does not support any form of social distancing. It is also congested when briefings are being undertaken and radio messages sent at the same time. A tent was available but was not used or replaced after it became defective.

Unimog. The Service has a single Unimog off-road pumping appliance located in Wareham. This vehicle has been used extensively at previous wildfires and has proved a valuable resource for its ability to pump water while driving and reach areas that are outside of the capability of other appliances including 4X4 appliances. The limiting factors identified with the appliance at an incident of the scale of Wareham is the restricted numbers of skilled drivers. The limiting factor of a single

appliance with this capability meant delayed response times due to terrain and travel distance when it was being requested at opposite sides of the incident.

Land rovers. Discrepancies with vehicle capability were identified with older Land Rovers having hose reels and newer vehicles having high pressure lances. This difference in capability meant that newer vehicles were better suited for damping down and boundary cooling while older units could provide more aggressive firefighting. This is a small but subtle difference but identified as a significant consideration for tactical planning. Following combination, this is being harmonised through the capital programme.

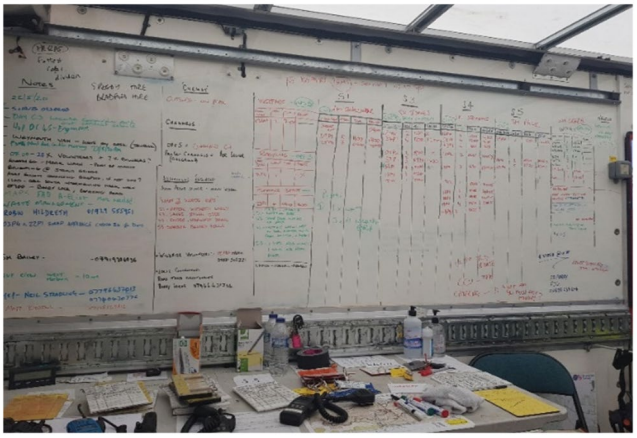


Figure 11. Basic functionality of command unit

Officer cars. Within the Service there are a range of officer cars available for response. The majority have a limited off road 4x4 capability, but some officers still have 'legacy' two wheel drive vehicles. This mixed fleet is being addressed via the ongoing replacement programme but currently resulted in some officers not being able to deploy easily to the scenes of operations or driving beyond their or their cars capabilities. Over time all officer cars will be replaced with SUV style vehicles with a greater ground clearance and All Wheel Drive capability.

Key observation 17:	The command unit should be reviewed and updated to include enhanced capabilities for capturing, displaying, and communicating information in an electronic format. The increased functionality of the Emergency Services Network (ESN) project should be taken account of.
Required action:	Scope the operational requirements for a higher tech command support unit and develop an appropriate business case.
Action taken since incident:	A comprehensive review of all specialist capability vehicles has been commissioned. The requirements for each type of vehicle will be considered by a working group and revised specifications will be created aligned to the vehicle replacement strategy and fleet replacement budgets.

Key observation 18:	A review of 'Land Rover' capability is needed to identify the most suitable form of firefighting media.
Required action:	Review the current Land Rover capability to more consistently support wildfire incidents.
Action taken since incident:	A comprehensive review of all specialist capability vehicles has been commissioned. The requirements for each type of vehicle will be considered by a working group and revised specifications will be created aligned to the vehicle replacement strategy and fleet replacement budgets.

Key observation 19:	There were insufficient trained drivers for off-road appliances to sustain an extended deployment of resources. Local training had not been maintained and there is a need to train drivers from the north of the Service areas.
Required action:	Consider the need for more operational staff to be capable of off-road driving.
Action taken since incident:	Additional drivers have been trained and a systematic process is now in place to ensure a sufficient number of staff maintain the competency.

Key observation 20:	When the current Unimog is updated or replaced to provide continued incident support. Due to the size of the Service, resilience, and the requirement to utilise this appliance in more than one area of the fireground it is recommended that an additional vehicle is purchased.
Required action:	Consider the merits of an additional Unimog.

Action taken since incident:	A comprehensive review of all specialist capability vehicles has been commissioned. The requirements for each type of vehicle will be considered by a working group and revised specifications will be created and aligned to the vehicle replacement strategy and fleet replacement budgets.

EQUIPMENT

Personal protective equipment. All operational personnel are provided with Sundstrom P3 half masks and while these provide good particulate filtration, they do not restrict fire gases. They are cumbersome if worn for extended durations and restrict communications. As part of the initial response to the pandemic, personnel had been instructed to wear them as a preventative measure. However, such were the restrictions and the physical nature of the work, they were often not worn. Firefighters were undertaking arduous work, in extreme temperatures for extended periods of time in structural fire kit. Dress down arrangements were implemented, following a risk assessment process with tunics not being worn.

Key observation 21:	An assessment should be conducted into the viability of providing suitable wildfire Personal Protective Equipment (PPE) to crews in the main risk areas. To provide increased cost effectiveness, this may be aligned to lightweight RTC PPE if deemed suitable.
Required action:	Consider the merits and costs of issuing lightweight wildfire PPE and develop an appropriate business case if appropriate to do so.
Action taken since incident:	Wildfire PPE is being trialled by all NFCC Wildfire Tactical Advisors, based at DWFRS, to trial and review. This will inform any future procurement of dedicated PPE.

Key observation 22:	The wearing and provision of half masks should be reviewed to identify any potential areas for improvement that will increase usage when working in hot and arduous conditions.

Required action:	Consider the merits and costs of issuing a half mask for wildfires and develop an appropriate business case if appropriate to do so.
Action taken since incident:	All staff have personal issue half masks. Consideration of the level of PPE required is being reinforced through Level 1 and 2 incident command training for Incident Commanders / Sector Commanders / Safety Officers / Operational assurance officers.

DOCUMENTATION

Fireground paperwork. All current fireground paperwork such as analytical risk assessments, LACES briefings and informative messages were completed throughout the incident and stored on the command vehicle in line with agreed strategies. However, it was identified that the quality of this paperwork was variable. As outlined earlier, due to the functionality of the command unit, the information being held on the vehicle was not readily accessible to some sectors.

Financial. During the debriefing process it was identified that the unbudgeted financial impact on the Service was significant. It was also felt that the Finance department had not been made aware of the incident early enough (as identified in the Major Incident section of this report), to enable the accurate collation of any costs that would support any claim. A cost code was established quickly to resolve this. This was also a lack of awareness of what could be classed as 'insured' and 'uninsured' losses and how such losses relate to any potential claim by the Service against the Bellwin Scheme. Uncertainty also existed around qualifying thresholds. The main area identified was in the requirement and costs associated with personnel to cover incident and business as usual needs.

Key observation 23:	The Finance department are to be made aware of any Significant Event or Major Incident declarations as part of any initial notification. This process and information to be supported by training for managers to understand the impact and information that is being presented to them.
Required action.	See previous actions.
Action taken since incident:	All Level 3 and Level 4 command officers are now provided guidance on the need to consider early notification of the finance department at protracted incidents.

Handover arrangements. An agreement was reached between the Service and partners to hand the main area of Wareham Forest back to the Forestry Commission and Natural England on 4 June 2020. This was to allow for ongoing recovery work by these agencies and to also release Service resources. It was also supported by a combined media strategy that involved partners and all station social media accounts. Due to the identified risk from localised re-ignitions, the incident remained open until 14 July to ensure any re-deployments were recorded against the initial incident. The handover arrangements worked well.

CONCLUDING REMARKS

This was a significant and challenging incident that took place during an unprecedented global pandemic that was already creating additional capacity requirements on the Service and partner agencies. Whilst there are inevitably things to learn from this incident, it is important to recognise the effort, professionalism, and dedication of all personnel within Service and the excellent support received from our many partners. This incident demonstrated that the underlying principles and joint working arrangements, established between agencies and forged at the Local Resilience Forum, have significant benefits to all. As well as taking forward a number of internal recommendations, where appropriate, all key learning points will be placed onto the National Operational Learning database for consideration and sharing via approved national arrangements.

Cause of the Fire

A qualified Fire Investigator attended the scene of the fire in the early stages of the incident to identify where and how the fire may have started. Early indications suggested the fire started in the woods to the west of Sugar Hill in Wareham Forest and this area became the focus of the investigation. After it was safe to do so the site was reinspected by the Fire Investigator who determined that there was sufficient evidence to conclude that the fire's cause was 'accidental due to social activity within the forest'.

At the scene of the fire, investigators found a camp fire with 11 disposable barbecues nearby. Dorset & Wiltshire Fire and Rescue Service are committed to working with the public and local authorities to raise the dangers of lighting camp fires and using disposable barbeques in areas of forest and heath in the dry summer months. In May 2021 the Service launched a joint campaign with partner agencies which incorporated an educational video, social media campaigns, local press and local road signage to help mitigate the risk of further incidents. In the future, it is anticipated that climatic change will result in warmer conditions and an increase in the risk posed by wildfires. These fires are easily started, rapidly escalate and cause enormous ecological, societal, and economic consequences. As part of the review of this incident it is hoped that shared learning and information will form an evidential base to affect change in areas directly related to wildfires. We support measures taken by partners to help prevent these fires



Figure 12. Used disposable barbecues

occurring, for example, the decision by Dorset Council to ban portable barbeques in marked areas of their land where there is an increased risk of wildfires starting. Other partners are looking to increase public facilities for outdoor cooking to prevent further incidents occurring.

RECOMMENDATIONS

Key Observation		Required Action	Action Taken
Preparation and Training			
1.	There is a need to make the system of triggering Service action for fire severity index messages more systematic such that it better informs prevention and preparedness actions by operational crews, fire control, and the media and prevention departments.	Introduce a more systematic and organisational response to external; Fire Severity Index messages.	A system is now in place that better supports public prevention and operational preparedness. The duty Group Manager now coordinates the Service preparation through an a standardised briefing tool advocated by JESIP.
2.	Operational crews in the northern stations had not received the same level of practical training as firefighters in the southern part of the Service, including the use of LACES briefings. There is also a need to make all wildfire training more cyclical and more explicitly related to the wildfire seasonal risk.	Further train and develop stations who have not traditionally responded to wildfires to add greater resilience to the Service.	All crews Service-wide have access to the updated wildfire training package located on the learning hub. A level 2 wildfire course is being developed to enhance operational crews knowledge and understanding of the incident type. Wildfire training has a one year refresher date within the competency management system (Gartan Expert) and included as part of routine Maintenance of Skills training.

3.	Although Wareham Forest is a known risk and local crews had familiarised themselves with the area, there was no effective large scale exercising against available plans that would have supported appliance deployments, location of fire breaks, water supplies for crews and HVPs. There is also a need to more systematically extend this specific to all stations bordering this wildfire risk.	Exercise at a greater scale for managing large wildfires.	Operational crews who are likely to be the initial attending appliances to this type of incident have visited sites to familiarise themselves and update operational risk information held. This intervention links in with the land managers work on site to manage fuels and ensure access is maintained for appliances. The Group Manager for Dorset Area is working with a National Fire Chiefs Council wildfire tactical advisor, based in DWFRS, to plan multi agency tabletop exercises over the next 12 months. Wildfire exercising will be built into the new wildfire framework, the frequency will be determined by the outcomes of the first exercise, changes in risk, management or equipment.
4.	There is a need to ensure that previous learning from wildfire exercises is fully implemented.	Ensure recommendations arising from Exercise Erica are fully discharged.	Following a Service restructure, sufficient resources have been allocated to support the audit, exercising and Operational Effectiveness Database.
Incident command and tactics			
5.	Although Major Incident requirements are clearly understood within the Service, the addition of ‘Major Incident Standby’ needs to be further embedded.	Communicate more widely Major Incident standby.	The Service has embedded the procedures through series of training events. All operational officers qualified at incident command level 2 and above have attended rota group training specifically around the procedures. An e-learning package and an improved command wallet have been produced and it is an operational competence requiring training to be completed for all operational staff qualified to level 1, 2,3 and 4 incident command.

6.	The Major Incident and Significant Events procedures provide a sound basis to manage such events. It is recommended that both procedures are reviewed to include clearer direction for informing key supporting departments. In addition, the review should also look at further clarifying actions for Fire Control and improving resilience arrangements for decision making if the Duty Area or Brigade managers are deployed to the incident.	Revise the Major Incident and Significant Events procedures to help inform key supporting departments of major incident declarations.	The Service is currently strengthening the Significant Events procedure. The Major Incident procedure is being updated to reflect the issues raised within this debriefing process.
7.	The Service needs to increase the resilience of its own wildfire advisory capability.	Increase the resilience of the wildfire advisory capability to support each rota group.	The Service is currently identifying and training additional National Fire Chiefs Council wildfire tactical advisors. By ensuring an even disposition across the officers rota groups, the Service will be able to utilise this specialist advice 24/7 from in-house staff increasing the resilience of this capability. .
Control and communications			
8.	The limitations of analogue radios hampered fire ground communications.	Purchase and roll out digital radios to frontline crews and officers.	Digital radios have been purchased and issued across the Service with accompanying training. The feedback from operational staff has been very positive.
National support			
9.	(i) To ensure the continued success and development of the Wildfire Tactical Advisor role, the Service and the NFCC Wildfire lead should ensure that learning from this		This is covered by effective debriefing and use of the Operational Effectiveness Database system and National Operational Learning. A DWFRS wildfire tactical advisor, based in DWFRS, regularly provides feedback to National Fire Chiefs Council on many aspects of incidents.

	incident is incorporated into future deployments.		
9.	(ii) Consider a process of cleaning/ decontamination of equipment in the 'home' service to enable a speedier return to operational readiness of the HVPs.		As detailed with the National Coordination and Advisory Framework (NCAF) Recovery & Repatriation Guidance for Fire & Rescue Services following Major Emergencies, the recover and repatriation process is the responsibility of the affected FRS. As such, DWFRS cannot expect the 'Host' FRS (the FRS loaning the asset) to undertake this task. Devon & Somerset FRS and Hampshire & Isle of Wight FRS did volunteer to support the recovery and repatriation process which enabled assets to be made available in good time. No further action required.
9.	(ii) Consider and agree a standardised approach to Services within strategic partnerships who regularly use each other's resources to ensure national availability is maintained.		DWFRS are aligned to the National Coordination and Advisory Framework (NCAF) arrangements. Resources across the Network Fire Services Partnership are available but, as was the case with this incident, those registered as National assets will be mobilised through NCAF.
Site management			
10.	There is a need to further strengthen early arrangements with partners to effectively manage personnel entering the incident ground and ensure that they have suitable safety briefings.	Develop and communicate a protocol with partners to ensure that they centrally book into the fireground and receive a safety brief.	The process for attending an incident has been reinforced to partner agencies attending JESIP training and exercising.
11.	Operational crews did not always notify command support when leaving the fireground to source fuel or moving between sectors.	All operational crews are to be reminded to maintain the discipline of booking in and out of the fireground through command support.	This standard approach has been further embedded through training after it was apparent that a level of self deployment was experienced during this incident.

12.	Appliance and Landrover crews attempting to self rescue vehicles that had become stuck, without requesting the support of a vehicle technician led to avoidable damage being caused to some vehicles.	Reinforce the communication of Service procedures to ensure staff are aware of the need to avoid attempting self rescue of vehicles and request the support of a workshop technician.	Communication has been circulated to staff to reinforce Service procedure RE3SI Driving and manoeuvring paragraph 1.4.5 which outlines the need to request the support of a workshop technician if a vehicle becomes stuck. Reference is now incorporated into the driver training courses delivered to acquisition and refresher training courses.
13.	There is a need to ensure that command support better forecast and manage the access and congestion issues faced by this challenging terrain including the more systematic use of location apps such as 'What3Words'.	Strengthen Service procedures to ensure access and site management at large incidents do not cause congestion or obstruct firefighting resourcing.	A review of Level 2 risk information held on MDT's for Heathlands is being undertaken. Revised risk information will include additional map layering to define access and safe places for firefighting appliances. In addition, work is underway to improve on site information through the provision of hard copies of plans, stored at each location in specially designed holders. These holders would be maintained and updated by the land manager for DWFRS use.
People			
14.	The use of Control Tactical Advisors and Control Room Advisors was seen as a positive but needs to be exercised more to ensure greater consistency and the maintenance of skill sets required for this role.	Exercise more frequently the roles of Control Tactical Advisors and Control Room Advisors.	A series of training packages have been delivered to new Control Room Advisors (CRA's) to ensure they are fully conversant with the role and have specified maintenance of skills criteria.

15.	A procedure should be produced that clearly defines the remit, role, reporting structure and contact mechanisms (including the establishment of a contact number email address) for the Resourcing Cell. This procedure should be supported by regular training and exercising to ensure a speedy and consistent implementation when required.	Develop and communicate a procedure to support the Resourcing Cell.	A Resourcing Cell has now been permanently added to the organisational establishment. Dedicated email addresses and telephone numbers are widely known and used by staff and the team of corporate and uniformed staff are in a position to support BAU and any significant incidents as required.
16.	Not all appliances had the same level of welfare provision in relation to hot packs and drinks and additional measures had to be introduced to meet the needs of our female firefighters.	Ensure consideration is given to the provision of welfare facilities to support a diverse workforce when the specialist vehicle review is undertake, in addition, ensure all new appliances can support hot packs and drinks.	A specialist capability review is being undertaken that incorporates our approach to incident ground welfare and considers a wide range of criteria, including diversity and inclusion requirements. The outcome of the review is likely to be the provision of dedicated welfare vehicles to be used at protracted incidents. The new fleet of appliances being introduced to the Service have improved welfare provision including, for example, an inbuilt water boiler and hot packs.
Vehicles			
17.	The command unit should be reviewed and updated to include enhanced capabilities for capturing, displaying, and communicating information in an electronic format. The advantages of the ESN network project should be taken account.	Scope the operational requirements for a higher tech command support unit and develop an appropriate business case.	A comprehensive review of all specialist capability vehicles has been commissioned. The requirements for each type of vehicle will be considered by a working group and revised specifications will be created aligned to the vehicle replacement strategy and fleet replacement budgets.

18.	A review of 'Land Rover' capability is needed to identify the most suitable form of firefighting media.	Review the current Land Rover capability to more consistently support wildfire incidents.	A comprehensive review of all specialist capability vehicles has been commissioned. The requirements for each type of vehicle will be considered by a working group and revised specifications will be created aligned to the vehicle replacement strategy and fleet replacement budgets.
19.	There were insufficient trained drivers for off-road appliances to sustain an extended deployment of resources. Local training had not been maintained and there is a need to train drivers from the north of the Service areas.	Consider the need for more operational staff to be capable of off-road driving.	Additional drivers have been trained and a systematic process is now in place to ensure a sufficient number of staff maintain the competency.
20.	When the current Unimog is updated or replaced to provide continued incident support. Due to the size of the Service, resilience and the requirement to utilise this appliance in more than one area of the fireground it is recommended that an additional vehicle is purchased.	Consider the merits of an additional Unimog.	A comprehensive review of all specialist capability vehicles has been commissioned. The requirements for each type of vehicle will be considered by a working group and revised specifications will be created and aligned to the vehicle replacement strategy and fleet replacement budgets.
Equipment			
21.	An assessment needed into the viability of providing suitable wildfire PPE to crews in the main risk areas. To provide increased cost effectiveness, this may be aligned to lightweight RTC PPE if deemed suitable.	Consider the merits and costs of issuing lightweight wildfire PPE and develop an appropriate business case if appropriate to do so.	Wildfire Personal Protective Equipment (PPE) is being trialled by all NFCC Wildfire Tactical Advisors, based in DWFRS, to trial and review. This will inform any future procurement of dedicated PPE.

22.	The wearing and provision of half masks should be reviewed to identify any potential areas for improvement that will increase usage when working in hot and arduous conditions.	Consider the merits and costs of issuing a half mask for wildfires and develop an appropriate business case if appropriate to do so.	All staff have personal issue half masks. Consideration of the level of Personal Protective Equipment required is being reinforced through Level 1 and 2 incident command training for Incident Commanders/Sector Commanders/ Safety Officers/ Operational assurance officers .
Documentation			
23.	The Finance department to be made aware of any Significant Event or Major Incident declarations as part of any initial notification. This process and information to be supported by training for managers to understand the impact and information that is being presented to them.	See previous actions.	All Level 3 and Level 4 command officers are now provided guidance on the need to consider early notification of the Finance department at protracted incidents.