

# Strategic Assessment 2018

Avon Fire & Rescue Service

Version 1

December 2018



Avon Fire &  
Rescue Service  
Temple

**PREVENTING PROTECTING RESPONDING**



## Document history

Review date	Version	Summary of changes
11 Apr 2018	0.1.1	Initial drafting
10 May 2018	0.1.2	Format and content changes
14 Jun 2018	0.1.3	Numbering of paragraphs
10 Oct 2018	0.1.4	Quality control changes
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**Document owner:**

GM IRMP, Internal Improvement Team

**Notes:**

This is a controlled document and is designed for back-to-back printing in accordance with the principles outlined in the Government Security Classifications April 2014.

Reference in this document to the male person should be construed as applying, as appropriate, to the female person also.

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# 1 Introduction to the Strategic Assessment

- 1.1.1 Avon Fire & Rescue Service (AF&RS) covers the Unitary Authority areas of Bath and North East Somerset (BANES), Bristol, North Somerset and South Gloucestershire. It has a residential population of more than one million people living in over 450,000 homes, located across an area of 132,609 hectares. It has 21 fire stations, an emergency control centre, technical centre, fleet workshops and combined police and fire service headquarters with a total of over 800 employees.
- 1.1.2 This document forms part of AF&RS's Strategic Assessment and Service review project. This enables us to develop a risk profile and identifies areas that have the potential to impact on the future strategic direction of the Service.
- 1.1.3 Information was taken from a wide variety of sources in the format of a PESTELO (Political, Economic, Social, Technological, Environmental, Legal and Organisational) analysis; this looks at changes in the business environment and is a widely used tool. This then informs and underpins AF&RS's combined Corporate Plan and Integrated Risk Management Plan (IRMP) 2019 – 2022 (Service Plan 2019 -2022).
- 1.1.4 By AF&RS understanding the wider macro-economic environment in which it operates, it is possible to take advantage of the opportunities and minimise the threats to the Service. Conducting a strategic assessment entails scanning the economic environment to detect and understand the broad, long-term trends. For the purposes of this document we have utilised statistical data from official sources. For example, population and demographical data was taken from the 2011 census. All links for references can be found in the bibliography section at the rear of this document.

## 1.2 Geography

- 1.2.1 The AF&RS area is the gateway to the South West and an economic powerhouse accounting for 26% of the region's economy. With a million people and half a million jobs Bristol has the highest growth in Gross Domestic Product (GDP) per capita of any major city in England outside London. In terms of GDP we are, along with the capital, the only English region in the European top forty.
- 1.2.2 Bristol – the largest urban area in the South West region is located centrally within our operational area. The city is complemented by other strategically significant cities and towns including the Georgian splendour and UNESCO World Heritage Site of Bath (population 90,000) and the expansive beaches of Weston-super-Mare (population 80,000). Beyond these principal urban areas lie the market towns of Nailsea, Midsomer Norton, Radstock, Keynsham, Yate and Thornbury, with many villages set in rural surroundings as well as the coastal towns of Clevedon and Portishead.

## 1.3 Population

- 1.3.1 The total population within the AF&RS area according to the last census, which took place in 2011, is 1,068,583, the majority of which is based in the authority of Bristol.

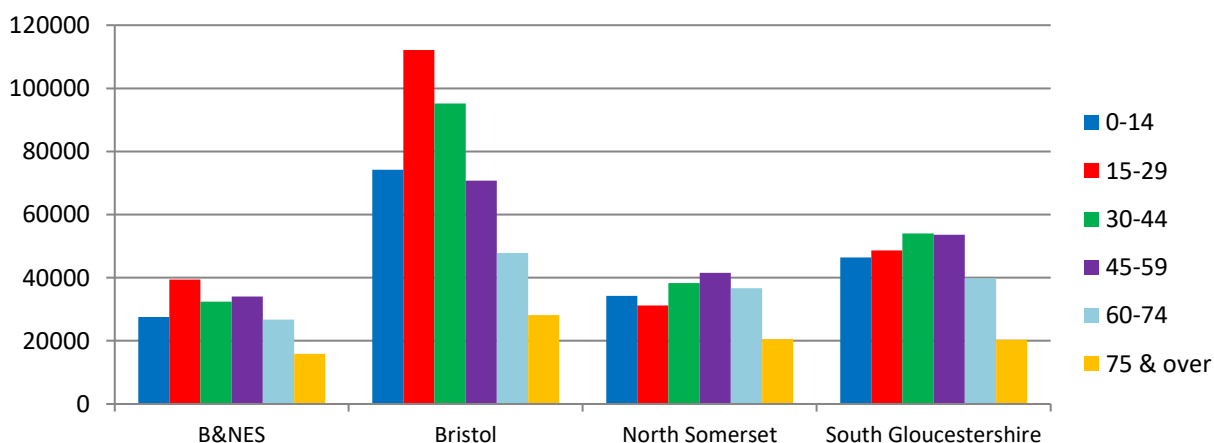
Unitary Authority	Area (Hectares)	Area %	Population	Population %	Population Density
BANES	34,574	26%	175,016	16%	5.1
Bristol	10,961	8%	428,234	40%	39.1
North Somerset	37,379	28%	202,566	19%	5.4
South Gloucestershire	49,695	37%	262,767	25%	5.3
Total	132,609	100%	1,068,583	100%	14

1.3.2 The gender profile of the population within the AF&RS area shows an average of 49% male and 51% female. This is consistent across all four Unitary Authorities.

Unitary Authority	Population	Male		Female	
BANES	175,016	86,072	49%	89,994	51%
Bristol	428,234	213,071	50%	215,163	50%
North Somerset	202,566	98,463	49%	104,103	51%
South Gloucestershire	262,767	130,424	50%	132,343	50%
Total	1,068,583	528,030	49%	541,603	51%

1.3.3 Each Unitary Authority has a different picture when it comes to household composition by age groups. The BANES and Bristol Unitary Authorities have greater proportions of their population in younger demographics with the 15-29 year category making up majority of the population for both. The populations of North Somerset and South Gloucestershire have a high proportion of 30-44 and 45-79 year olds within their areas.

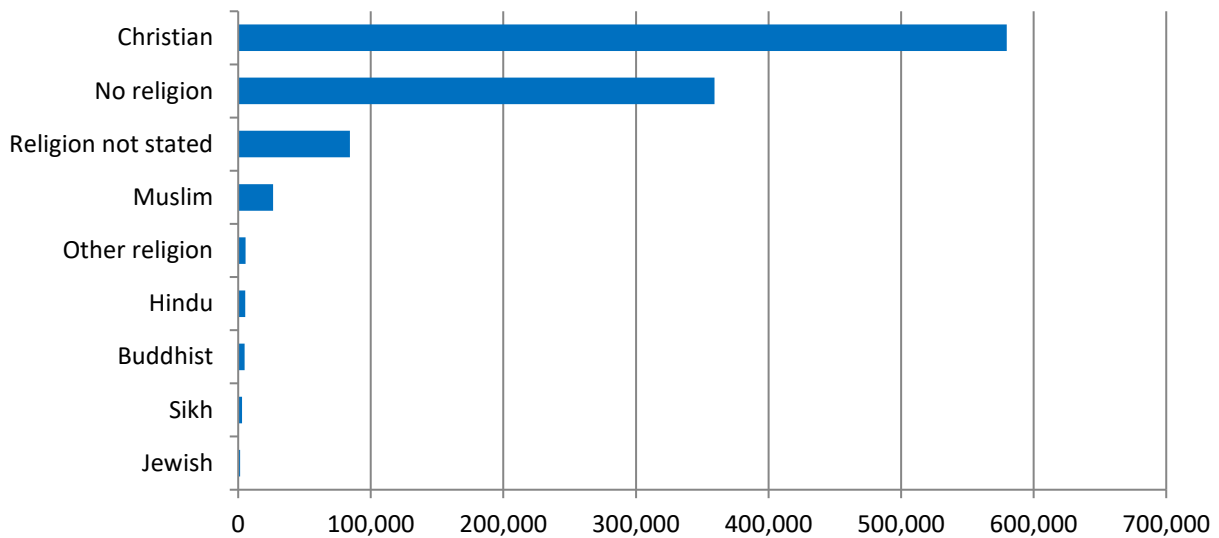
1.3.4 In all four Unitary Authority areas over 75s make up the smallest group, however all four areas have significant population numbers within each of the age groups.



### 1.3.5 Religion

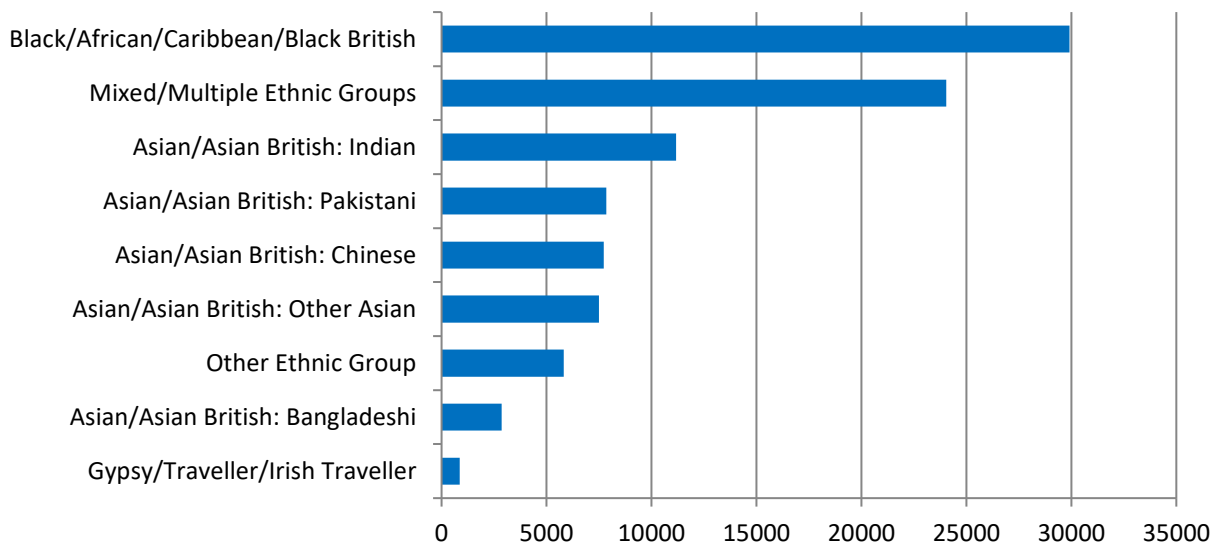
1.3.6 The Census of 2011 shows that within the AF&RS area 54% of the population consider themselves as Christian, the predominant religion in the area. Following that is Muslim, which makes up 2% of the population. There are another five named religions within the Census all of which fall below 1% of the population.

1.3.7 Those who consider themselves as having no religion or not stating one are 34% and 8% respectively.



### 1.3.8 Diversity

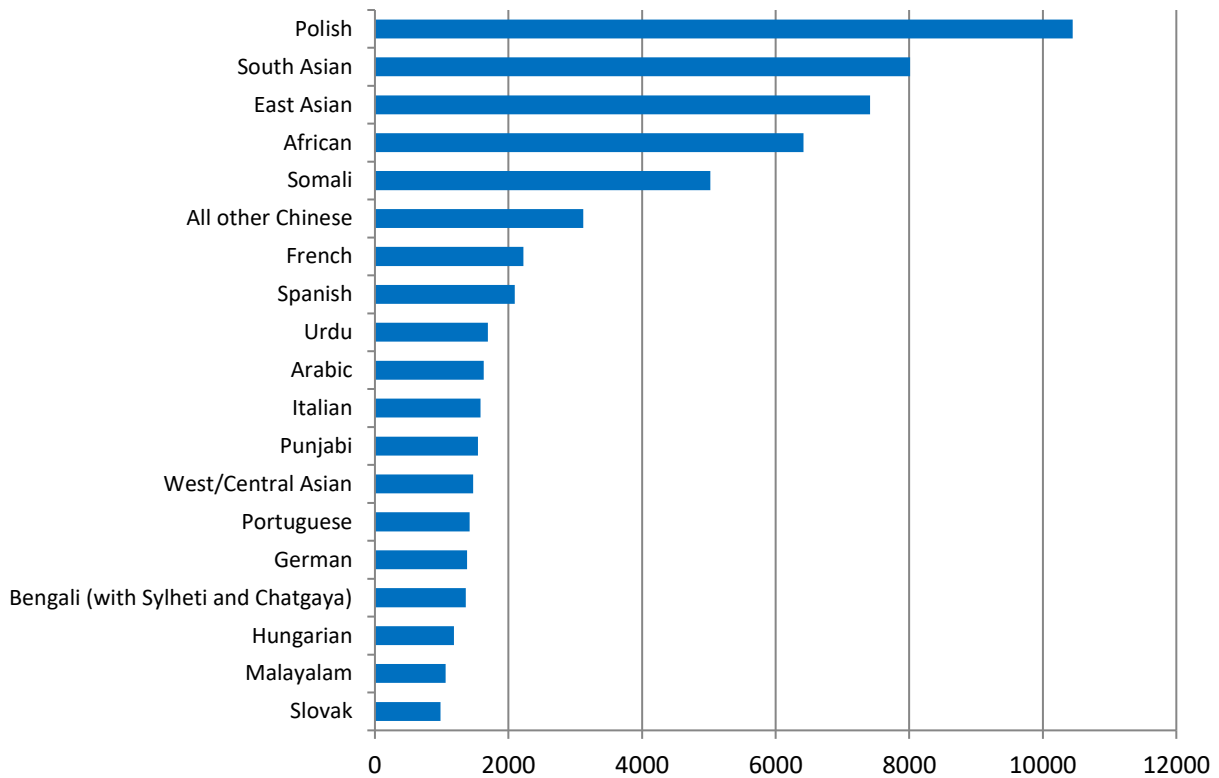
1.3.9 According to the Census of 2011 over 90% of the population within AF&RS' four Unitary Authority areas are classified as white. The remaining population is distributed between nine other ethnic groupings. National research has shown that Black and Minority Ethnic (BME) groups to be more at risk not only of a fire occurring, but when fire does occur, the group is at greater risk of sustaining injury.





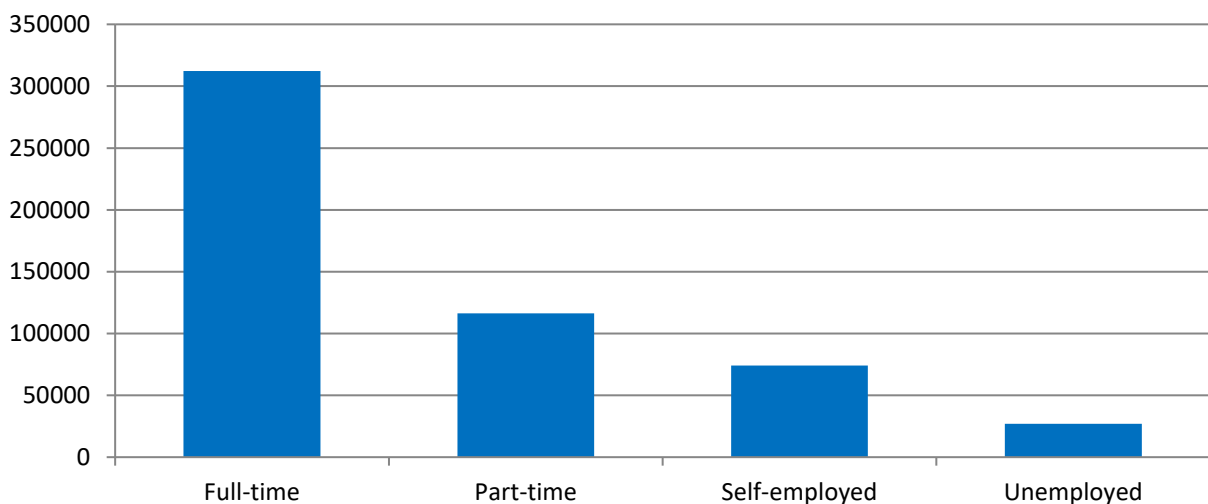
### 1.3.10 Language

1.3.11 The Census of 2011 has classification for 102 languages, of which 20 have greater than 0.1% representation within the population of AF&RS. Knowledge of the languages spoken within the four Unitary Authority areas can ensure that fire safety messages are provided in the languages required by its communities.

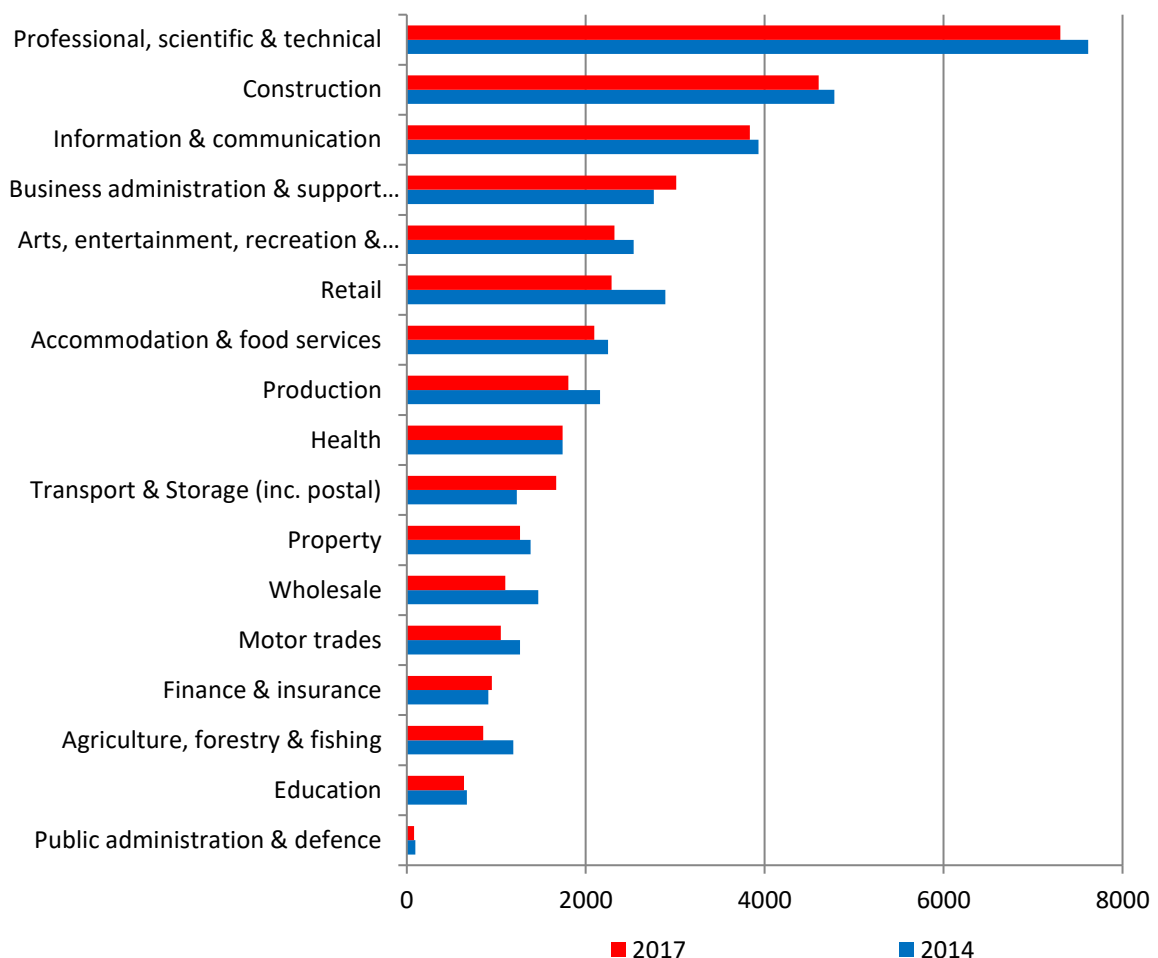


### 1.3.12 Employment

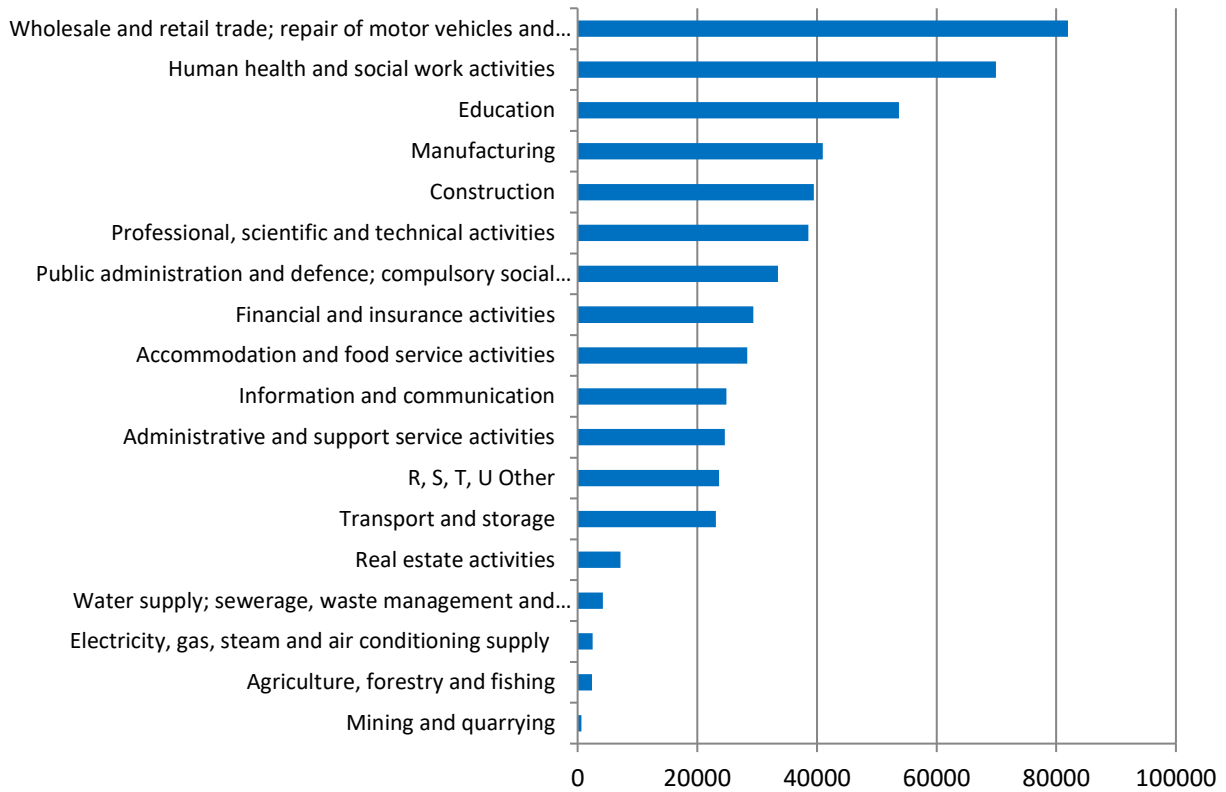
1.3.13 Figures from the Census of 2011, show that the 59% of the economically active population within the AF&RS area are in full time employment.



- 1.3.14 Unemployment in the four Unitary Authority areas sits at 5.1%, slightly higher than the national average of 4.4%.
- 1.3.15 According to the Office of National Statistics; between 2014 and 2017, the number of businesses and commercial organisations within the AF&RS area dropped by 6% from 38,875 to 36,615.
- 1.3.16 The only sectors to see growth were Transport & Storage (26%), Business Administration & Support Services (8%) and Finance & Insurance (4%).
- 1.3.17 The sectors with the biggest decline were Agriculture, Forestry & Fishing (-39%), Wholesale (-34%), Retail (-26%) and Motor Trades (-20%). This decline in business units has the potential to increase the number of vacant properties within the AF&RS area and change the look of its risk profile.



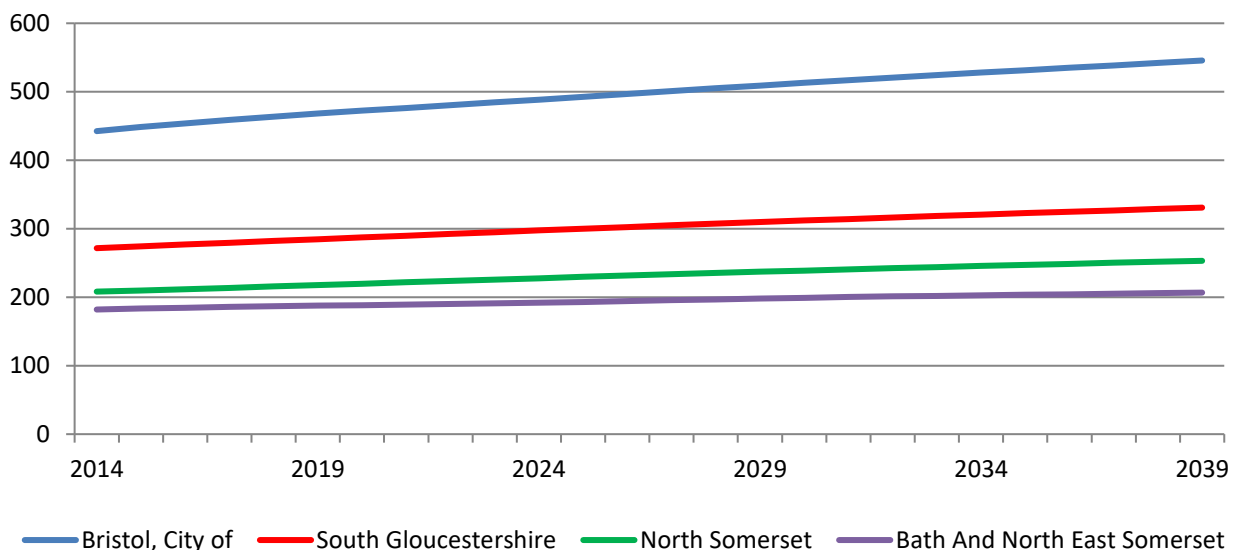
- 1.3.18 Within the AF&RS area the business sectors with the highest employment are 'Wholesale and Retail Trade; Repair of Motor Vehicles and Motor Cycles' (15%), 'Human Health and Social Work Activities' (13%), 'Education' (10%) and 'Manufacturing' (8%). Apart from the Human Health and Social Work Activities sector which has remained constant, the biggest employment sectors have all seen a decline in business units



### 1.3.19 Growth of Population

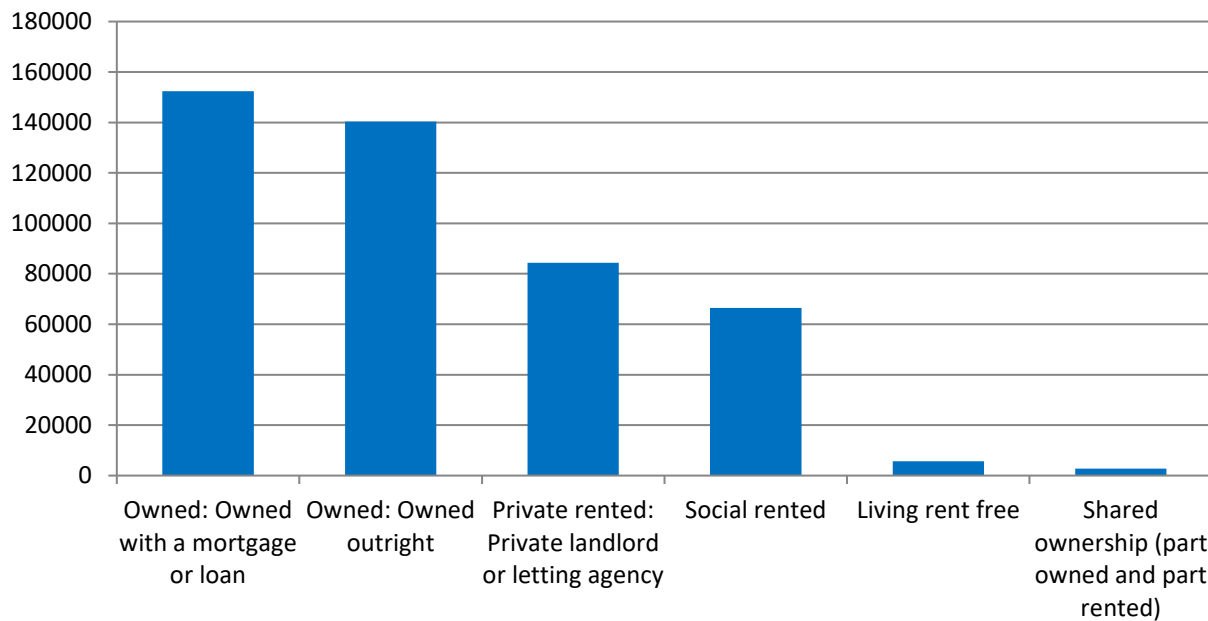
1.3.20 The population within the AF&RS area between the Census' of 2001 and 2011 has risen by 135,909 from 932,674 to 1,068,583, a rise of nearly 13% over the four Unitary Authorities with South Gloucestershire having the biggest percentage increase (16%).

1.3.21 . Over the next 30 years projections show a steady increase of population over the four Unitary Authority areas; BANES is expecting a growth of 12%, Bristol, North Somerset and South Gloucestershire all expect a population growth of 19%.

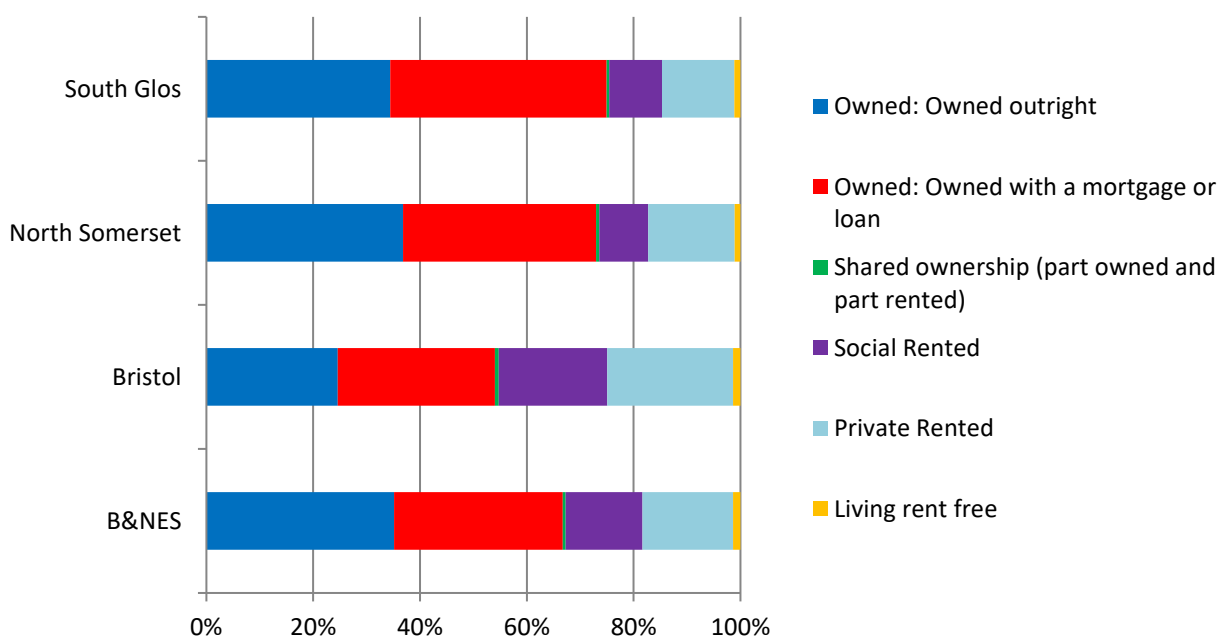


### 1.3.22 Housing

1.3.23 The Census of 2011 shows that within the AF&RS area there are 452,027 homes, the majority of which (64%) are owner occupied. Home ownership numbers are close between owned with a mortgage and owned outright making up 34% and 31% respectively.



1.3.24 The graph below shows tenure variation by Unitary Authority area. BANES, North Somerset & South Gloucestershire show a similar picture when it comes to tenure spread, Bristol however shows greater percentages of its population living in social or privately rented households respectively.



1.3.25 On average, over the four Unitary Authority areas, 31% of households are one person households. Bristol has a higher percentage of one person households occupied by under 65s than the other three Unitary Authority areas.

Unitary Authority	Total One Person Households	One Person Households: Aged 65 and over	One Person Household: Other
BANES	31%	14%	17%
Bristol	34%	11%	23%
North Somerset	31%	14%	17%
South Gloucestershire	27%	11%	15%

1.3.26 Across the four unitary areas it is projected that 105,000 new houses are to be built by 2036. This has the potential to increase the population by 25%, as well as adding new businesses and infrastructure such as schools and hospitals.

## 1.4 Index of multiple deprivation

1.4.1 The Index of Multiple Deprivation (IMD), is an official measure of relative deprivation for small areas in England.

1.4.2 The dimensions of deprivation used to classify households are indicators based on the four selected household characteristics:

- **Employment** The household is considered deprived if any member of a household, who is not a full-time student, is either unemployed or long-term sick.
- **Education** - The household is considered deprived if no one in the household has been educated to level 2 or above, and no person aged 16-18 is a full-time student.
- **Health and disability** - The household is considered deprived if any person in the household has general health categorised as 'bad or very bad' or has a long term health problem.
- **Housing** - The household is considered deprived if the household's accommodation is either overcrowded, with an occupancy rating of minus one or less, or if the household is in a shared dwelling, or it has no central heating.

1.4.3 A household is classified as being deprived in none or one to four of these dimensions.

Area name	Household is not deprived in any dimension	Household is deprived in 1 dimension	Household is deprived in 2 dimensions	Household is deprived in 3 dimensions	Household is deprived in 4 dimensions
Bristol	42.4%	32.2%	19%	5.7%	0.7%
BANES	49.6%	31.4%	15.4%	3.2%	0.4%

Area name	Household is not deprived in any dimension	Household is deprived in 1 dimension	Household is deprived in 2 dimensions	Household is deprived in 3 dimensions	Household is deprived in 4 dimensions
North Somerset	47.3%	32.2%	16.4%	3.6%	0.4%
South Gloucestershire	50.3%	31.5%	15.1%	2.8%	0.3%
Average	47.4%	31.8%	16.5%	3.8%	0.5%

1.4.4 Less than half of the population of the four Unitary Authority areas are considered as 'not deprived in any dimension', with nearly a third considered deprived in one dimension.

1.4.5 Across the four unitary areas there are 66 LSOA's (Lower Super Output Areas) that fall into the most deprived areas in the country. An LSOA is an area containing approximately 650 homes or 1500 inhabitants.

## 2 Political

### 2.1 Central Government

2.1.1 The UK is currently under a period of relative political stability following a snap General Election in 2017. The fixed term Parliament Act 2011 provides for a general election to be held every five years. The table below shows up and coming elections, with the next General Election programmed to be held on the first Thursday of May 2022.

2.1.2 This will allow a significant period of time for the Government's Fire Reform Agenda to be acted upon and implemented by fire and rescue services across the UK. AF&RS can now plan its activities alongside the Fire and Rescue Service National Framework for England and Her Majesty's Inspectorate of Constabulary and Fire & Rescue (HMICFRS) inspection programme, without concern for a change in the direction of Central Government.

	2017	2018	2019	2020	2021	2022
BANES	--	--	All-out election	--	--	--
Bristol	--	--	--	All-out election	--	--
North Somerset	--	--	All-out election	--	--	--
South Glos.	--	--	All-out election	--	--	--
A&S PCC	--	--	--	May 2020	--	--
Bristol Mayor	--	--	--	May 2020	--	--
WECA ('Metro') Mayor <sup>s</sup>	May 2017	--	--	--	May 2021	--
General Election	Snap GE: Thursday 8 June 2017	--	--	--	--	May 2022 <sup>b</sup>

<sup>a</sup> Note that WECA covers Bath & North East Somerset, Bristol and South Gloucestershire but **not** North Somerset

<sup>b</sup> In accordance with the [Fixed-term Parliaments Act 2011](#) and assuming a 'snap' General Election is not held in the meantime (which would reset the electoral timetable)

### 2.2 Local Government

2.2.1 Local Government elections take place at least every four years however, not all Local Government elections will take place at the same time. Local Governments may have an election for all Councillors every four years, half their Councillors every two years, or one third of their Councillors every three years.

- 2.2.2 Locally, all the Unitary Authorities hold an election for their Councillors once every four years. The table above in section 2.1.2, identifies when the next election will take place within those local Authorities.
- 2.2.3 The significance of the local elections taking place during 2019 (B&NES, South Gloucestershire, North Somerset) closely followed in 2020 by Bristol City Council elections, is that Avon Fire Authority could see a significant change to the elected members and it's political balance.

### **2.3 Statutory Inspection of Avon Fire Authority**

- 2.3.1 On 2 February 2017, under section 10 of the Local Governments Act 1999, a full statutory inspection of Avon Fire Authority (AFA) was commissioned, the first of its kind.
- 2.3.2 The inspection had been ordered by the Minister for Policing and the Fire Service, Brandon Lewis, in response to serious, wide-ranging allegations over the Authority's governance in relation to spending, contracts, complaints, discipline and culture. It followed the Authority's repeated refusal to commission its own independent investigation into the claims.
- 2.3.3 Following the publication of the Statutory Inspection Report on 19 July 2017, the newly elected Chair of AFA, worked with Fire Authority Members and senior AF&RS managers to develop 62 recommendations to address criticisms made in the report.
- 2.3.4 The AFA and AF&RS are ensuring every aspect of the report is scrutinised and sufficient steps taken to ensure improvements are made. There has already been a negative impact on AF&RS reputation following publication of this report and failure to make improvements may add further criticism while leaving the Service open to risk of having alternative governance arrangements imposed.

### **2.4 West of England Combined Authority**

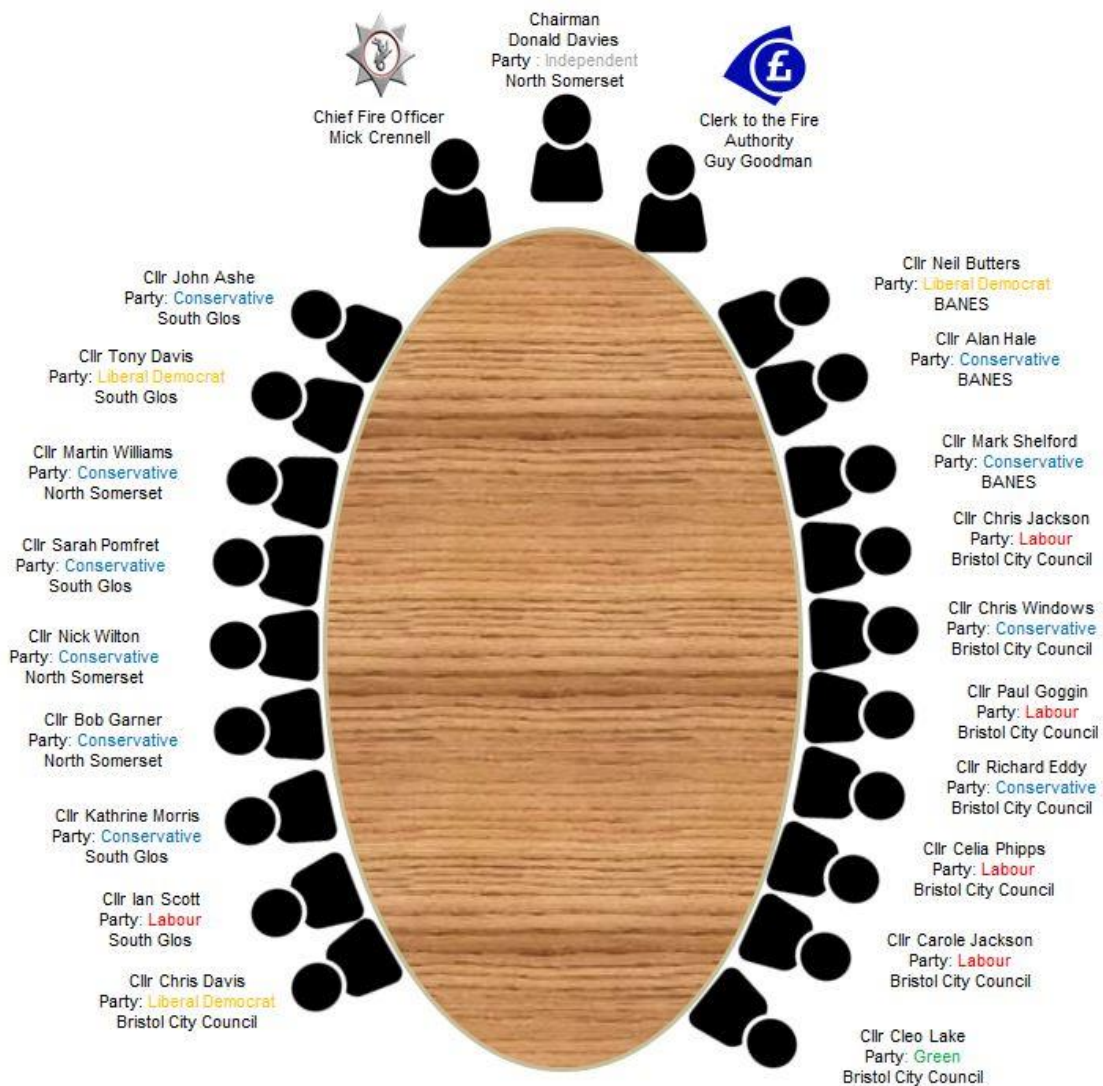
- 2.4.1 In early 2017, the West of England Combined Authority (WECA) was established to deal with local decision making that previously would have been handled by Central Government in London.
- 2.4.2 WECA was originally to include the four Unitary Authorities that make up the AF&RS area; however North Somerset rejected the proposal. The West of England Combined Authority comprises of Bath and North East Somerset, Bristol and South Gloucestershire.
- 2.4.3 While WECA does not have a direct impact on the Fire and Rescue Service, its running or budgets, it does make decisions on homes, transport and adult education/skills required in its area to ensure economic growth. With this in mind AF&RS must be aware of proposals and decisions the WECA makes as this can have an impact on the risk profile of its Service area and how effectively it matches its resources to the identified risks.



## 2.5 Fire Authority

2.5.1 AFA provides governance to AF&RS, and consists of Councillors appointed by the four Unitary Authorities in the former County of Avon area. The number of Councillors is chosen in proportion to the number of people entitled to vote in their respective area

- **Bath & North East Somerset** 3 members
- **Bristol** 8 members
- **North Somerset** 4 members
- **South Gloucestershire** 5 members



2.5.2 AFA was established in 1996 after Avon County Council, which had previously provided the Fire and Rescue Service was abolished. The Authority is also referred to as the 'Combined Fire Authority to reflect its legal status.

2.5.3 AFA was established in 1996 after Avon County Council, which had previously provided the Fire and Rescue Service, was abolished. The Authority is also referred to as the 'Combined Fire Authority to reflect its legal status.

- 2.5.4 Following release of the Statutory Inspection Report and its recommendations in July 2017, a review and consultation for the Fire Authority make up and governance arrangements was undertaken. At a meeting held on 3 May 2018, a decision was taken to reduce the Fire Authority membership from 25 to 20.

## **2.6 Health & Wellbeing Board (Unitary Authority Joint Strategic Needs Assessment)**

- 2.6.1 The Health and Social Care Act 2012 required the establishment of a Health and Wellbeing Board for each upper-tier local authority in England whose core purpose is to join-up commissioning across the NHS, Social Care, Public Health and other services that the board agrees are related to health and wellbeing.
- 2.6.2 Each Unitary Authority Health and Wellbeing Board must also annually produce a Joint Strategic Needs Assessment to determine and address health and wellbeing needs within its authority.
- 2.6.3 AF&RS must be aware of the current and future health and wellbeing of the population within its area. This information can inform AF&RS's risk reduction and operational response strategies as required in the Fire & Rescue Services Act (2004) as well as living up to its values and fulfilling its moral obligations.

## **2.7 Independent review of conditions of service for fire and rescue staff in England**

- 2.7.1 In November 2016 an independent review was published by Senior Civil Servant, Adrian Thomas, looking at conditions of service for fire and rescue staff in England. The review outlined the conditions of service for all operational staff from Firefighter to Chief Fire Officer and possible barriers to reform, improvement and efficiency of fire and rescue services.
- 2.7.2 There were many key findings within the review that AF&RS must be aware of:
- **Culture & Trust** – The review found there is much re-building to be done around culture and trust, including addressing the concerns around bullying and harassment. The review makes the suggestion that Fire & Rescue Services should offer Service-Wide engagement surveys on an annual basis to better understand the issues around culture and trust within their service.
  - **On-call Employees** – The review highlighted the many benefits that the on-call duty system offers Fire & Rescue Services, however it also highlighted the difficulty in recruitment. The review supported bringing forward legislation that extends employment protection (as enjoyed by military reservists) to firefighters engaged in on-call duty systems and part-time contracts.
  - **Gold & Grey Book Conditions of Service** -
    - The review found that Gold Book (senior management) conditions of service

were outdated and unused in virtually every Fire Authority visited or that responded to the review questionnaire, and therefore proposed discontinuing the Gold Book.

- The review found the majority of Fire & Rescue Services have their own derivations of Grey Book conditions, the key foundation for firefighters' conditions of service. The review proposed that Fire & Rescue Services, in consultation with representative bodies, consider replacing the Grey Book with a revised contract of employment.

2.7.3 The review found the description of role maps and duty systems in the Grey Book create inflexibility in the deployment of firefighters supporting local Integrated Risk Management Plans. The review proposed that employers, in consultation with representative bodies, revise or remove role maps and pre-determined duty systems.

2.7.4 AF&RS must be aware of the above findings of the review to ensure they are following best practice in delivering its services in the most effective way.

## 2.8 Facing the Future

2.8.1 An independent report by Sir Ken Knight, formerly Chief Fire & Rescue Advisor, published in May 2013 highlighted the scope for FRSs to save millions of pounds whilst safeguarding emergency operations and protecting public safety.

2.8.2 The report has a number of findings that may affect AF&RS as it seeks to continue to offer its services with an ever decreasing budget:

- **Reduced Fire Deaths** - Deaths from fires in the home are at an all-time low whilst emergency incidents have reduced by 40% in the last decade. Despite this, expenditure and firefighter numbers have remained broadly the same with some FRSs spending almost twice as much per person, per year in some areas than others, with little correlation between spending and outcomes.
- **Deploying Resources** - Fire & Rescue Services need to focus on protecting the public; however this should not mean a protectionist approach to jobs, station closures or reductions in fire appliances. The report claims a lack of learning between services when implementing innovative crewing and staffing models, and recommends that where 'on-call' firefighters can be used to meet risks they can provide an invaluable and cost-effective service.
- **Collaborating for Efficiency** – The report highlights that each of the 46 fire Authorities has certain customisations leading to duplication of work and inefficiency. A greater collaboration between Authorities would ensure a rapid spread of good ideas and proven technology. Collaboration, co-responding and co-locating with other blue light services may also improve efficiency and savings.
- **Driving Efficiency** – The report identifies FRSs spending is driven by budget not risk, and states how Government funding to incentivise further change must be a key consideration.

2.8.3 AF&RS must be aware of Sir Ken Knight's report and ensure that issues highlighted which may be relevant to them, are researched and where applicable, addressed.

## 3 Economic

### 3.1 The Impact of Brexit

- 3.1.1 In 2016, the UK received a rebate of £5 billion. This means £13.9 billion was transferred from the UK government to the EU in official payments. But this only accounts for the money that the UK pays to the EU – some of this £13.9 billion is credited back to the UK public sector, of which a proportion is then paid to the private sector. ONS reports that £4.4 billion came back to the UK public sector and private sector in credits in 2016. Given these figures, ONS reports that the UK government's net contribution to the EU - that is the difference between the money it paid to the EU and the money it received - was £9.4 billion in 2016 as compared with the £18.9 billion gross contribution. (ONS, 2017)
- 3.1.2 The money saved from contributing to the EU budget is not expected to materialise for a number of years as the EU is expecting the UK will continue to contribute to residual costs of EU institutions and programmes which are likely to be remunerated over a number of years.
- 3.1.3 The economy is expected to grow more slowly for the next five years averaging annual growth of 1.4%.

### 3.2 Economic Cost of Fire

- 3.2.1 In 2011 the Department for Communities and Local Government published a report looking into the Economic Cost of Fire in England. The report found that the total cost of fire was an estimated £8.3 billion to the economy in 2008, taking inflation into consideration this equates to just over £10.9 billion a year in 2018.
- 3.2.2 The report noted that between 2006 and 2008, that estimated cost had only changed by 1% from £8.2 billion to £8.3 billion; however the way in which those funds were spent had changed significantly.
- 3.2.3 The report found that the increase in the number of hours spent on community fire safety activities and fire investigations added to FRSs resource costs. While the fire safety labour cost per hour rose with inflation, the actual number of hours FRSs devoted to fire safety activities increased much more rapidly.
- 3.2.4 According to the report this increase in costs had been offset by the overall decrease in the number of fatalities each costing an estimated at £1.65 million (£2.18 million in 2018 with inflation), non-fatal casualties each costing an estimated £185,000 (£244,000 in 2018 with inflation) and the reduction in arson which saw a decrease from £1.9 billion to £1.7 billion.
- 3.2.5 AF&RS allocated a budget of £230,880 for its risk reduction and fire investigation activities (2017 -2018). Moving forward it is looking to further expand and develop its community safety activities to ensure the most vulnerable members of our community

are safer in their homes and, money will be directed to provide further assistive technologies to support this programme.

### **3.3 Unfunded Pension Schemes (Firefighter Pension Scheme & NFPS)**

- 3.3.1 The Firefighters Pension Scheme (FPS) and the New Firefighters Pension Scheme (NFPS) are both statutory, tax-approved unfunded occupational pension schemes. Unfunded pension schemes are paid for by a combination of employer and employee contributions.
- 3.3.2 It is expected that unfunded public sector pension contributions will increase from 2019. This estimated increase in employer contributions for 2019/2020 equates to an assumed approximate of 3% of pay, costing an additional £900k across the Service.

### **3.4 Funded Pension Schemes (Local Government Pension Scheme)**

- 3.4.1 All AF&RS staff, other than uniformed Firefighters, are eligible to join the Local Government Pension Scheme (LGPS). The Scheme is administered by Bath & North East Somerset Council and is known as the Avon Pension Fund.
- 3.4.2 The LGPS is a defined benefit pension scheme, which means that your pension is worked out using a set formula. How your pension is calculated depends on when you joined the scheme. The scheme was a final salary one before 1 April 2014 and Career Average Revalued Earnings (CARE) scheme after 1 April 2014.
- 3.4.3 The Fund's Actuary carries out a valuation of the Fund every three years in accordance with Government regulations. If the valuation indicates that there are insufficient assets to meet future liabilities, employer contribution rates are increased to make up the shortfall. The latest valuation was undertaken on 31 March 2016 and assessed the overall funding level at 78%.

### **3.5 Pay Awards**

- 3.5.1 The current budget for 2017/18 and the Medium Term Financial Plan 2018/19 to 2020/21 were approved by Members of the Fire Authority at their meeting on 10 February 2017.
- 3.5.2 Since this time there have been a number of changes to the key assumptions, particularly around pay awards and inflation, which have resulted in unbudgeted spending pressures over the four year medium term financial plan of £1.8m.

### **3.6 Procurement**

- 3.6.1 AF&RS, along with many public sector organisations, rely on effective procurement within its supply chain to deliver the efficiencies and outcomes it requires and that are required by its stakeholders.
- 3.6.2 The regulations that apply to public sector contracts are based on value, or 'threshold'.



Thus 'public procurement methods are different to those used by private companies.

- 3.6.3 These public sector regulations are in place to make sure the procurement process is fair for all involved; there is therefore an added pressure on AF&RS to have systems in place to ensure all procurement is handled correctly and employees have sufficient knowledge and training to carry procurement and contingency planning.

### 3.7 Comprehensive Spending Review

- 3.7.1 The last Comprehensive Spending Review (CSR) was in 2015 and laid out a number of objectives that had an effect on all FRs.

- **Emergency services to collaborate** - The CSR introduced a new statutory duty for the emergency services to collaborate by early 2017, this was completed and placed in the Police and Crime Act 2017.
- **Enable Police & Crime Commissioner to take on responsibility for Fire & Rescue Services** – This addition was added to the Police and Crime Act 2017.
- **DCLG to provide at least £74 million of funding for the Emergency Services Mobile Communications Programme** – The role out of the Emergency Services Mobile Communications Programme is an ongoing project with a dedicated team now situated in the Home Office and no longer with the DCLG (Department of Communities & Local Government).

- 3.7.2 A new Comprehensive Spending Review is due in 2019; it is not currently known what this will look like.

### 3.8 Gender Pay Gap Reporting

- 3.8.1 In April 2017 a new law was put in place by the Government Equalities Office for all employers with more than 250 staff to publish four types of figures annually on their own website and on the Government's website:

- Gender pay gap (mean and median averages)
- Gender bonus gap (mean and median averages)
- Proportion of men and women receiving bonuses
- Proportion of men and women in each quartile of the organisation's pay structure

- 3.8.2 The mean average gender pay gap within AF&RS is 3.9%. The median gender pay gap is 0%. These pay gaps are relatively small which indicates that female employees at AF&RS are not significantly disadvantaged compared to their male colleagues. However a number of actions are already in progress and others are planned to further reduce the gender pay gap within AF&RS.

## 4 Social

### 4.1 Increase in Hoarding

- 4.1.1 “Hoarding is highly prevalent (approximately 2-5% of the population – that is potentially over 1.2 million people in the UK alone) and when severe, is associated with substantial functional disability and represents a great burden for the sufferers, their families and society (Mataix-Cols)
- 4.1.2 People with hoarding difficulties often experience obsessive compulsive disorder (OCD) which may or may not be directly connected to their clutter problem. Hoarding is also often associated with anxiety, depression and other complex mental health issues.
- 4.1.3 AF&RS must be aware of the risk presented by hoarders as they are more susceptible to having fires with greater risk due to high fire loading and limited or difficult access and egress to their property.

### 4.2 Health

#### 4.2.1 Bariatric Rescues

- 4.2.2 The UK has a growing overweight and obesity issue. In 2017 a little less than one in four adults were considered obese with 62% of adults classified as overweight. The Obesity levels have more than tripled in the last 30 years (Renew Bariatrics, Inc.).
- 4.2.3 When broken down by Unitary Authority, Bristol has the biggest percentage of people admitted to hospital with a primary or secondary diagnosis of obesity at 9%, North Somerset and South Gloucestershire are 5% and 3% respectively, and BANES is the lowest at only 1%. All four Unitary Authority areas have similar levels of their population classed as overweight, with BANES having the highest percentage.

Area	Percentage of population admitted to hospital with a primary or secondary diagnosis of obesity	Percentage of population classed as overweight or obese
Bristol	9%	56%
BANES	1%	62%
North Somerset	3%	59%
South Gloucestershire	5%	59%
Average	5%	59%

- 4.2.4 People classed as overweight pose a lower risk than those classed as obese but still

present FRS and Health Services with additional challenges.

4.2.5 There are a number of risks to AF&RS firefighters when dealing with bariatric rescues:

- **Biological Hazards** - When dealing with bariatric people, AF&RS firefighters may be exposed to bodily fluids/solids. One of the many underlying issues a bariatric person may have is poor personal hygiene and the lack of motivation to keep their home clean and tidy. They may also suffer from Decubitus Ulcers (Pressure Sores); these are large open wounds that a person may suffer from if allowed to remain in a sedentary position.
- **Musculoskeletal Injuries** - The risk of musculoskeletal injury to firefighters may arise from the weight and size of the casualty and equipment required to safely transport them. The person may also live in a cluttered environment that poses its own risk of slips trips and falls.
- **Verbal/Physical Abuse** - Family members, friends or the casualty may become verbally abusive to crews at the scene of operations due to the sensitive nature of the incident and/or out of concern for well-being. This may place crews under additional psychological pressure.
- **Damage to Equipment** - Moving a bariatric casualty requires specific specialised knowledge and training. Crews attempting to rescue a casualty without this input may damage equipment and increase the risk of injury to themselves and the casualty.
- **Litigation from Personal Injury Claims (Public)** - A bariatric person may have many underlying issues both physical and psychological. Their skin can be extremely fragile and due to poor circulation will take much longer to heal. This presents a risk to the service from a personal injury claim instigated by the casualty themselves or a concerned relative.
- **Litigation from Personal Injury Claims (Staff)** - Insufficient training of AF&RS personnel may lead to injuries and litigation brought against the Service from staff members. Moral pressure from the casualty's relatives or public may heighten the need to act before adequate resources are on scene.

4.2.6 AF&RS need to be aware of the steady rise in obesity, especially as the Service is responding to increasing requests for medical assistance and/or specialist resources from South West Ambulance Service (SWAST).

4.2.7 **Alcohol and Drug Abuse**

4.2.8 The presence of alcohol and drugs in the body has been shown to increase the risk and severity of injuries from accidents. Research suggests that nationally more than 50% of fire fatalities within the home involve drink or drug-related behaviour (NHS, 2018).

4.2.9 In 2015 there were 2,479 registered deaths in England and Wales related to drug misuse. This is an increase of 10% on 2014, 48% higher than 2005 and levels are currently at their highest since comparable records began in 1993.

4.2.10 In 2016 there were 7,327 alcohol-specific deaths in the UK, an age-standardised rate of 11.7 deaths per 100,000 population. (ONS, 2016)



- For the UK, the 2016 alcohol-specific death rate continues to remain unchanged since 2013, but is still higher than that observed 15 years ago.
- Since 2001 rates of alcohol-specific deaths among males have been an average of 55% higher than those observed among females.
- For both sexes, rates of alcohol-specific deaths were highest among those aged 55 to 64 years in 2016.
- In England, and for both sexes, alcohol-specific death rates in 2016 were significantly higher in the most deprived local areas when compared with the least deprived local areas.

4.2.11 AF&RS need to be aware of the increase of injuries, deaths and fires as a result of drugs and alcohol and ensure they are taking appropriate measure to promote fire safety around this issue and fulfil its obligations within the Fire and Rescue Services Act (2004). AF&RS, from a response standpoint, also need to ensure effective pre-planning and resources to deal with any potential incidents as a result of these risks.

#### 4.2.12 **Mental Health**

4.2.13 In England, by March 2015, there were a total of 25,117 people detained under the Mental Health Act. Of these, 19,656 were detained in hospital and 5,461 were being treated within the community (NHS, 2015).

4.2.14 Across the AF&RS area there are inpatient facilities for people with all levels of mental health issues, both young and old. For example, Callington Road in Brislington has 127 beds Weston General hospital 49 beds, and the Fromeside Blackberry Hill site has an 80 bed unit for forensic patients contained in a medium secure unit.

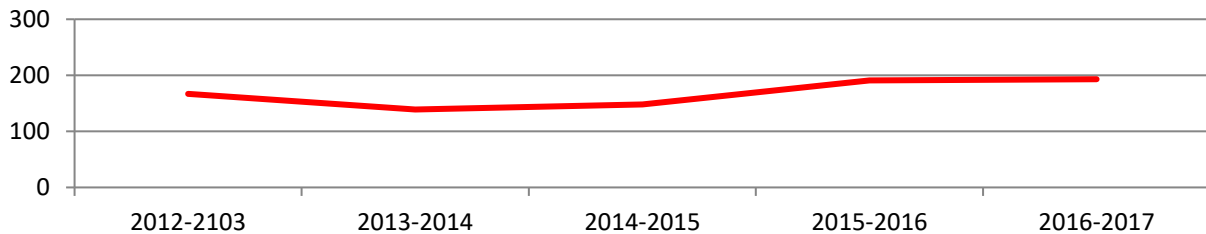
4.2.15 Each Unitary Authority has outpatients that are seen by the Adult Recovery Units. Typically these units have on average 750 people with mental health issues cared for in their own homes, however with seasonal fluctuations that figure can be as high as 850.

4.2.16 AF&RS need to have an understanding of the risk posed by and to these potentially vulnerable groups, they also need to ensure staff have the knowledge and tools to make every contact count, this can be achieved by sufficient training and provision of adequate resources to deal with any resulting incidents. Collaborative work with partner mental health organisations, such as Avon Western & Wiltshire NHS Trust, would assist this effort.

#### 4.2.17 **Smoking**

4.2.18 In 2017, the proportion of current smokers in the UK was 15.1% based on our estimate from the Annual Population Survey, which equates to around 7.4 million in the population. The latest figure represents a significant reduction in the proportion of current smokers since 2016, when 15.8% smoked; the figure for England is 14.9%. In the UK, 17.0% of men smoked compared with 13.3% of women. Those aged 25 to 34 years had the highest proportion of current smokers (19.7%). Looking at occupations, around 1 in 4 (25.9%) people in routine and manual occupations smoked, compared with just 1 in 10 people (10.2%) in managerial and professional occupations.

- 4.2.19 In Great Britain, 60.8% of people aged 16 years and above who currently smoked said they wanted to quit and 59.5% of those who have ever smoked said they had quit, based on our estimates from the Opinions and Lifestyle Survey. (ONS, 2017)
- 4.2.20 Despite this decline AF&RS has seen a minor increase in fires where the ignition source has been attributed to smoking related materials.



- 4.2.21 Smoking and the harm it causes is not evenly distributed across the population. People in more deprived areas are more likely to smoke and less likely to quit. Smoking is increasingly concentrated in more disadvantaged groups and is the main contributor to health inequality in England.
- 4.2.22 There are relatively high smoking levels among certain demographic groups, including Bangladeshi, Irish and Pakistani men, and amongst Irish and Black Caribbean women. This potentially highlights groups that are at an increased risk of causing a fire.
- 4.2.23 Men and women from the most deprived groups have more than double the death rate from lung cancer compared with those from the least deprived. Smoking is twice as common in people with longstanding mental health problems. Smoking in pregnancy increases the risks of miscarriage, stillbirth or having a sick baby, and is a major cause of child health inequality.
- 4.2.24 AF&RS need to be aware of the profile of the population that poses the biggest risk from smoking to better promote fire safety where it is required to fulfil both its statutory obligation under the Fire Services Act (2004) as well as its moral obligation.

### 4.3 Fuel Poverty

- 4.3.1 A household is said to be fuel poor when its occupants cannot afford to keep adequately warm at a reasonable cost, given their income.
- 4.3.2 This can cause a number of issues for AF&RS:
- **Negative Health Impact or Fatalities** – There is clear evidence between cold temperatures and respiratory, circulatory problems and other health issues. This can be particularly troublesome for children and younger people as well as older people and may cause increased pressure on other emergency services such as the Ambulance Service.
  - **Mental Health** – There is evidence linking home temperatures and mental health. Studies have found that increases in room temperature were associated with a reduced likelihood of experiencing depression or anxiety (UK Government Public

Health England, 2014) and young people living in cold homes were more likely to be at risk of experiencing four or more mental health symptoms (EU Fuel Poverty Observatory, 2008). This may increase the number of vulnerable and at risk people within AF&RS's area.

- 4.3.3 According to the Government's Annual Fuel Poverty Statistic, 7% of the population are living in fuel poverty (Department for Business, Energy & Industrial Strategy, 2017).

## 4.4 Tourism

- 4.4.1 According to the International Passenger Survey 2016, Bristol is the fifth most visited city in England; ranked fourth highest for visiting friends/relatives and businesses and ranked 21st for holiday visits (Visit Bristol).
- 4.4.2 In 2016, there were estimated 35.2k business events at Bristol venues. An increase on 2015 (30.7k events), 2014 (24.1k events) and 2013 levels (23.7k events) (Visit Bristol)
- 4.4.3 The M4 and M5 dissect our service area and are the main arterial routes for holidaymakers and commercial goods, traveling through the region heading for Devon and Cornwall. With major infrastructure projects such as Hinkley 'C', we are likely to see an increase in volume of large goods vehicles and a larger than normal transient population as skilled workers migrate into the region to fill construction employment vacancies.
- 4.4.4 AF&RS need to ensure they are aware of the fluctuations in population, footfall and traffic density during busy periods as this can change the status of its risk profile for the service area, increasing road and life risk especially in the city centres of Bristol, Bath and seaside town of Weston–super–Mare.

## 4.5 Transient population

- 4.5.1 AF&RS area has a population of over 1 million, but also has a significant transient population.
- 4.5.2 AF&RS has three renowned Universities within its Service area with over 72,000 students enrolled for the 2017/2018 academic year, making up 7.5% of the population within the Service area.

University	Number of Students
Bath	17,000
Bristol	25,000
UWE	30,000
Totals	72,000

- 4.5.3 Occasionally the cities and surrounding unitary areas are visited by various travelling

communities. These communities often set up camp at unauthorised locations without notice or adequate amenities arriving in one area simultaneously.

In the past group sizes have varied heavily and some have consisted of over a hundred people of different ages, and multiple family generations. Interaction with these communities presents the Service with challenges such as cultural differences and potential issues relating to illiteracy and mistrust of uniformed services.

4.5.4 Many of these mobile dwellings are caravans and converted vans which are heated by self-fitted, homemade wood burning stoves. These present a number of risks to both the occupants and emergency responders that may come in contact in instances of fire, due to the potential for carbon monoxide poisoning and the presence of compressed flammable gas cylinders.

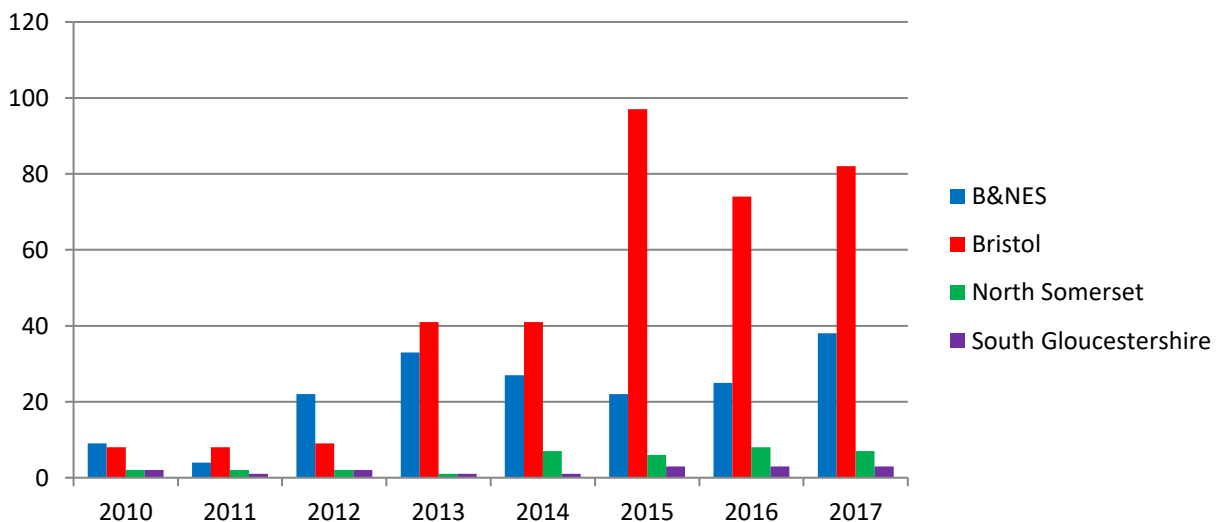
4.5.5 It is not possible to put an accurate figure on the number of travellers within the Service area as the figures can change overnight, however AF&RS need to be aware of this risk and, if deemed a priority, more work may need to be undertaken to better understand the scale, geography and potential impact.

## 4.6 Homelessness

4.6.1 The number of homeless people in Bristol is on the rise, by a shocking 128% over the past three years, according to statistics from Homeless Link (Emmaus Bristol).

4.6.2 “As a wealthy city where most people sleep easy, Bristol once bucked the trend for the rising tide of homelessness across the country. However, in the last few years charities have seen a sharp rise in the number of people sleeping rough” (Emmaus Bristol).

4.6.3 Research has also shown that homelessness is linked to a number of unhealthy lifestyles, 45% of the homeless population in the UK are diagnosed with mental health problems, 36% had taken drugs in the last six months and two-thirds consume more than the recommended amount of alcohol each time they drink (Homeless Link).



- 4.6.4 The figures in the chart above are based on data submitted annually by Local Authorities to the Department for Communities and Local Government (Homeless Link). Some councils submit estimates based on local intelligence, while others submit figures based on an active count carried out on a single night. Some local Authorities may have submitted a mixture of counts and estimates over the years covered.
- 4.6.5 The counts and estimates process is not designed to arrive at a single irrefutable number of people sleeping rough - a figure that would be impossible to gauge accurately. Instead, it is a snapshot of the numbers of people likely to be sleeping rough each night during a given period each year, and which can subsequently be used to track trends nationally and locally.

## 5 Technological

### 5.1 Joint Emergency Services Interoperability Program

- 5.1.1 Findings from a number of reviews into major national emergencies and disasters found that the three emergency services carry out their individual roles efficiently and professionally however there appeared to be some common issues and themes relating to joint working between the services.
- 5.1.2 The Joint Emergency Services Interoperability Program (JESIP) is based upon the Civil Contingencies Act (2004) which imposes a legal duty on Category 1 responders to assess risk, plan for emergencies and to co-operate and share information with other emergency response organisations.
- 5.1.3 The JESIP program provides an App to assist commanders from all agencies, and consideration should be given to how this could be used more widely by incident commanders on front line appliances enabling these principles to be embedded within the organisation.
- 5.1.4 AF&RS need to ensure sufficient resources, procedures and training are in place to work to this doctrine, and ensure past mistakes in relation to joint working between services are not repeated. Failure to do so could potentially risk the lives of members of the public and the emergency services as well as the reputation of AF&RS.

### 5.2 Online Community Engagement

- 5.2.1 Data from the Official for National Statistics (ONS) show that just shy of 90% of the South West population have used the internet within three months of March 2017 (Bristol City Council, 2018). The South West population has shown a dramatic increase in internet usage over the last three years, suggesting that online community engagement could potentially reach more of its population and could have greater impact.
- 5.2.2 However the ONS also highlights that even though there is an increase in internet usage across all groups, many older or disabled people are still not online, with two-thirds of women over 75 having never used the internet. The total number of adults that have never used the internet in Bristol was 18,000 in 2016.
- 5.2.3 AF&RS need to be aware of this as it may mean that online community engagement may not be reaching many vulnerable or at risk groups and it needs to ensure that there are other engagements to address this gap.

### 5.3 Emergency Services Network

- 5.3.1 The Emergency Services Network (ESN) will be the new communication system used by the all Emergency Services and other public safety users in the UK. It will be based on the latest technology, delivering secure and resilient voice communication and also

broadband data services.

- 5.3.2 The new ESN will be an essential part of Britain's critical national infrastructure. It will enable Police, Fire and Rescue, and Ambulance Services to keep up with the latest technological developments rather than be locked into using a proprietary product, and be much cheaper than the existing Airwave network.
- 5.3.3 During the transition period there will be no risk to public safety. The existing communications network, Airwave, will continue to operate until the emergency services have completed transition onto the new ESN. AF&RS needs to be aware of the risk of failing to implement the new ESN, and ensure sufficient preplanning, resources, resilience and continuity during the project and rollout phases.

## 5.4 Everbridge Staff SMS messaging

- 5.4.1 The Everbridge communication system provides us with an efficient method of getting messages quickly to a large number of staff, providing they have given consent. For messages such as for severe weather and other events which could impact on their journey to work, or overtime planning and other uses as the system is developed. Everbridge is a secure web-based system, so will also provide resilience in the event of our usual systems being unavailable although incident communication protocols remain unchanged. This system is due to go live in early 2019.

## 5.5 IT Systems

- 5.5.1 AF&RS, in line with most modern organisations, now rely on IT systems to increase productivity, improve delivery of core services, and ensure compliance with various laws. This trend is only going to increase as technology improves and becomes more affordable.

- 5.5.2 Reliance on software and IT infrastructure offer up a number of risks:

- **Supplier Reliance** – Reliance on software that is supplied and supported by a third party means the service needs to have sufficient resilience or agreements in place to ensure continuity?
- **Safety of Information** – Data needs to be accessible but also secure and safe to comply with law.
- **Staff & Training** – Reliance on trained users, the Service needs to ensure if main users of specific software were to leave there is sufficient resilience and skills to ensure continuity in delivering our services.
- **Costs** – AF&RS needs to ensure that the increasing demands on its IT infrastructure and software are balanced against the cost of these services, taking into consideration the potential for these costs to increase.

**Down time** - AF&RS's delivery of services may be adversely affected if its IT systems are interrupted or damaged by unforeseen events or if they fail for any extended period of time. Therefore the requirement for pre-planning and resilience in the event of extended periods of down time, to continue to deliver services, is of paramount importance.





## 6 Environmental

### 6.1 Climate Change

6.1.1 The Government's UK Climate Change Projections (UK Government DEFRA, 2009) indicate that climate change will present AF&RS with changing pressures both in the short and longer term. Extreme weather events in the UK are likely to increase in frequency and severity, causing:

- **Hotter and dryer summers** - longer-lasting heat waves.
- **Colder and wetter winters** – heavier rainfall events.
- **Higher sea levels** - with larger storm waves putting a strain on the UK's coastal defenses.
- **Rise in global temperature** - food supplies could be affected as crops in the UK and overseas could fail or be damaged by changes in temperature, rainfall and extreme weather events.

6.1.2 AF&RS need to be aware of the changing risk as a result of climate change, paying particular attention to its Service area, surrounding Service areas and national assistance that may be required and ensure sufficient pre-planning, staff, equipment and resources to deal with the potential increase in demand.

#### 6.1.3 Flooding

6.1.4 The UK Climate Change Projections reports from 2009 (Department for Environment Food and Rural Affairs) along with the four Unitary Authorities Local Flood Management Strategies, indicate there is strong evidence to suggest that climate change may lead to:

- **Riverine (Fluvial), Surface Water & Sewer Flooding** - Increases in heavy rainfall which may significantly increase risk.
- **Tidal Flooding** - Rising sea levels may also further increase the risk of flooding and erosion along our coastline.
- **Groundwater Flooding** - Groundwater floods can be driven by a prolonged period of above average rainfall.

6.1.5 Although FRSs in England do not have any statutory duty for rescue from floodwaters, historical precedent and increasing societal expectations combine to mean that we respond as part of our primary aim of saving life. There is a clear public expectation that in the event of a local or national civil emergency – whether it is flooding, fire, industrial or transport-related - the FRS is there as an immediate, well-equipped and trained body able to intervene to carry out rescues, mitigate damage and assist the most vulnerable members of society.

#### 6.1.6 Surface Water and Sewer Flooding

6.1.7 Currently around 50,000 residential properties within BANES, Bristol, North Somerset

and South Gloucestershire are at risk of surface water flooding, this number is due to increase steadily with changing climate and other factors.

6.1.8 Bristol is recognised as one of the UKs top 10 flood risk areas that are susceptible to surface water flooding, this strongly suggests that flooding during very heavy rainfall is likely to be significant and presents the biggest risk to the city (Bristol City Council, 2018).

6.1.9 Forecasts found in UK Climate Change Projections predict heavy rain fall will increase by 40% from the levels recorded in 2009 (Department for Environment, Food & Rural Affairs, 2011). All four Unitary Authority Flood Management Strategies set out aims and plans to better understand and mitigate the risks posed by the increase in precipitation.

#### 6.1.10 **Riverine (Fluvial) Flooding**

6.1.11 Fluvial flooding occurs when rivers burst their banks as a result of sustained or intense rainfall. This risk is managed by the Environment Agency who use its permissive powers under the Environment Act 1995 (UK Government, 1995).

6.1.12 The Government's flood risk mapping tool shows that all main rivers within the unitary area pose a high or medium risk of flooding.

6.1.13 All four Unitary Authority Local Flood Risk Management Plans indicate these risks are well known and managed by the Environment Agency with Bristol quoted as saying "even predicted increase in extreme rainfall due to climate change is unlikely to significantly alter the risk of fluvial flooding, as a result of the defences" (Bristol City Council, 2018).

#### 6.1.14 **Tidal Flooding**

6.1.15 Bristol and North Somerset have areas that hug the coastline with high risk of tidal flooding present, in addition the River Avon, which runs through Bristol City Centre, is also tidal.

6.1.16 North Somerset and Bristol's Local Flood Risk Management Strategies have identified the chance of tidal flooding to be between 0.5%-1% in any given year.

6.1.17 The Government's flood risk mapping tool shows a low risk that large areas from the coastline inland could flood from Weston-super-Mare to Clevedon and Avonmouth to Aust, if this happens it could affect residential and industrial premises.

#### 6.1.18 **Ground Water Flooding**

6.1.19 Groundwater floods occur when sub-surface water emerges from the ground. Likely causes for this are heavy rainfall, or high river levels.

6.1.20 The risk of groundwater flooding within Bristol is not as well understood as the other flooding risks, however each of the four Unitary Authority Local Flood Risk Management Strategies consider the risk to be low.

#### 6.1.21 **Adverse Weather**

6.1.22 The UK has, in the recent past, experienced adverse weather conditions due to its temperate maritime climate and occasional continental and arctic influences.

6.1.23 The frequency and severity of the UK's adverse weather is due to increase with climate change AF&RS needs to plan for:

- **Storms and gales** – These can come with damaging wind speeds and lightning.
- **Low temperatures** – Prolonged sub-zero temperatures present a life risk, particularly to vulnerable groups, and increasing pressures on Healthcare and Emergency Services.
- **Heavy Snow** – This has the potential to cause disruption to essential services, particularly transport, energy and communications.
- **Heat wave and drought** – Can also increase life risk with vulnerable groups and present additional pressure on healthcare.

#### 6.1.24 **Wildfires**

6.1.25 Wildfires have been identified in the UK National Risk Register of Civil Emergencies, the likelihood of which is increased during hot, dry and windy weather. This could be an area of growing risk with the effects of climate change.

6.1.26 AF&RS have attended on average 230 wild and grassland fires annually. 85% of these fires are classed as deliberate, indicating this risk could be reduced with Service interventions.

#### 6.1.27 **Landslides**

6.1.28 Landslides are indicated in the UK National Risk Register (UK Government Cabinet Office, 2017) as a potential consequence of severe weather following climate change.

6.1.29 The British Geological Survey (British Geological Survey, 2018) have assessed the potential for landslides in the UK by mapping areas with superficial and bedrock deposits and combining this information with their landslide database, scientific and engineering reports. This map shows a significant risk in and around Bath as well as smaller areas from Bristol to Patchway, with moderate risks highlighted within South Gloucestershire.

6.1.30 To understand this risk more would require AF&RS procuring data on landslides from a third party which could then be fed into their risk modelling and profiling.

## 6.2 **Drought/Water Scarcity**

6.2.1 The UK Climate Change Risk Assessment 2017 (Committee on Climate Change, 2017) and the National Risk Register of Civil Emergencies 2017 (UK Government Cabinet Office, 2017) both highlight the potential for water shortage and drought as increasing risks.

6.2.2 Over the past 40 years England has only experienced five long-duration and two

shorter periods of droughts, these were during 2010-2012 when parts of the UK had their lowest rainfall total in over 100 years (UK Government Environment Agency, 2017).

Drought Action	Bristol Water Likelihood	Wessex Water Likelihood
Temporary Use Ban	7% (1 in 15 years)	1% (1 in 100 years)
Drought Order – Non-essential use ban	3% (1 in 33 years)	0.6% (1 in 150 years)
Emergency Drought Order - Partial supply or rota-cuts	1% (1 in 100 years)	0.5% (1 in 200 years)

6.2.3 Wessex Water and Bristol Water are the suppliers of water within the four unitary areas and have a statutory duty to have Drought Plans reviewed every five years, the risks laid out from both of these can be seen in the table below.

6.2.4 AF&RS needs to be aware and prepared for the event of drought as it could have a serious impact on our ability to deliver core services. Drought has been identified as having the longest advance warning times of any severe weather event (Cabinet Office, National Security and Intelligence, and The Rt Hon Caroline Nokes MP, 2017), assisting FRSs response to these events.

### 6.3 Malicious Attacks

6.3.1 Malicious attacks can take many forms from numerous different ideologies, politics or religious motivation. Anti-establishment anarchist groups have made several attacks in recent years locally, including Avon & Somerset Constabulary's Black Rock training facility and a Vodafone telephone mast.

6.3.2 This ever changing risk poses a substantial threat to AF&RS. A report compiled by Verisk Maplecroft in 2015 (a company that advises business on risk management) ranked Bristol at 179 out of 1300 cities at risk from a terrorist attack, second in the UK only to Belfast (Channel 4, 2015).

6.3.3 Malicious Attacks on Infrastructure

6.3.4 Critical National Infrastructure are the buildings, other systems and networks needed to keep the UK running and provide the essential services that we rely on. These services could be essential to basic human needs, or they could be essential to keeping other infrastructure and the UK economy running. Deliberate attacks on infrastructure would cause many of the same problems as an industrial accident, technical failure or severe weather affecting services.

6.3.5 Consequences of an attack on critical infrastructure may include:

- Fatalities and physical / psychological casualties

- Damage to property and infrastructure
- Disruption to essential services, particularly energy, transport and telecommunications
- Economic damage (particularly to business)
- Possible evacuation and shelter of local residents or employees.

6.3.6 The consequences of attacks on infrastructure and the plans to deal with them are frequently the same as they would be if an industrial accident happened at a Critical National Infrastructure site. Developing plans that can be used in a range of situations is an efficient and effective means of ensuring that AF&RS has the capabilities in place to deal with a variety of emergencies.

#### 6.3.7 **Attacks on Crowded Places**

6.3.8 Crowded public places remain an attractive target for terrorists, because they are generally easily accessible, tend to have less security and can be used to cause large scale injury and loss of life.

6.3.9 Potential targets include pedestrian routes and other thoroughfares as well as sports arenas, retail outlets and entertainment spaces.

6.3.10 Attacks could be carried out using a variety of weapons including blades, firearms, explosives and vehicles deliberately used to harm people.

6.3.11 AF&RS serve a number of local areas and events that could carry this risk; these include but are not limited to:

- |                                  |                           |
|----------------------------------|---------------------------|
| • Gloucester Cricket Ground.     | • Ashton Gate Stadium.    |
| • Harbour Festival.              | • Memorial Ground.        |
| • Bristol/Bath Half Marathon.    | • T4 On the Beach.        |
| • St Pauls Carnival.             | • Bath Recreation Ground. |
| • The Mall.                      | • Bristol Balloon Fiesta. |
| • Grand Pier, Weston-super-Mare. | • Weston Bike Race.       |

#### 6.3.12 **Attacks on Transport**

6.3.13 The Service area is connected by road on an east-west axis from London to Wales by the M4 motorway, and on a north-southwest axis from Birmingham to Exeter by the M5 motorway. Also within the authority area is the M49 motorway, a shortcut between the M5 in the south and M4 Severn Crossing in the west.

6.3.14 There are two principal railway stations in Bristol. In Stoke Gifford there is Bristol Parkway and Temple Meads is in the City Centre, there are an 11 additional suburban stations. There are also scheduled coach links to most major UK cities.

6.3.15 The region is also served by its own airport, Bristol Airport (BRS) at Lulsgate, which has seen substantial improvements to its runway, terminal and other facilities. The airport offers services to major European destinations.

6.3.16 Bristol is fortunate to have two sea ports: Avonmouth Docks and The Royal Portbury Docks; both of these are owned and operated by the Bristol Port Company. High

volumes of cargo that pass through the terminals are vital to the local economy; as well as cruise ships arriving to collect and disembark sea faring passengers.

6.3.17 On 7 July 2005, London's transport system was attacked with four explosions, three on underground trains, one on a bus, resulting in 52 fatalities and over 750 casualties. Subsequent attacks were attempted, unsuccessfully, two weeks later.

#### 6.3.18 **Cyber Attacks**

6.3.19 Cyberspace is essential to our economy and society. While cyberspace supports open markets, sharing of information and access to knowledge, this very openness makes us more vulnerable to criminals, terrorists and foreign intelligence services seeking to steal our data, compromise our services or radicalise members of the public.

6.3.20 "Cyberspace is both a direct means of damaging our systems or extorting money, and a means through which hostile groups can recruit, fund-raise, inspire and manipulate" (UK Government Cabinet Office, 2017).

6.3.21 AF&RS need to ensure sufficient security; policies and training are in place to mitigate this risk to its IT infrastructure.

#### 6.3.22 Small-Scale (individual or small groups) Chemical, Biological, Radiological, Nuclear Attacks

6.3.23 Small scale chemical, biological, radiological, nuclear attacks (CBRN) pose an increasing risk to the UK and have been used in recent years to target individuals or small groups. The most recent example is the assassination attempt on a former Russian spy in Salisbury; this attempt also left the former spy's daughter and first police officer in attendance fighting for their lives.

6.3.24 Another example of these targeted attacks was the posting of Anthrax spores to several US news media offices and two U.S. Senators in 2011; these attacks killed five people and 17 were sickened in what became the worst biological attack in US history (CNN).

6.3.25 CBRN attacks can take many forms:

- **Chemicals** - Combined with explosives, chemicals may be used as small-scale (assassination or poisonings) or large-scale (mass-casualty) weapons. Some chemical weapons have used toxic industrial compounds; others have deployed agents specifically developed for warfare
- **Biological weapons** - May be used to attack people or infrastructure (eg. food and water supplies).
- **Radiological material** - Can be combined with explosives to produce a radiological dispersion device (RDD), sometimes called a 'dirty bomb', which will contaminate people and buildings. Nuclear or fissile material may be used to develop an improvised nuclear device (IND), creating a nuclear explosion. An IND remains the most devastating of all CBRN devices. Contamination makes recovery from a CBRN attack significantly more



challenging than recovery from other terrorist atrocities. The clean-up process may be protracted as well as unfamiliar and untested.

**6.3.26 Large-Scale Chemical, Biological, Radiological or Nuclear Attacks**

6.3.27 The UK Government works hard to prevent terrorists from gaining the expertise and materials necessary to deliver attacks employing chemical, biological, radiological or nuclear (CBRN) materials.

6.3.28 Such attacks have the potential to cause harm by contaminating people, animals, buildings, outdoor environments, water supplies and food. Their scale and impact could vary widely depending on the materials involved and the way they are used. Extremists remain interested in CBRN materials; however alternative methods of attack such as employing firearms or conventional explosive devices remain far more likely.

6.3.29 Larger-scale incidents could include the widespread use of biological agents or an improvised nuclear device; resulting in much greater numbers of casualties and widespread, long-term impacts of a magnitude greater than all other terrorist attacks.

6.3.30 Larger-scale attacks of this type have never happened before but would be more challenging to respond to due to the nature of the potential health impacts and widespread environmental contamination. While the likelihood of terrorists successfully conducting a larger-scale CBRN attack in the UK is very low, it cannot be ruled out.

**6.3.31 Electro-Magnetic Pulses (EMP)**

6.3.32 A newer threat, though one which has been the subject, until recently, of more research, is the possibility of a deliberate attack using electromagnetic pulses, perhaps with little or no warning.

6.3.33 A single nuclear weapon detonated between 25–500 miles above the Earth could create an electro-magnetic pulse (EMP). This would produce a high density electrical field with the potential to cause severe damage to technology over a wide geographical area. The area affected is dependent on the height of the detonation.

6.3.34 An EMP Commission was established in the United States in 2001 to look expressly at the potential impact of a high altitude EMP attack on key US infrastructure, and in 2008 published a report which concluded that the US society is vulnerable to an EMP attack, the consequences of which might be long-term, widespread and catastrophic because of the interdependency of the systems which are likely to be affected.

6.3.35 While the probability of an EMP attack is judged by the Government to be low, it is accepted that its impact would be high, and in view of this the Government includes it in the second tier of priorities for UK national security.

6.3.36 Today's society places an ever-growing reliance on technology. Modern infrastructures such as power, telecommunications and water systems, businesses, industries and services are now interdependent to a very significant degree, and disruption can therefore spread very quickly as the effects cascade through connected systems.

## 6.4 International Conflicts

6.4.1 There are approximately 22 ongoing conflicts worldwide. Our military is able to meet threats in the world wherever they arise, even very far away from home, on land, on sea, in the air and in cyberspace.

## 6.5 Infectious Diseases

6.5.1 Outbreaks of diseases in the UK in both human and animals have the potential to cause wide spread civil emergencies. AF&RS need to be aware of the risk posed by infectious diseases as this could have both direct and indirect impacts on the service such as:

- **Disruption to essential services** – Particularly health and ambulance services as well as our own, would be affected by staff shortages. Increased demand on supporting services may also have the knock on effect whereby those services are not available to support Fire Service incidents.
- **Economic disruption** – Including disruption to business and tourism which could affect funding and demand for fire services.

### 6.5.2 Pandemic Influenza

6.5.3 Forecasting the spread and impact of a new influenza strain can be difficult until it starts circulating, however pandemic influenza is considered likely to occur.

6.5.4 The projections state that, should an outbreak occur, around 50% of the UK population could experience symptoms potentially leading to between 20,000 and 750,000 fatalities and high levels of absence from work (UK Government Cabinet Office, 2017).

6.5.5 The last pandemic was in 2009 when fortunately the virus caused only a mild flu illness in most people who caught it, with less than a thousand deaths in the UK (UK Government Cabinet Office, 2010). However, a future pandemic virus may cause more severe illness (Avon&Somerset Constabulary).

### 6.5.6 Emerging Infectious Diseases

6.5.7 In the last 25 years over 30 new or newly recognised emerging infectious diseases have been identified globally; some of the more prevalent examples are Ebola, Zika and Middle East Respiratory Syndrome (Mukherjee, 2017).

6.5.8 Projections state that should an emerging infectious disease outbreak occur it could result in several thousand people experiencing symptoms, potentially leading to up to 100 fatalities (UK Government, 2017).

### 6.5.9 Animal Diseases

6.5.10 Animal diseases that can be spread from animals to humans are called zoonotic diseases. These could potentially cause illness or fatalities, and those that cannot be spread to humans (non-zoonotic) can affect the livestock on which we rely for food,



trade, or to maintain the ecosystem.

- 6.5.11 Several outbreaks of different diseases have occurred over the last 10 years, the most devastating outbreak in modern history being the foot and mouth outbreak in 2001 which cost the UK around £8 billion. Response arrangements have been improved and the last outbreak of foot and mouth was much less damaging and cost around £15 million.

## 6.6 Marine Pollution & Sea Borne Incidents

- 6.6.1 The service area has two significant commercial ports and a considerable proportion of the UK's petrochemical industry: Any potential incidents within the ports could impact on AF&RS.
- 6.6.2 Much of the regions coastline is classed as important protected areas; AF&RS need to be aware of the importance of protecting these areas.
- 6.6.3 Marine pollution and sea borne incidents could have a number of issues that could have an impact to AF&RS:
- **Potential health risk to local residents and tourists** – Increase on demand for health services, and potentially the FRS.
  - **Large quantities of contaminated or highly flammable waste** – Potential for protracted or major incidents, could require specialist equipment, resources, staff and prove to be financially heavy which could have a major impact on AF&RS.
  - **Economical** – Could have impact on UK economy and tourism which could potentially affect Fire Service funding. The deep-water horizon oil disaster cost an estimated \$40 billion, with BP themselves paying only \$11.6 billion of that sum (The Guardian, 2010).
- 6.6.4 The South West has had a number of smaller marine pollution incidents which resulted in the death 2,400 sea birds and 500 taken into care (Dorset Wildlife Trust, 2013); while this didn't have an impact on local FRSs it does highlight the very real threat.

## 6.7 Industrial Site Incidents

- 6.7.1 There are a large number of industrial businesses within the AF&RS area; including 16 COMAH sites (higher and lower tier) these are predominantly based within Avonmouth and Portishead station areas.
- 6.7.2 Industrial incidents present a number of issues that could impact AF&RS:
- **Risk to life** – Greater risks may be taken to save saveable life, thus increasing risk to our own staff and supporting services.
  - **Reducing our resources** - The commitment of multiple resources to one incident could potentially reduce the availability of our services for other FRS operations, with the knock on effect of impacting the general public even further.
  - **Damage to property** – This has the potential to create very different incidents that may require specialist services such as Urban Search and Rescue, which could potentially have greater impacts on AF&RS resources.

- **Hazardous chemicals or pollution to environment** – Potential for protracted or major incidents that could have a huge drain on AF&RS resources and finances.
  - **Impact to UK oil and gas supplies** – This could have the direct implication that AF&RS own supply of oil and gas reserves diminished, having an impact on delivering core services.
  - **Economical** – Major incident could have financial implications that have an impact on UK economy which could potentially effect Fire Service funding.
- Evacuation** – Large scale evacuations could have an impact on population geography, potentially changing AF&RS risks and risk mapping.

6.7.3 Outside of the COMAH (Control of Major Accident Hazards) sites, the term ‘industrial’ covers an array of business and building types. These risks vary considerably in both scale and nature. AF&RS need to have an understanding and knowledge of the different risks and geography of these risks to best match resources.

## 6.8 Transport

6.8.1 The West of England is the gateway to the South West and its economic powerhouse, accounting for 26% of the region’s economy. With a million people and half a million jobs we have the highest growth in Gross Domestic Product (GDP) per capita of any major city in England outside London. In terms of GDP we are, along with the capital, the only English city in the European top forty (West Of England Partnership, 2011).

### 6.8.2 Road

6.8.3 Over the next 15 years it is expected that the region will see a rapid growth in population, 105,000 homes are expected to be built. There is a planned expansion at Bristol International Airport to increase passenger capacity, and the construction of a deep water container port at Avonmouth Docks. It would be pragmatic to expect an increase in traffic on our roads.

6.8.4 The West of England’s Joint Local Transport Plan details 11 major transport schemes providing £600 million of investment with a vision to 2026 and beyond. The developing nature of road transport throughout the West of England places new demands on AF&RS these include:

- **Vehicle risks** – AF&RS need to ensure operational crews are kept up to date with technical knowledge of vehicle construction and the hazards and risks associated with rescue in the event they are involved in a collision.
- **Emerging vehicle technologies** - AF&RS need to ensure that staff are kept up to date and trained to deal with emerging trends in vehicle construction and fuels such as LPG, LNG, electric and composite materials.
- **Service road usage profile** – AF&RS need to have a good understanding of the potential hazards and volume of these hazards travelling on roads within its service area to ensure sufficient pre-planning, staff, equipment and resources are available to deal with any potential incidents.

6.8.5 The Autumn Statement published in December 2014 included confirmation of funding

for a range of transport schemes across the country including a new junction on the M49 at Avonmouth to support the proposals put forward by its Local Enterprise Partnership. This development will support future planned industrial development in the Severnside area.

6.8.6 Work to develop and improve the road transport infrastructure inevitably means more roadworks which, if not managed appropriately, have the potential to slow down the response times of all the emergency services.

6.8.7 The M4 and M5 motorways run directly through AF&RS area. At peak times these main arterial routes to Wales and the South West often run close to, or at capacity. Should a major road traffic collision occur on one of these motorways, the impact is felt across the region, as the traffic will attempt to migrate through the city and 'A' roads with the potential to cause grid-lock.

As witnessed in October 2017, when the M5 was blocked just south of Junction 19 by two articulated LGVs closing the motorway for 16 hours. Situations such as this are fortunately rare, but have a massive impact on how AF&RS deploys its assets effectively to maintain the response standards.

#### 6.8.8 **Clean Air Zones**

6.8.9 Both Bristol and Bath have long-standing air quality problems which cause harm to people's health. Significant areas of both cities have nitrogen dioxide (NO<sub>2</sub>) pollution levels higher than EU and national standards. The main source of NO<sub>2</sub> pollution is road traffic with diesel vehicles contributing around 95% in Bath and Bristol combined. Of this, diesel cars are responsible for 40%, followed by buses and coaches (23%) and diesel vans (22%).

6.8.10 Whilst AF&RS might reach an agreement with Bristol City Council & BANES to exempt certain fleet vehicles from Clean Air Zone restrictions (either permanently or for a transition period), it is unlikely that the wider auxiliary fleet and very unlikely that the grey fleet (Essential, Lease, Casual) or staff vehicles will be subject to the same exemptions. This presents a real challenge for AF&RS to determine how to comply with the restrictions within the time scales to be agreed with our Local Authorities.

#### 6.8.11 **Rail**

6.8.12 Network Rail is working closely with the Department for Transport, train companies and other stakeholders to deliver electrification on the Great Western main line. It is electrifying one of Britain's oldest and busiest railways which runs through the north of AF&RS's area, bringing better connections across southern England, South Wales, London and Bristol, including Newbury and Oxford, by 2016 and to Cardiff by December 2018. This major improvement programme will introduce electrified railways to the West of England for the first time and result in more seats, faster journeys, improved reliability, reduced impact on the environment and stimulating the economy.

6.8.13 Energising Bristol Parkway to Bristol Temple Meads and Bath Spa to Bristol Temple Meads has been deferred until after 2019.

- 6.8.14 Additionally, Portishead has seen significant residential development in the last decade; as plans have been put forward to reopen Portishead railway line by 2019.
- 6.8.15 The proposed development of a deep sea container terminal at Avonmouth Docks will see a significant increase in rail freight to and from both ports.
- 6.8.16 **Air**
- 6.8.17 Bristol Airport sits within AF&RS's area in North Somerset, and is the third largest regional airport. In 2017 passenger numbers for the year were estimated to be eight million, and projections are that this number will increase to 15 million in the next 15 years (Bristol Airport).
- 6.8.18 Bristol Airport currently supports an estimated 15,000+ regional jobs, and this number has been forecast to increase to 21,000 in the next 15 years (Bristol Airport).
- 6.8.19 There were 73,000 aircraft movements at Bristol Airport in 2016 this figure over the last decade has had minor fluctuations up and down but ultimately remained static (Bristol Airport).
- 6.8.20 Bristol Airport is currently looking to expand its car parking, adding a new Silver Zone reception and additional aircraft stands, to drive business and increase capacity.
- 6.8.21 With expansion comes a greater number of flights, larger and more advanced aircraft incorporating modern construction materials, more passengers, increased development of the airport infrastructure (including car parking, a hotel and fuel storage) – all of which highlight the importance of our preparedness to respond effectively to any emergency at the Airport and the value of our close partnership working with the Airport's own Rescue and Firefighting Service.
- 6.8.22 **Sea**
- 6.8.23 Since the late 60s early 70s there was a steady decline in the use of both Bristol Ports. Since 1991 the ports have received massive investment with continuing plans to invest in the future to accommodate the largest new container vessels, and cruise liners. Planning over the lifespan of future Integrated Risk Management Plans, AF&RS will need to take into account the skills, knowledge and expertise required by our crews for responding to maritime incidents (including ship firefighting) and continued effective liaison with the Harbourmaster.
- 6.8.24 Bristol Harbour is the harbour in the city of Bristol, England. The harbour covers an area of 70 acres (28.3 ha). It has existed since the 13th century but was developed into its current form in the early 19th century by installing lock gates on a tidal stretch of the River Avon in the centre of the city and providing a tidal by-pass for the river. It is often called the Floating Harbour as the water level remains constant and it is not affected by the state of the tide on the river. Also part of the river Avon, Bath has significant stretches of unprotected waterways within the city limits.
- 6.8.25 The Harbour side and Bath are utilised for many social events that attract large

numbers of people. Grill Stock and the Harbour festival are a few to mention. The majority of the riverside and wharf areas have no barriers that separate the public from the water. Despite ongoing leaflet and a media campaigns these areas remain a temptation for late night revellers. Unfortunately for a number people this ends in tragedy, when they are overcome by the cold water. On average over the last four years five people a year are recovered from the water deceased.

#### 6.8.26 **Transporting of Hazardous Materials**

6.8.27 There are a significant number of vehicles that carry hazardous materials everyday on the roads within the AF&RS area which, if involved in an incident, could lead to:

6.8.28 Bristol City Council have identified designated tanker routes and made hauliers aware of their locations. These routes go through the least populated areas and make use of safer roads:

- **Casualties** – Depending on the hazardous material this could potentially cause injury or respiratory problems, with numbers affected depending on geography, local wind conditions and the time of day.
- **Environmental damage** – Potential to cause damage to immediate local environment or more widespread damage by entering the water courses.
- **Damage to local infrastructure** – Potential to cause damage to local infrastructure, the road network being the most likely.

6.8.29 Avon and Somerset Police carry out routine stop-checks on vehicles carrying hazardous materials to ensure they are operating safely.

6.8.30 AF&RS needs to be aware of risks, routes and location of hazardous materials being delivered and stored and ensure sufficient pre-planning, staff, training and resources to match.

### 6.9 **Infrastructure Failure**

#### 6.9.1 **Telecoms Infrastructure Failure**

6.9.2 In order to consider the impact a telecoms infrastructure failure in the UK would have upon different sectors/organisations and groups, as well as what the mass population response would be, two workshops were held in the UK in June 2014 utilising something called the Anytown model. Anytown is a project designed and led by London Resilience which has been used to bring together experts from different sectors and organisations to discuss potential implications of disruptions to critical infrastructure. Mathew Hogan from London Resilience states the aim of the Anytown project “*is to raise awareness of the consequences of infrastructure disruption with all emergency response organizations*” in London. This information was translated into a simple model which could be applicable anywhere in the UK.

6.9.3 In the UK many sectors and organisations do have plans, including Business Continuity Plans, in place to manage a disruption, which includes the use of Airwave radio for some sectors, particularly the emergency services. However, in the event of a

telecoms disruption, all sectors would be impacted at some point and the impact would range in severity. The most seriously affected sector would be the health sector which would be impacted immediately, resulting in potentially serious implications which would escalate exponentially. The impact on the health sector would be compounded by the impact on the emergency services which would also be severely affected as telecoms disruption would lead to loss of the 999 service.

- 6.9.4 Communities would also be initially affected in differing ways, with the more vulnerable being significantly more affected. Some people might become more altruistic while others will attempt to take action themselves, at times however this may be dangerous. Anxiety and tension may start to build after a few hours and this will be particularly exacerbated for certain groups, such as those who rely on specific routines. After an extended period of disruption there may be an increase in crime within the community.
- 6.9.5 If the telecoms disruption continued for an extended period, (such as 20+ hours), the military would be engaged, supporting the emergency services, leading Business Continuity Plans and setting up a central hub, but they would not be involved in any response.
- 6.9.6 AF&RS need to be aware of this risk and ensure they have effective continuity plans in place.
- 6.9.7 **Water Infrastructure Failure**
- 6.9.8 Wessex Water and Bristol Water are the suppliers of water within combined unitary areas and have a statutory duty to have Drought Plans reviewed every five years.
- 6.9.9 Complete catastrophic failure of the region's water supply is highly unlikely but may be the result of a knock on effect from a separate infrastructure failure.
- 6.9.10 This could impact AF&RS in both the welfare of its staff as well as the inability to supply its resources with sufficient supply of extinguishing media in land locked areas.
- 6.9.11 A good local knowledge of open water sources would be essential as well as tidal locations that pumping appliances could replenish. These resources may dwindle in times of prolonged drought.
- 6.9.12 **Food Infrastructure Failure**
- 6.9.13 There are no current realistic scenarios within the UK which would lead to a shortage of food supplies; however, if a large area of local agricultural land was affected by an incident it would affect the local economy as well as impacting on food prices nationally (Avon and Somerset Local Resilience Forum, 2016)
- 6.9.14 **Gas & Electricity Infrastructure Failure**
- 6.9.15 Wide scale loss of electricity or gas would have a direct or indirect impact on all other infrastructure sectors. In the event of a major gas or electricity supply emergency, both industry and Government will have significant roles to play in managing the incident and its consequences.



- 6.9.16 The gas and electricity companies would be responsible for the practical and operational management of the incident. These companies have well-established plans and procedures in place to respond to incidents, which can range from the management of a local incident to a national-level disruption.
- 6.9.17 Dependant on the time of year, a loss of one or all utility supplies would put at risk the vulnerable. The young and old would be at greater risk during inclement weather from the effects of the cold. During an extended period of outage, infrastructures such as hospitals backed up by emergency power generators have the potential to fail as the fuel reserves deplete.
- 6.9.18 **Fuel Shortages**
- 6.9.19 All organisations rely to some extent on fuel, whether it is for getting staff to work, distributing products or providing services.
- 6.9.20 The availability of fuel within the UK is generally very good; however there have been brief disruptions to supply on both a regional and national basis.
- 6.9.21 A disruption could be caused by a number of factors, including scarcity of supply, a technical problem with part of the fuel supply infrastructure, industrial action or public protest. In the event of such a disruption to supply, it is also possible that stocks could be further depleted through increased panic buying.
- 6.9.22 There is history of fuel shortage events in the UK, for example in September 2000 blockades at key oil distribution points caused nationwide fuel shortages for over one week. Threats of similar action in August 2005 led to panic buying which caused localised disruptions across the country.
- 6.9.23 The industrial action taken by Shell tanker drivers in June 2008 had a widespread effect on fuel distribution throughout the UK resulting in some filling stations running out of fuel.
- 6.9.24 Some of the impacts of a fuel shortage are public and commercial filling stations becoming depleted of stock within 48 hours, if predicted correctly it could take up to 10 days to return normal supplies.
- 6.9.25 Fuel shortage could mean we are unable to provide essential services to the public without sufficient resilience in place.
- 6.9.26 The service has static fuel tanks and fuel bowsers at various stations. This provides the service with a total 59,020 litres of static and 9,500 litres of mobile fuel supplies.

## **6.10 Heritage Buildings**

- 6.10.1 Fire threatens all buildings and its effects can be disastrous in both human and economic terms. In the case of an historic building there is a further dimension – the loss of property that forms part of a cultural resource which is limited, irreplaceable and whose architectural and historical integrity can be destroyed as easily by inappropriate fire precautions as by fire itself.

6.10.2 In past years historic buildings of national and international importance in the UK have been seriously damaged by fire at a rate of more than one per year. Although there is no evidence to suggest that historic buildings as a class are at greater risk of fire than other buildings, when a fire does occur it exposes the vulnerability of historic buildings and their contents to fire and its aftermath. FRSs may also be called upon to help with salvage operations at incidents involving flooding.

6.10.3 AF&RS has a number of heritage buildings within its area for example:

- Ashton Court Mansion.
- Prior Park.
- Totworth Court.
- Roman Baths.
- Pump Room Bath
- Bristol City Museum.
- Dyrham Park.
- Blaise Castle Mansion.
- Tyntesfield House.
- Pulteney Bridge.

6.10.4 This is by no means an exhaustive list.

6.10.5 AF&RS must have a good knowledge of the heritage buildings within their service area and have sufficient preplanning, training, staff, resources and equipment to mitigate the loss should incidents occur.

## 6.11 Space Weather

6.11.1 Space weather is described as a “collective term used to describe a series of phenomena originating from the Sun.” (Cabinet Office, National Security and Intelligence, and The Rt Hon Caroline Nokes MP, 2017). This has been highlighted as an event that has a probable likelihood and that could have a moderate impact to the UK in the UK National Risk Register of Civil Emergencies 2017.

6.11.2 These events can have a number of consequences which can impact the way in which a FRS operates such as electricity blackouts, loss of global navigation, satellite services, widespread radio disruption and increases in background radiation doses.

6.11.3 These consequences could potentially have the knock on effect of disrupting essential services and causing fatalities and physical/psychological casualties. Increase in error rate of ground based unprotected digital control systems, for example computers, internet and mobile phones.

## 6.12 Volcanic Eruptions

6.12.1 Volcanic eruptions do not pose a direct risk to the UK as there are no active volcanoes in the UK, however there are a range across Europe that could indirectly affect the UK. There are a number of volcanoes, mainly in Iceland, that pose a substantial risk as they erupt frequently and prevailing winds are more likely to blow ash and gas towards the UK (UK Government Cabinet Office, 2017).

6.12.2 There are a number of issues this could cause AF&RS:

- **Casualties (from poor air quality)** – Greater demand on supporting services could



potentially reduce the availability of those services for Fire & Rescue Service operations.

- **Disruption to essential services** – The greatest of this is transport which has the potential to have a knock on effect on AF&RS's ability to deliver our core services.
- **Economical** – Disruption to transport could have financial implications that have an impact on businesses and the UK economy which could potentially affect fire service funding.
- **Environmental contamination** – This could have impact on water and agriculture.

6.12.3 AF&RS need to be aware of the risks to ensure sufficient resilience and resources are available to deal with fallout from volcanic eruptions.

## 6.13 Poor Air Quality

6.13.1 Action to manage and improve air quality is largely driven by European (EU) legislation. The 2008 ambient air quality directive (2008/50/EC) (European Union, 2008) sets legally binding limits for concentrations in outdoor air of major air pollutants that impact public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). As well as having direct effects, these pollutants can combine in the atmosphere to form ozone, a harmful air pollutant (and potent greenhouse gas) which can be transported great distances by weather systems. (Department for Environment Food and Rural Affairs)

6.13.2 There are a number of issues poor air quality could cause AF&RS:

- **Casualties**– Greater demand on supporting services could potentially reduce the availability of those services for FRS operations.
- **Economical** – Disruption to transport could have financial implications that have an impact on businesses and the UK economy which could potentially effect fire service funding.
- **Environmental contamination** – This could have an impact on water and agriculture.

6.13.3 To highlight the national potential impact: an example of a poor air quality event occurred in the UK in 2006 whereby a combination of extended period of hot weather causing heat wave conditions, poor air quality and associated exacerbation of mostly pre-existing conditions contributed to 630 deaths and up to 830 hospital admissions.

6.13.4 AF&RS need to be aware of this risk, utilise tools and forecasting to ensure sufficient staff, resources, equipment and resilience to assist our supporting services to deal with any potential incident as a result of poor air quality.

## 6.14 Earthquakes

6.14.1 Earthquakes in the UK are moderately frequent however very rarely result in severe damage.

6.14.2 Using the British Geological Society's tool for searching their earthquake database (British Geological Survey) in 2017 the UK had 203 earthquakes in total, with the largest having a magnitude of 4.7 none of these earthquakes resulted in any severe

damage.

- 6.14.3 AF&RS should be aware and monitoring this risk to ensure pre-planning to cover for the risk increasing.

## 6.15 Industrial Action

- 6.15.1 Industrial action poses a threat directly and indirectly to the FRS. AF&RS need to ensure it has sufficient resilience, so it can continue to deliver core services should there be any national action or local disputes resulting in industrial action.
- 6.15.2 AF&RS also need to be aware that industrial action could cause a number of issues for example:
- **Disruption to essential service** – Essential services themselves could be involved in industrial action, or third party organisations that directly impact an essential service being able to carry out services. This could impact on the availability of essential services that support AF&RS.
  - **Potential for public disorder** – AF&RS, while not involved in policing, still have the statutory responsibility to save lives and, where the situation permits, to save property.
  - **Economical** – Disruption services/businesses could have financial implications that have an impact on businesses and the UK economy which could potentially affect fire service funding.

## 6.16 Underground Mines and Workings

- 6.16.1 The Coal Authority's estate covers 26,000 km<sup>2</sup>, albeit sub-surface, encompassing most of the major urban conurbations. Most coalfield areas still understand the legacy of coal but in certain parts of the UK, active mining has not taken place for over 125 years. The 7.7 million properties built on historic coal fields equates to 29% of residential homes in the UK with 26% of these on the shallow coalfield. One puzzling statistic is that of the 2% within the influencing distance of a mine entry, only half have knowledge of the fact.
- 6.16.2 All of the four Unitary Authority areas have disused historic coal mine workings, some as deep as 1000 feet, which stretch from Ashton to Dundry. In 2008 mine workings collapsed in Yate. Taking the coal authority several months to rectify. There are large swaths of Bristol that are highlighted on the Governments coal field plan that show shallow workings. These disused mine workings have the potential to cause sink holes and subsidence.
- 6.16.3 AF&RS need to be aware of the risk caused by underground mines and workings, the scale of the risk in the service area, ensuring sufficient pre-planning and resources are available to deal with any potential incidents.

## 6.17 Public Disorder

- 6.17.1 Public disorder has been highlighted as a risk that is highly likely but with a minor impact. Public disorder can take many forms including rioting, looting, vandalism,

violence and arson (UK Government Cabinet Office, 2017).

- 6.17.2 Predicting disorder can be extremely difficult and often a result of peaceful protest escalating when small numbers of individuals are intent on provoking violence.
- 6.17.3 AF&RS has had a few examples of this in the last decade, the most prominent being the Stokes Croft riot in 2011 which involved damage to property, arson and the use of homemade projectiles and violence. The operation to deal with the incident is estimated to have cost at least £660,000. Recently operational crews have come under attack from youths intentionally launching fireworks and throwing stones at crews attending minor incidents.

## **6.18 High Rise Incidents**

- 6.18.1 Incidents in high rise buildings pose a greater risk to occupants and emergency workers than other residential buildings; this is due to their height, construction and greater number of occupants that can be affected.
- 6.18.2 AF&RS have 59 Bristol City Council residential high rise blocks within their service area, as well as many purpose built flats, hotels and industrial buildings that fall into the medium and high rise category.
- 6.18.3 Following the tragic incident at Grenfell tower in London on 14 June 2017, some high rise buildings in the UK were found to be using Aluminum Composite Material (ACM) cladding which does not meet the limited combustibility requirements of building regulations guidance. Within the unitary areas 38 of these high rise premises owned by Bristol City Council have cladding; however none of these have been clad with Aluminum Composite Material (ACM).

## **6.19 The Environment**

- 6.19.1 AF&RS has a legal, organisational and social responsibility to protect the environment, reduce our environmental impacts, and respond to the increasing effects of climate change. Our commitment is reflected in the Avon Fire Authority's Climate Change Declaration, the environmental priorities and targets set out in our Environmental Policy, and in our Agreement with the Environment Agency. This responsibility incorporates all our work in responding to emergency incidents, carrying out training events and the management of AF&RS premises and day to day activities:
- There are duties placed on FRS through environmental legislation to prevent pollution and to protect the environment such as the Environmental Damage Regulations and Environmental Permitting Regulations. The actions AF&RS take have legal implications and can prevent or mitigate significant harm to the natural environment such as reducing the impact of spillages or firewater run-off and protecting public water supplies.
  - Training events, either at AF&RS fire stations or external venues, may give rise to water or air pollution, for example pollution from training with scrap cars, firefighting foam or hot burning exercises – these activities are also controlled under environmental legislation such as, The Water Industries Act, End of Life Vehicles Regulations and

Environmental Permitting Regulations.

- Management of AF&RS premises and day-to-day activities has significant environmental impacts such as the use of energy to heat and power our buildings, vehicle use, waste production, and storage and use of hazardous materials on AF&RS sites. Reducing these impacts not only reduces their energy, fuel and waste bills, allowing them to redirect resources to frontline services, but also ensures they comply with relevant regulations such as Control of Pollution Regulations, Fluorinated Greenhouse Gas Regulations, Energy Performance of Buildings Regulations and Waste/Hazardous Waste Regulations.
- In addition, as a responsible public sector organisation, AF&RS also need to demonstrate it is managing its resources effectively and efficiently, and that it responds to environmental concerns, such as poor air quality issues in our urban areas and the impact of our own vehicle fleet.

#### 6.19.2 Key environmental-related risks to AF&RS:

- **Legal:** There is a range of environmental legislation and regulations relevant to AF&RS and their activities which they need to comply with. Failure to comply could result in prosecution and/or liability for clean-up costs, fines or penalties.
- **Reputational:** As a high-profile public sector organisation AF&RS could suffer significant reputational damage if, for example, it caused a pollution incident involving foam run-off into local water supplies or did not respond to the wider concerns around air quality issues. As an organisation directly impacted by the effects of climate change through their response to an increase in extreme weather events, flooding etc, AF&RS should also be seen to do all they can to reduce their own emissions.

By ensuring environmental best practice in all AF&RS operations and services, they not only set a good example in the communities where they work but also future-proof their organisation against increasingly stringent and compulsory standards. For example, the proposed Clean Air Zone vehicle restrictions, public sector carbon emission targets, building energy performance requirements etc. Failure to do so implies a lack of effective governance and poor resource management.

- **Financial:** Lack of proper management of environmental impacts and responsibilities could incur significant financial costs for AF&RS including:
  - Clean up costs, fines or penalties for non-compliance with legislation.
  - Increased costs of energy, vehicle fuel, water and waste across our estate if AF&RS does not ensure the efficient use of resources and proper management of our buildings. This in turn will impact the financial resources available to frontline services.
  - Potential charges for non-compliant vehicles in the Clean Air Zone being proposed for Bristol and Bath.

## 6.20 Planned Development

### 6.20.1 Joint Spatial Plan 2017

### 6.20.2 The local Authorities of Bath and North East Somerset Council, Bristol City Council,

North Somerset Council and South Gloucestershire Council have joined forces to prepare a Joint Spatial Plan to steer the nature and location of future development and secure funding for essential infrastructure.

6.20.3 The Joint Spatial Plan identifies the requirement for 105,500 new homes within the four authority areas, this number is roughly 5%-10% over the Objectively Assessed Need providing some flexibility should any issues of non-delivery arise. The housing will be distributed between the Unitary Authorities as follows:

- **Bath & North East Somerset**            14,500 dwellings
- **Bristol City**                                        33,500 dwellings
- **North Somerset**                                25,000 dwellings
- **South Gloucestershire**                    32,500 dwellings

6.20.4 The Joint Spatial Plan also sets out a number of developments moving forward that could change the AF&RS risk profile. Each authority is increasing its number of primary schools as well as providing areas for future employment and business.

6.20.5 North Keynsham has also had plans set out for a new mixed tenure marina which will provide residential and leisure moorings.

6.20.6 AF&RS need to maintain a clear understanding of the service area to best match its assets to the requirements and demands of those areas.

**6.20.7 Resource Recovery Centre Avonmouth**

6.20.8 Construction of the £252million Resource Recovery Centre (RRC) in Avonmouth began in summer 2017. Once operational the Centre will use safe, environmentally sustainable and reliable technology to divert 320,000 tonnes of non-recyclable waste away from landfill. The ERF will also generate up to 32MW of electricity which will power the facility itself and export enough energy to power around 44,000 homes.

6.20.9 The waste will be standard municipal waste and will enter the site by road. Avonmouth RRC is estimated to generate an additional 378 vehicular daily movements on the existing road network, predominantly large goods vehicles, based on a five and a half day working week. The raw material will be stored indoors with adequate fire detection and suppressant systems.

**6.20.10 Hinkley Point C**

6.20.11 Hinkley Point is on the Somerset coast in the South West of England. Hinkley Point B is the only one of four nuclear power stations in the area which is operational, the others being decommissioned are the adjacent Hinkley Point A together with Oldbury and Berkeley on the banks of the River Severn. Hinkley C, when built, will sit alongside the existing operating nuclear power station.

6.20.12 Marking a significant milestone in the revitalisation of our nuclear power industry, Hinkley Point C will make a major contribution to the UK's move to reduce carbon emissions. The electricity it generates will avoid 9 million tonnes of carbon dioxide

emissions a year, or 600 million tonnes over its 60-year lifespan.

6.20.13 But it is more than a nuclear power station - Hinkley Point C will produce many other economic and social benefits. There are 25,000 employment opportunities, up to 1,000 apprenticeships and 64% of the project's construction value is predicted to go to UK companies.

6.20.14 Nuclear waste from Hinkley has routinely been transported by rail through the service area since the mid 1960's. The new reactor is expected to produce clean energy for the next 60 years.

6.20.15 **Connecting Hinkley 'C' to Seabank**

6.20.16 In the South West, EDF Energy has been granted a Development Consent Order for a new nuclear power station at Hinkley Point. A number of other significant new electricity generation projects such as Seabank 3 are also proposed. These low carbon energy projects will help meet the country's increasing demand for energy in a sustainable way.

6.20.17 It is National Grid's role to connect these new electricity generators so that we can all benefit from the energy they produce. To do so, they need to provide additional electricity capacity in the South West to make sure these new connections are safe and reliable.

6.20.18 The best way to provide this additional capacity is to remove the existing 132,000 volt overhead electricity line owned by Western Power Distribution, and build a new 400,000 volt connection between Bridgwater and Seabank, located at Hallen Marsh, Avonmouth.

6.20.19 EDF are proposing to remove 65 kilometres (40 miles) of existing 132,000 volt overhead line between the Bridgwater and Avonmouth substations and put up 46.6 kilometres (29 miles) of 400,000 volt overhead line. Over eight kilometres (five miles) of the new connection would be placed underground through and either side of the Mendip Hills Area of Outstanding Beauty (AONB), leaving this part of the Mendip Hills free from pylons for the first time in more than 40 years. Eight kilometres (five miles) of existing 132,000 volt overhead line from Nailsea to Portishead substation would also be put underground.



# 7 Legal

## 7.1 Fire & Rescue Services Act 2004

7.1.1 The Fire & Rescue Service Act 2004 (UK Government, 2004) is an act to make provision about:

- Fire & Rescue Authorities and their functions.
- Employment by fire and rescue Authorities and the powers of employees of fire and rescue Authorities.
- Education and training.
- Pension schemes.
- The supply of water.
- False alarms of fire.
- Provide for the funding of advisory bodies; and for connected purposes.

### 7.1.2 Fire Safety

7.1.3 A fire and rescue authority must make provision for the purpose of promoting fire safety in its area.

7.1.4 “In making this provision a fire and rescue authority must in particular, to the extent that it considers it reasonable to do so, make arrangements for—

- the provision of information, publicity and encouragement in respect of the steps to be taken to prevent fires and death or injury by fire;
  - the giving of advice, on request, about:
    - how to prevent fires and restrict their spread in buildings and other property;
    - the means of escape from buildings and other property in case of fire
- The Fire & Rescue Services act 2004 set out that AF&RS must make provisions for the purpose of promoting fire safety within the service area. “

(UK Government, 2004)

7.1.5 AF&RS details how it plans to deliver and meet the legal requirement within the Community Risk Reduction Strategy

7.1.6 Response & Rescue

7.1.7 The Fire & Rescue Services Act 2004 sets out that AF&RS must:

- **Fire** – Make provisions for the purpose of extinguishing fire, and protecting life and property in the event of fires in its service area.**Road Traffic Collisions** – Make provisions for the purpose of rescuing people in the event of road traffic collisions, and protect people from serious harm to the extent that is reasonable to do so within its area.
- **Emergencies** - The Secretary of State may by order confer on a fire and rescue

authority functions relating to emergencies, other than fires and road traffic accidents. An order under the emergencies section may require functions conferred on a fire and rescue authority under this section to be discharged outside the authority's area.

- **Personnel, Services & Equipment** – Secure provision of Personnel, services and equipment as necessary to meet all normal requirements and training of those personnel.
- **Resources** – Make arrangements for dealing with calls for help and for summoning personnel. Take reasonable steps to prevent or limit damage to property resulting from actions taken for extinguishing fire, protecting life or property.

- 7.1.8 AF&RS must be able to carry out this response and rescue function as far as reasonably possible, and details of how this will be achieved can be found in the Operational Response Strategy
- 7.1.9 Reinforcement Schemes and Arrangements for Discharge of Functions by Others
- 7.1.10 Section 13/16 of the Fire & Rescue Services Act 2004 sets out that a Fire & Rescue Authority (FRA) must, as far as practicable, enter into a reinforcement scheme with other FRAs for securing mutual assistance for response and rescue duties.
- 7.1.11 This reinforcement scheme may make provisions for apportioning costs incurred between Authorities within the scheme in taking measures to secure efficient operation of the scheme.
- 7.1.12 The fire Authorities entering into the scheme have a statutory obligation to notify the Secretary of State before creating, making changes or variations to or any revocation of schemes.
- 7.1.13 Avon FRS borders South Wales FRS, Devon & Somerset FRS, Gloucester FRS and Wiltshire FRS; as a result there is an expectation that AF&RS will assist in responding out of service area and have other FRS assisting in response within its service area.
- 7.1.14 FRSs are also permitted to enter into arrangements with any other person or persons to carry out response and rescue duties, with a caveat written in the Act that specifies any arrangements for the function of firefighting can only be put in place if the person or persons employs firefighters.

## 7.2 Police & Crime Act 2017

- 7.2.1 The Police & Crime Act 2017 (PCA 2017) (UK Government) amends the Fire and Rescue Services Act 2004 (FRSA 2004) to enable Police and Crime Commissioners (PCCs) to take on governance of their local fire and rescue service (FRS) through the creation of new PCC-style Fire and Rescue Authorities (FRA). The PCA 2017 also defines opportunities for closer working across emergency services through a new statutory duty for blue light services collaboration, and makes provision for PCCs to be represented on their local FRA.
- 7.2.2 Following the publication of the Statutory Inspection in July 2017 (UK Government Home Office, 2017), the Chair of Avon Fire Authority put forward 63 recommendations



addressing criticisms made in the report.

7.2.3 Members voted to approve 62 of the 63 suggested actions and five additional resolutions – the only amendment was the removal of a recommendation to hold discussions with the Police and Crime Commissioner (PCC) to review the potential of passing governance of AF&RS to the PCC. Members did however retain a suggestion to consider further collaboration opportunities with all blue light services, including Avon & Somerset Constabulary.

7.2.4 The PCC was invited to sit on the Fire Authority as a non-voting member, however due to being a standing member of the Independent Improvement Programme Board and the potential conflict of interest, the PCC declined this position on the Fire Authority.

### **7.3 Emergency Workers Obstruction Act 2006**

7.3.1 The Emergency Workers Obstruction Act 2006 (UK Government, 2006) makes it an offence to obstruct or hinder persons who provide emergency services, and for connected purposes.

7.3.2 AF&RS must ensure its staff is aware of the laws set out in this Act as failure to use them when required could have a negative impact on the reputation of the Fire Service during incident investigations or report writing. Conversely, misuse or incorrect use of the laws set out in the Emergency Workers Obstruction Act could lead to a negative impact on AF&RS reputation and such an event could potentially also be played out in the media.

### **7.4 Equality Act 2010**

7.4.1 The Equalities Act 2010 (UK Government, 2010) brought together what was previously 116 separate pieces of legislation into one single legal framework to protect the rights of individuals and advance equality of opportunity for all.

7.4.2 The Act protects everyone in Britain against discrimination. Discrimination can be broken down into four main types; direct and indirect discrimination, harassment and victimization.

7.4.3 The Equalities Act covers nine protected characteristics; these are:

- age
- disability
- gender reassignment
- marriage and civil partnership
- pregnancy and maternity
- race
- religion or belief
- sex and
- sexual orientation

- 7.4.4 AF&RS complies with equality law and implements good practice in all aspects of employment including recruitment, pay, working hours, managing staff and developing policies. Consequences for breaching equality laws could lead to actions such as unfair dismissal; it is worth noting that there is no limit on compensation that can be awarded in discrimination cases. This would also have a negative reputational impact and be in contradiction to the values held by AF&RS.
- 7.4.5 The Equality Act also sets out a Public Sector Equality Duty (PSED) which requires public bodies to have due regard to the need to eliminate discrimination, advance equality of opportunity and foster good relations between different people when carrying out their activities.
- 7.4.6 As a public sector employer AF&RS must ensure it complies with the law for all the aforementioned reasons.

## **7.5 Control of Major Accident Hazards Regulations 2015 (COMAH)**

- 7.5.1 The Control of Major Accident Hazards (COMAH) Regulations 2015 (HSE) came into effect on 1 June 2015, with the aim to ensure businesses take all necessary measures to prevent major accidents involving dangerous substances and limit the consequences to people and the environment of any major accidents which do occur. COMAH regulations apply to all sites which have qualifying quantities of dangerous substances; sites can be either top tier or lower tier, depending on the quantities of those hazardous substances.
- 7.5.2 Under COMAH all on-site emergency planning is the responsibility of the individual organisation operating the COMAH site; any off-site emergency planning is the responsibility of the competent Local Authority in consultation with the site operator.
- 7.5.3 Plans must be established for a system for managing information in the event of a major accident. The plans must ensure that necessary information can be identified and communicated to people on- and off-site, the emergency services and the other Authorities identified in the plan as having a role to play and requiring information.
- 7.5.4 **Internal Emergency Plan**
- 7.5.5 The internal emergency plan details the roles that those who work at the establishment will have to play in the event of a major accident. It should include the arrangements that are established for assisting with emergency response off-site. The plan must dovetail with the external plan, so that emergency services and those responsible for communicating information to those outside the establishment know how they will receive information.
- 7.5.6 Emergency services are identified as having a role to play in the emergency response, Fire & Rescue Services must be consulted during preparation of the plan and it must be confirmed that adequate arrangements are in place.
- 7.5.7 Testing should be carried out at least once every year for top tier sites there are four of these in Avonmouth NB there are also five lower tier COMAH sites in the Avonmouth.

Testing an emergency plan may consist of a live exercise or a table-top exercise supported by the testing of other components (which may be done at separate times), including the communication arrangements.

7.5.8 Dealing with the on-site consequences of major accidents will usually require the assistance of the emergency services and, therefore, it may be appropriate for them to attend many of these tests, but not necessarily all. Other designated Authorities also need to be involved in some of the exercises. Within reason, key staff with a role to play in emergency response should have the opportunity to undertake site familiarisation visits.

#### 7.5.9 **External Emergency Plan**

7.5.10 The external emergency plan details the roles to be carried out by emergency services, local Authorities and other external organisations in the event of a major accident. This includes the arrangements established to help with the emergency response on site. The degree of planning should be proportionate to the probability and consequences of the accident occurring.

7.5.11 The local authority should develop these arrangements in consultation with the emergency services and health bodies for the area in the vicinity of the establishment. The arrangements should give directions for coping with any incidents with off-site consequences until the external emergency plan is implemented.

7.5.12 Emergency services identified as having a role to play in the emergency response must be consulted during preparation of the plan and they must confirm that adequate arrangements are in place. For example, if an operator anticipates that an external emergency service would provide firefighting foam media it should be confirmed that the emergency service can supply this.

7.5.13 A local authority which has prepared an external emergency plan must, at suitable intervals and not exceeding three years, review and where necessary, revise and test the plan.

7.5.14 Where the local authority considers it necessary, it can formally request co-operation from a designated authority and the designated authority must co-operate.

7.5.15 There should be a clear and logical decision-making system in place to ensure that, as soon as a relevant event has occurred, the appropriate plan will be initiated immediately. This should include arrangements for the operator to warn the emergency services of an incident which may escalate into a major accident, and for the operator or emergency services to advise the local authority of an incident that may require the activation of the external emergency plan. These arrangements should be described in the plans.

7.5.16 It is important that the public receive general information about how they will be informed or alerted in the event of a major accident. For upper-tier establishments this should be agreed with the emergency planners and emergency services who may be involved in dealing with an accident.

7.5.17 Emergency services may have to train staff in the duties they are expected to carry out.

7.5.18 In carrying out a review of an internal emergency plan, the operator must take into account:

- Changes at the premises or within the emergency services concerned
- Relevant new technical knowledge
- Relevant new knowledge concerning the response to major accidents

## 7.6 Data Protection

7.6.1 General Data Protection Regulation

7.6.2 The new EU General Data Protection Regulation (GDPR) (European Union , 2016) replaced the UK's Data Protection Act 1998 (DPA) (UK Government, 1998) in May 2018.

7.6.3 The main principles of the GDPR are similar to those within the DPA, such as:

- Fair processing
- Information must be adequate and relevant for the processing
- Must be accurate, kept up to date and kept no longer than necessary
- Provides individuals with rights regarding their data
- Data security

7.6.4 However there are some significant enhancements and new elements, such as a new accountability requirement for organisations, higher fines for non-compliance and mandatory requirements for some policies and processes, such as a Retention Policy, impact assessments and staff training.

7.6.5 AF&RS need to ensure they are aware of this new regulation and make the appropriate changes to the way in which they manage the processing of personal data within the service. Consequences of non-compliance could potentially be legal and financial but also carry the risk of reputational damage with data breaches and misuse of data receiving high levels of media coverage. A recent example of this can be seen with Facebook and Cambridge Analytical data scandal resulting in negative media coverage, a loss of customers and multiple lawsuits.

7.6.6 **Freedom of Information**

7.6.7 The Freedom of Information Act 2000 (FOIA) (UK Government, 2000) was developed as part of the commitment to 'open Government'. Broadly speaking the aim is to make it easier for the public to see what public services are doing, how they are run, and if they are delivering good 'value for money'. Therefore the FOIA only applies to public Authorities and not to private businesses.

7.6.8 The FOIA was also formed to help eliminate unfair practices by making it easier for people to see what decisions had been made and why they had been made.

7.6.9 AF&RS need to be aware of the risk of non-compliance, ensuring all staff are aware of

procedures around identifying, notifying the correct people, and the level and content of their response to mitigate the risk of handling requests incorrectly. This could have a legal and financial impact and potentially have a negative impact on the Service's reputation.

## **7.7 Localism Act 2011**

- 7.7.1 The Localism Act 2011 (UK Government, 2011) is an Act of Parliament that changes the powers of local Government in England. The aim of the Act is to facilitate the devolution of decision-making powers from Central Government control to individuals and communities
- 7.7.2 AF&RS need to work closely with the Fire Authority to ensure that decision making is based on and fulfills the demands of their communities, and that these decisions do not to do anything specifically prohibited in other legislation.

## **7.8 Building Act 1984 & Building Regulations 2000**

- 7.8.1 As the enforcing authority for the Regulatory Reform (Fire Safety) Order 2005 (FSO) (The Regulatory Reform (Fire Safety) Order 2005) the FRs role is to continue to provide assured advice and guidance to enable the business community to create an environment within which people can live and work safely. In order to effectively discharge its responsibilities AF&RS will need to work collaboratively with its partners in a number of key areas, namely licensing, building regulations and housing. This consultative process will ensure that AF&RS meet its statutory responsibilities in engagement with local authority departments and the Fire Safety Order (FSO).
- 7.8.2 To assist businesses in maintaining effective fire safety measures AF&RS aims to support them, through coaching, to comply with all aspects of the legislation. In order to do this AF&RS must adhere to the principles of the regulators code, which AF&RS does in full. The responsibility to comply with fire safety legislation is with the responsible person.
- 7.8.3 AF&RS need to provide support and guidance to its business community through inspections and consultations. AF&RS must make businesses aware of their responsibilities and provide them with help and support so they understand their own risk and the importance of business continuity. In the event of serious non-compliance, where 'coach to comply' is insufficient, enforcement action must be taken in accordance with the requirements of the FSO and in line with AF&RS enforcement policy and procedures.

## **7.9 Civil Contingencies Act 2004**

- 7.9.1 The Civil Contingencies Act 2004 (CCA) (UK Government, 2004) is the framework for emergency power and response in the UK, the CCA separates responders into categories 1 and 2. Category 1 responders have a greater set of duties than category 2. AF&RS as an emergency service falls into Category 1 which sets out the following duties:

- Assess the risk of emergencies occurring and use this to inform contingency planning.
- Put in place emergency plans.
- Put in place business continuity management arrangements.
- Put in place arrangements to make information available to the public about civil protection matters and maintain arrangements to warn, inform and advise the public in the event of an emergency.
- Share information with other local responders to enhance co-ordination.
- Co-operate with other local responders to enhance co-ordination and efficiency.
- Provide advice and assistance to businesses and voluntary organisations about business continuity management (local Authorities only).

## **7.10 Regulatory Reform (Fire Safety) Order 2005**

- 7.10.1 The Regulatory Reform (Fire Safety) Order 2005 (The Regulatory Reform (Fire Safety) Order 2005) (RRO) is the current legislation enforcing fire safety standards.
- 7.10.2 The Order replaced all previous fire safety legislation including the Fire Precautions Act 1971 and the Fire Safety Workplace Regulations 1997. It has also brought all the references to fire safety in other acts (licensing for example) under the one legislative umbrella.
- 7.10.3 This has given FRSs control of fire safety legislation in all types of building uses. Previously FRSs relied on other Authorities to enforce the fire safety measures after consultation with the service.
- 7.10.4 The exemption to that is fire safety within Houses in Multiple Occupation (HMO). In this case AF&RS must operate through an agreed protocol with the Environmental Health Department, as the RRO does not extend to the private areas of HMO's (The Regulatory Reform (Fire Safety) Order 2005, p. 22).
- 7.10.5 Fire safety legislation has gradually evolved into the risk assessment model requiring the responsible person at premises to carry out a fire safety risk assessment. The RRO places a duty of care upon that person to maintain a safe environment for employees and all relevant persons.
- 7.10.6 In practice this simply means that anyone who has control over a building must carry out a risk assessment. The only exemption from these regulations is a single private dwelling.
- 7.10.7 Avon Fire Authority (AFA) must enforce these regulations and part of that enforcement role is to carry out an audit of the relevant risk assessment. The audit result produces five compliance levels, starting at level one (above average) to level five (prohibition likely). Under the RRO there is also ability for the AFA to prosecute, where appropriate.
- 7.10.8 Failure to enforce these regulations carries legal and financial consequences for AF&RS but also could lead to increase in fires, incidents and death or injury as a result of fire and incidents within AF&RS area.



## 7.11 Safeguarding

- 7.11.1 The Care Act 2014 (UK Government, 2014) came into force in England on 1 April 2015. The Act introduced new duties and responsibilities on local authority adult social services as the lead agencies in protecting adults at risk.
- 7.11.2 This gives AF&RS a clear responsibility, as a public authority, to ensure that the adults and children it interacts with are kept safe from harm.
- 7.11.3 AF&RS need to ensure that it is taking all reasonable measures to facilitate the protection of those most vulnerable as failure to do so could have legal and financial consequences as well as major reputational consequences for both AF&RS and the individuals involved. These consequences can be seen following the tragic death of Baby P in November 2008, where it was deemed that he had been failed by all the agencies that had interacted with him.

## 7.12 Health & Safety at Work Act etc. 1974

- 7.12.1 The Health and Safety at Work etc. Act 1974 (HSWA) (UK Government, 1974) is the primary piece of legislation that places a duty on all employers "to ensure, so far as is reasonably practicable, the health, safety and welfare at work" of all their employees (Health and Safety Executive, 2010)
- 7.12.2 The Health & Safety Executive recognises that firefighters and managers "face difficult moral dilemmas and have to make decisions in what are sometimes extremely hazardous, emotionally charged and fast moving situations" during emergency response (Health and Safety Executive, 2010). In Great Britain, the HSWA applies to all activities of Fire and Rescue Authorities as the employers of FRS staff.
- 7.12.3 The HSWA requires employers to ensure the health, safety and welfare at work of their employees and that their operations do not adversely affect the health and safety of other people. These health and safety duties are not absolute and each is qualified by the test of what is reasonably practicable, striking the balance between operational and health and safety duties in the FRS. The HSWA, therefore, does not require all risks to be eliminated, and Health & Safety Executive recognises that, "*even when all reasonably practicable precautions have been taken to deal with foreseeable risks, harm could still occur*" (Health and Safety Executive, 2010).
- 7.12.4 The risk to AF&RS for not complying with these rules is that it leaves it open to financial impacts from a legal stand point. This could also damage the reputation of AF&RS as a responsible and safe employer.



## 8 Organisational

### 8.1 National Fire Chiefs Council

- 8.1.1 The National Fire Chiefs Council (NFCC) came into effect on 1 April 2017 and is the professional voice of the UK FRS.
- 8.1.2 The NFCC drives improvement and development throughout the UK FRSs and supports strong leadership of the UK FRSs, including the devolved administrations. The NFCC enables locally accountable Chief Fire Officers, or their representatives, to coordinate the work of the UK FRSs to protect the public and improve community safety.

### 8.2 National Operational Guidance

- 8.2.1 The National Operational Guidance Programme (NOGP) is a partnership between the National Fire Chiefs Council, the Local Government Association, Home Office's Chief Fire and Rescue Adviser and the London Fire Brigade to create and deliver a framework that delivers policy and tactical guidance, and supports local FRSs to develop safe systems of work that are interoperable between services partners. This is called National Operational Guidance (NOG). NOG has replaced 8000 paper-based documents with an online framework. In April 2018 the programme delivered its last piece of guidance and the programme will continue under the NFCC Central Programme Office (CPO), who will continue to review guidance and incorporate any learning identified by the fire sector.
- 8.2.2 Operational guidance spans a wide range of activity and a framework has been created to make sense of it all; one that uses the hazards encountered at incidents and the measures used to control or eliminate them. The guidance is structured so that it starts with the elements that affect all incidents, then explore the environments in which we work and, finally, the activities that we do.
- 8.2.3 AF&RS has been engaging with the programme for a number of years and are in the process of implementing NOG to ensure its staff are working to the best practice guidelines.

### 8.3 Medical Response

- 8.3.1 There is an on-going national debate regarding FRS as a potential 'health asset'. The debate revolves around co-responding and the wider Emergency Medical Response which is currently not a statutory function for Fire & Rescue Services.
- 8.3.2 AF&RS continues to support and collaborate with SWAST operating Medical Emergency Vehicles from both Portishead and Thornbury on-call stations staffed on a voluntary basis.
- 8.3.3 AF&RS need to be aware of the growing need and expectation around medical

response for Fire & Rescue Services and how it can potentially impact the Service.

## 8.4 Operational Attendance Response Times

8.4.1 “The average response time to primary fires (more serious fires that harm people or cause damage to property) in England in 2016/17 was 8 minutes and 44 seconds: a decrease of 3 seconds since 2015/16 but an increase of 33 seconds since 2011/12” (Response times to fires attended by fire and rescue services: England, April 2016 to March 2017, 2018).

Type of Fire	2016/17	Change since 2015/16	Change since 2011/12
Primary	8m 44s	- 3s	+ 33s
Dwelling	7m 41s	-/+ 0	+ 27s
Other building	8m 30s	+ 1s	+ 36s
Road vehicle	8m and 35s	-11s	+ 36s
Other outdoor	10m and 36s	- 18s	+ 47s
Secondary	9m s	- 5s	+ 32s

8.4.2 “Response times have been increasing gradually for the past 20 years... a range of possible factors could contribute to this...

- *“Changing traffic levels*
- *Health and safety policies*
- *‘Drive to arrive’ policies*
- *Further questioning from control staff to better assess calls*
- *Changing service profiles”*

(Response times to fires attended by fire and rescue services: England, April 2016 to March 2017, 2018)

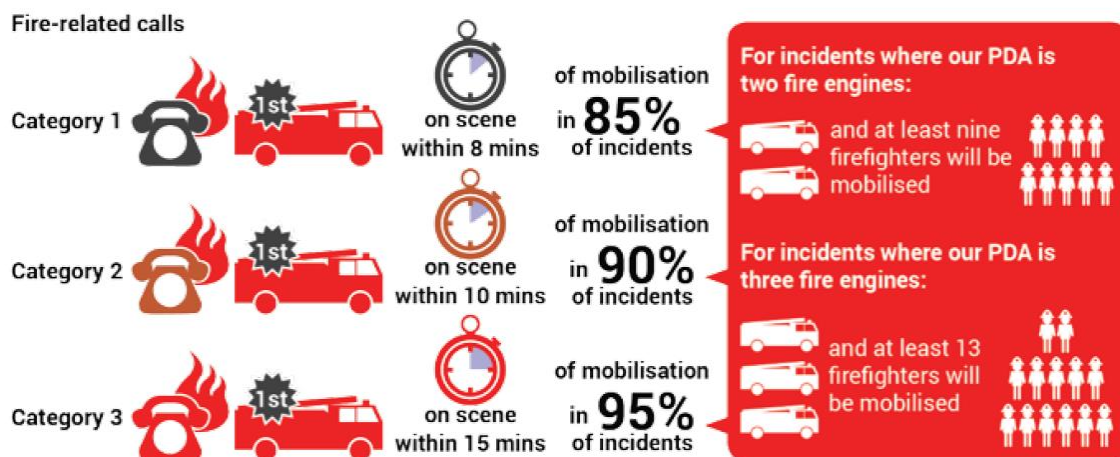
8.4.3 This is by no means an exhaustive list and is difficult to isolate the impact that each of these factors may have contributed to the increase in response times.

8.4.4 “There is not a straightforward relationship between response times and the outcomes of a fire as the type of fire and the time elapsed before the fire is discovered (both factors outside the control of FRSs) will have an influence on the outcome. However, some measurable proxy outcomes include non-fatal casualties, fire-related fatalities and the extent of fire damage.

As previously stated there has been a long-term increase in response times over the last 20 years; however over the same period, the number of non-fatal casualties, fire-related fatalities and the extent of fire damage have shown a long-term downward trend.” (Response times to fires attended by fire and rescue services: England, April

2016 to March 2017, 2018)

- 8.4.5 AF&RS response standards have three categories dependent on the population density. For each category AF&RS define the target time for the attendance of the first lifesaving intervention and also to ensure that the appropriate resource is mobilised for each incident. It also uses the Critical Response Standards (CAST) to determine the weight of response, which means that for a predetermined attendance at an incident requiring two fire engines they will send a minimum of nine firefighters and for three fire engines 13 firefighters.



## 8.5 Operational Preparedness & Resilience (Crewing/Resource Levels - People Capacity, Capability and Representation)

- 8.5.1 The Local Government Association (LGA) produced a report called 'An Inclusive Service The Twenty-First Century Fire and Rescue Service (February 2017)'.
- 8.5.2 The report identifies that the Home Office has made increasing the diversity of the firefighter workforce a key priority as part of the fire reform programme; it suggests that the ageing workforce would present opportunities for FRS's to fulfil this ambition.
- 8.5.3 Recruitment is happening for both retained and wholtime firefighters over the next five years. For wholtime this will be particularly over the next two years. However, the opportunities for recruitment posed by an ageing workforce do not appear to be large scale for wholtime recruitment, though the picture is more mixed on retained recruitment. This makes it all the more important to take what opportunities we do have to recruit a more representative firefighter workforce' (Local Government Association, 2017).

## 8.6 Health Wellbeing & Moral

- 8.6.1 In February 2018 AF&RS conducted a cultural review carried out by an independent company. The review highlighted that of the 582 respondents; a little over half agreed or strongly agreed that they found work mentally exhausting (Avon Fire and Rescue Service; The Glass Lift; Kate Mackay, Margaret Davies, 2018).

- 8.6.2 Separate research carried out by the Fire Fighters Charity found that there were 41,000 shifts lost nationally in the past year because of mental health issues. (Firefighters Charity)
- 8.6.3 The new findings substantiate research undertaken last year by the Mind mental health charity's Blue Light Programme. It found that 27% of firefighters had contemplated suicide due to stress or poor mental health, with post-traumatic stress disorder (PTSD) commonplace (Mind, 2016).
- 8.6.4 Mind's research included an online survey of 3,627 emergency staff, representing 1.5 % of the "blue light" national workforce, including firefighters and ambulance workers. It found that those working in the emergency services were disproportionately affected by the work they do, with nine out of ten staff having experienced stress and poor mental health at work.
- 8.6.5 Emergency services workers are exposed to trauma by the nature of their work. However, large numbers of staff reported factors such as reduced budgets, with more challenging targets placing them under increasing pressure, and reducing the opportunities for more informal support—a significant factor that staff depended on in the past (Mind, 2016).
- 8.6.6 The surveys carried out by the mental health charities suggest that the low scores submitted during the cultural review are reflected nationally and not specific to any particular Fire & Rescue Service.
- 8.6.7 AF&RS need to ensure it is taking proactive measures to address the issues it has highlighted within its service; failure to do so has the potential for negative financial and reputational impacts as well as having a detrimental effect on the health and wellbeing of the workforce.

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