



A Changing Landscape for 2030

Key Outcomes from Our Environmental Scanning Exercise 2021

Contents

Page No

Introduction	3
Understanding our Changing Landscape	4
A Changing Landscape - Key Issues to 2030	5
Our Political Environment	6
Our Area and Its Economy	8
Our Society	14
Our Communities	18
Digital Transformation	24
Our Environment	26
Our Organisation	32

Introduction

Imagining the landscape of 2030 is not easy. However, by gathering and using insight we can gain a richer picture of our fire and rescue future challenges and opportunities for the medium to longer term. This allows us to develop better focused and more precise strategic, risk management, human resource, financial and business plans which in turn maintains our excellent performance record in keeping our communities safe.

Better insight – better plans – better performance – better outcomes

So where does this insight come from? We gather insight from an abundance of sources such as recent years' experiences; community and risk profiles; incident and performance analysis; environmental scanning, stakeholder views; learning; internal evaluation and external audit. Data and intelligence is collated and recorded in many systems and documentation and is used, as necessary, to inform relevant plans.

This document highlights the key outcomes gleaned from our most recent environmental scanning exercise which was undertaken by the Brigade's Executive Leadership Team throughout Jan to Mar 2021.

These key outcomes reveal that we can expect **a significant changing landscape** over the next ten years.



Understanding our Landscape

Cleveland Fire Brigade does not operate in a vacuum; indeed it exists as a sub system of a dynamic world with continuous and sometimes volatile changes.


We need to fully understand our landscape and assess the changes that are or will be prevalent so that we can plan for and adapt our services in the future to ensure that we continue to be a high performing fire and rescue service. We have considered the following areas:

- Our Political Environment
- Our Area and its Economy
- Our Society
- Our Communities
- Digital Transformation
- Our Environment
- Our Organisation






A Changing Landscape - Key Issues to 2030



Our Political Environment

-  **New Governance, Roles, Responsibilities and Pay Mechanisms for Fire and Rescue Services** – as a result of the Government’s Reform agenda







Our Area and its Economy

-  **Free Port Status** – Teesside is set to become the UK’s first – and largest-free port.
-  **Tackling UK Economic Inequality** – ‘Treasury North’ Hub to be created in Tees Valley
-  **World Class Transport Systems for 2030** – as set out in the Tees Valley Combined Authority Strategic Transport Plan 2020-2030


Our Society

-  **The nature of terrorism is increasing and changing. It is becoming more diverse, more complex and increasingly dispersed and volatile**
-  **The third wave of Covid-19 infections happening now in mainland Europe will ‘wash up’ on the UK Shores**




Our Communities

-  **Population Growth** – there will be 6,000 more people in the Cleveland Area
-  **Ageing Population** – 23% of the Cleveland area population will be aged 65 years and over
-  **Less Children** – 7.9% less children aged 0-15 years in Cleveland area
-  **More People Living Alone** – significant increase in people living on their own – particularly older
-  **More Diverse Population** – ethnic populations are estimated to make up 15% of the U.K. population
-  **Generation Y Shape Service Demand** – they are connected, mobile, independent and self-serving

Digital Transformation

-  **The pace of technology continues to advance, the adoption of digital applications is accelerating**

Our Environment

-  **Increased Flooding** – if we do not tackle climate change there will be more intense rainfall, more extreme weather and wetter winters
-  **More Wildfires** – By 2050 heatwaves are predicted every other year – we are likely to experience more widespread wildfires
-  **Tees Valley will be a global leader in clean energy, low carbon and hydrogen**

Our Organisation

-  **The Grenfell Tower fire influences building safety**

Political Setting



New Governance, Roles, Responsibilities and Pay Mechanisms for Fire and Rescue Services

The Government introduced an independent inspection regime for Fire and Rescue Authorities in England – and the fire and rescue service they oversee. The inspections are delivered by Her Majesty's Inspectorate of Constabulary and Fire & Rescue Services (HMICFRS) who is given the power of inspection under the Fire and Rescue Services Act 2004, as amended by the Policing and Crime Act 2017. Under section 28B of the FRS Act 2004 HMICFRS must report to the Secretary of State on the State of Fire and Rescue Services in England.

The second annual report¹ from HMICFRS, Sir Tom Winsor, is an assessment of progress on the efficiency and effectiveness of fire and rescue since his last Report in 2019. Sir Tom acknowledges that FRSs rose to the challenge of the COVID-19 but his previously stated six recommendations for **'national reform of the fire and rescue service remains necessary and needs to accelerate'**.

Recommendations - Themes

1. Establish fire standards for risk, emergency response, definition of high risk premises in fire protection terms and audit frequency of high risk premises – Dec 2021
2. Spending Review – Complete

¹ State of Fire and Rescue – The Annual Assessment of Fire and Rescue Services in England 2020HMICFRS, March 2021



3. Establish the roles of the fire and rescue services and those who work in them – anticipated late Spring 2021
4. Review pay mechanisms and the future of the 'Grey Book' – Jun 2021
5. Demarcation of those responsible for governance and operational decision making – anticipated late Spring 2021
6. Introduce code of ethics – Mar 2021

Given the momentum of required change and the Home Office's current intention to release a 'white paper' on Fire and Rescue Reform it is inevitable that Fire and Rescue Services will look very different in 2030.



What Does this Mean for Us?

Fire Standards

Fire Standards are the blue print of good practice across Fire and Rescue activities – they aim to drive improvement and enhance professionalism for the benefit of both fire and rescue service personnel and the communities they serve. We must understand our performance against these standards and address any gaps.

As a minimum, we will contribute to the development of the Standards and put systems, processes and resources in place to evidence that we meet them. Our ultimate aim is to lead in the development of the Standards, exceed them and be at the forefront of best practice.

White Paper on Fire and Rescue Reform

The intended Government reform of Fire and Rescue Services will bring both challenges and opportunities. The uncertainty associated with the unraveling of a Reform package that includes sensitive issues such as governance, pay and roles and responsibilities will inevitably bring unrest, a common feature of many change programmes. As the Reform unfolds Chief Officers and Senior Teams will be under extreme pressure and in unenviable positions as they grapple to manage both the sensitivities of their political masters and those of their workforce.

We must influence the nature and shape of the Reform programme where we can by responding thoroughly to Government consultation. Future risk, safety and financial plans should address key aspects of the Reform agenda either by mitigating risks or pursuing opportunities. Reform should be central to our engagement activities across a wide spectrum of stakeholders.

Code of Ethics

A code of ethics is a guide of principles designed to help professionals conduct business honestly and with integrity.

Members of Cleveland Fire Authority already work within an ethical framework including a code of ethics. Employees of Cleveland Fire Brigade are issued with code of conducts and operate to a Values and Behaviours Framework which includes the Nolan Principles.

Given the ethical arrangements already in place, the introduction of a Code of Conduct will require minor improvements to existing practices within the Authority and its Brigade, rather than any radical change.



Our Area and Its Economy

Cleveland Fire Authority Area 2020

Location

North East of England centred around the mouth of the River Tees

Local Authorities

Hartlepool, Middlesbrough, Redcar and Cleveland; and Stockton-On-Tees

Area

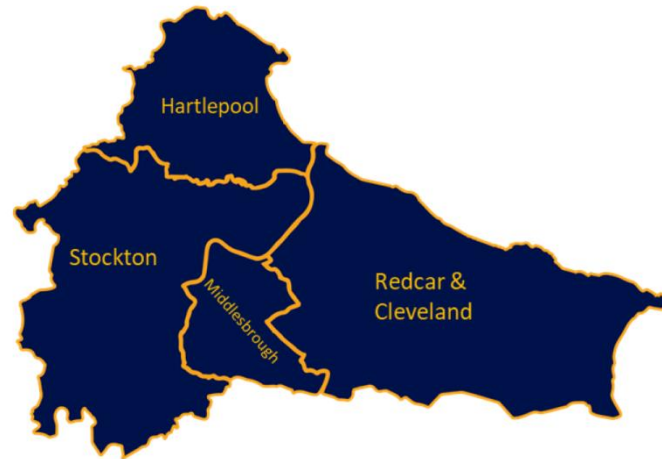
597km²

Dwellings

- 254,248
- 18% social housing (rented)
- some dwellings are located close to high hazard Industries

Industrial and Commercial Properties

14,782



Industry

- Major Production Centre for Chemical Industry
- 8% of all National COMAH Sites, 29 are Top Tier
- 2 Power Stations: 1 Nuclear, 1 Gas
- 7 solar powered energy farms
- 12 Onshore and 1 Offshore Wind Farms

Transport Infrastructure

- 1 international airport on our border
- 2 main ports – Hartlepool and Teesport handling 28 million tonnes of exports and imports
- 2,518km of class A and class B roads
- Rail network

Deprivation

- 36% (29) of Cleveland's area's 81 wards fall within the worst 10% most deprived wards nationally; 7 (9%) of these fall within the top 1% most deprived ward nationally
- 41% of the area's population reside in the 42% of dwellings in the most deprived wards
- more than half of the population (56%) live in wards that are in the 20% most deprived wards nationally

Households

- 45% are in Band A properties compared to 24% nationally
- 64% are in a Band A or B property compared to 44% nationally

Crime Rate is 121.9 per 1,000 households - national average is 89.0. Only West Yorkshire experiences higher rates of crime (125.9)



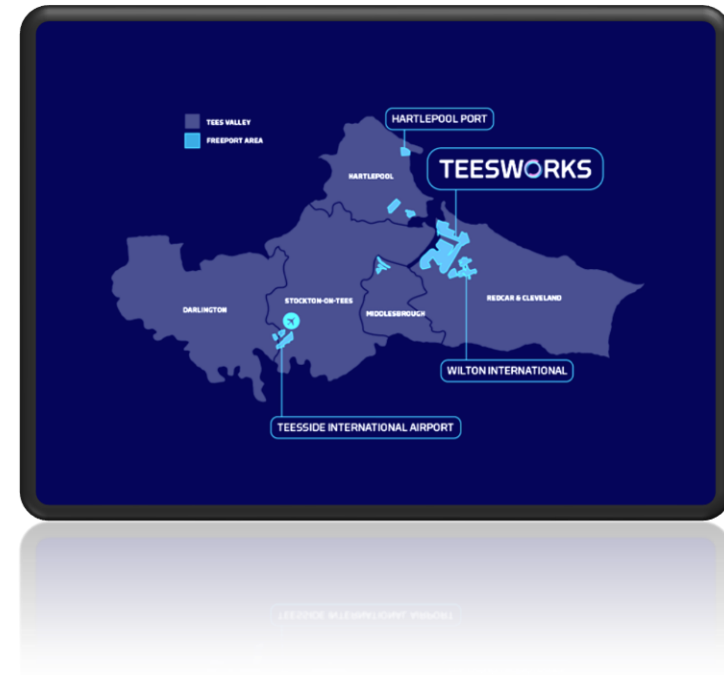
Teesside is set to become the UK's first – and largest- free port.

Freeports² are secure customs zones located at ports where business can be carried out inside a country's land border, but where different customs rules apply. They can reduce administrative burdens and tariff controls, provide relief from duties and import taxes, and ease tax and planning regulations. While located geographically within a country, they essentially exist outside its borders for tax purposes.

The Teesside Freeport touches on all five boundaries within the Tees Valley region. It covers 4,500 acres in total and includes the Teesworks site, Wilton International, Teesside International Airport, Port of Middlesbrough, Port of Hartlepool and Tees Dock.

³Teesport will have game changer status in a move that will turbo charge the economy of Teesside, bringing thousands of jobs and a £3.4bn boost to the area.

Businesses located within the Freeport zones will benefit from tax breaks including no stamp duty, full rebates for construction and machinery investment, five years of zero business rates, and lower tariffs and customs obligations.



Tees Valley Mayor Ben Houchen states that 'future generations are expected to look back at 2021 as the time when Teesside, Darlington and Hartlepool were reborn as an industrial powerhouse, marking the start of a return to the world stage as a global player in advanced manufacturing and engineering'.

² <https://www.teesinvest.com/why-tees-valley/teesside-freeport/>

³ Rishi Sunak, Chancellor <https://translogistics.co.uk/2021/03/teesside-wins-freeport-status-as-leaders-says-area-can-be-reborn-as-industrial-powerhouse/?amp=1>



What Does this Mean for Us?

With businesses benefitting from generous tax reliefs, customs benefits, simpler planning and wider government support it is expected that more investors from across the world will bring their investments to Teesside – creating thousands of well-paid jobs to local people. If this is the case Freeports will change our industrial and commercial landscape – increasing the number and complexity of the associated risks. It will also provide opportunities for the Brigade's Company in terms of the provision of risk management services.

There are views that employees from across the United Kingdom and other countries may re-locate to Teesside which may in turn require demands for increase in housing, council, police and fire and rescue services. An increase in traffic and freight across our area will increase the likelihood of congestion and accidents on our roads.

Others say that Freeports become a haven for money launderers and tax evaders, who make the most of the lack of tariffs and reduced regulation offered by these areas. This increase in the number and nature of those crimes will certainly impact the demands on Cleveland Police which may increase those of the Brigade.

The impacts of the Freeport on the fire and rescue service in Teesside will unfold over the next few years.

We will work with our Partners across the Tees Valley to support the Teesside Freeport project rollout by better understanding the potential changing risk and the associated changes in future demand, if any, on our prevention, protection and emergency response services.

Our integrated risk management planning arrangements will continually be reviewed to ensure that we configure and deploy our finite resources appropriately to support any identified increase in demand





'Treasury North' Hub to Tackle UK Economic Inequality

In 2021 Darlington was chosen as the Treasury's northern economic hub as part of the Government's 'levelling up' agenda for the north of England. The Hub is established as part of a new strategy to tackle regional inequalities and boost exports to ensure that the whole of the UK benefits from the country's trade policy.



Tees Valley Mayor, Ben Houchen states that this move will put local priorities and local people from across our area at the heart of government, as well as creating good quality, well-paid jobs for local people.

The Hub will see the initial transfer of 750 officials from Whitehall including those in the departments for business transport and local government with a prediction of 22,000 officials transferring north by 2030. Other companies are set to follow suit with the move already attracting interest from a host of major financial, law and accountancy firms



What Does this Mean for Us?

The Treasury Hub will be better placed to understand the economic problems of the North East and will give better access to local service providers, including fire, to discuss economic problems and opportunities. Use of transport systems is likely to increase as people move in, out and across our area which may increase our transport risk and subsequent demand. Similarly an increase in the demands for housing, services etc may increase.

We will keep a watching brief on the development of the 'Treasury North' Hub in terms of the potential changing risk and the associated changes in future demand, if any, on our services.

Building relationships with key officials within the Hub will serve to provide them with a better understanding of economic/budgetary challenges in our region. Our Principal Officers will forge these relationships early doors.





World Class Transport Systems for 2030

Tees Valley Transport Systems are critical to its future success. The Tees Valley Combined Authority Strategic Transport Plan 2020-2030 therefore sets out ambitious strategies to transform existing transport systems across the Tees Valley into world-class systems by 2030.

Vision for transport in Tees Valley⁴:

'To provide a high quality, quick, affordable, reliable, low carbon and safe transport network for people and freight to move within, to and from Tees Valley'

With three broad objectives relating to social opportunity, economic growth and carbon reduction, the Combined Authority has included its transport ambitions firmly in the centre of the Tees Valley Investment Plan 2019-2029 – and is investing £256.7 million over the lifetime of the Plan.

Outcomes included within the Transport Plan will be delivered over the short and longer terms. They include:

National Rail

- improved rail links between Tees Valley and the rest of the country
- improved rail station infrastructure – ready for major projects such as High Speed Rail and Northern Powerhouse Rail
- existing rail networks are able to cater for future growth in both freight and passenger demands across the North



Major Roads

- safe, resilient and reliable Key Route Network for Tees Valley and a Major Road Network for the Transport for the North area – facilitating future economic and housing growth across the North

Connecting Centres

- frequent, high quality, reliable and integrated public transport network
- improved transport interchanges, ticketing options and information – providing a seamless integrated experience for the travelling public

Unlocking Key Sites

- addressing specific constraints on the strategic and local transport networks – providing a transport system that facilitates future economic and housing growth across Tees Valley
- a transport system that facilitates efficient freight movements by road, rail, sea and air – enabling the economy to grow effectively and sustainably

Local Journeys

- safe walking and cycling routes and local bus services that link housing sites to key destinations and transport interchanges for onward journeys

Delivering Social Equality and Protecting the Environment

- improved access for those with physical disabilities, mental health conditions, learning difficulties and those with sensory impairment
- reduced carbon emissions and measures to improve local air quality
- reduced noise and vibration from transport
- protection of Tees Valley's built and natural environment
- improved equality of opportunity for remote and deprived communities and enhance health and wellbeing
- existing transport network and planned investment is resilient to climate change

⁴ Tees Valley Strategic Transport Plan 2020-2030



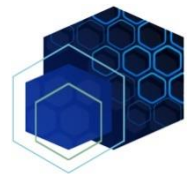
What Does this Mean for Us?

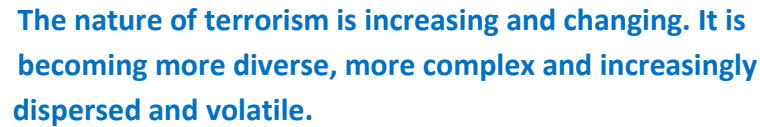
Achieving the outcomes of the Tees Valley Combined Authority Strategic Transport Plan 2020-2030 will no doubt bring improvements in the transport infrastructure and networks across the Tees Valley – it will also increase the use of the Transport systems within this infrastructure.

Whilst the transport developments across the Tees Valley are aimed at addressing existing road network capacity problems (pinch points); and supporting large scale housing developments it is also aimed at supporting economic development. In the main this relates to the development of the Freeport and investment to create new bulk freight capacity to serve Teesport and promote the port's expansion – this will double the existing rail container capability.

With an increase in the population expected over the next ten years, particularly in people aged over 65, the development of the Freeport and the establishment of Teesside North it is anticipated that more people are expected to travel within and in and out of Teesside. This will be exasperated given plans to increase passenger numbers through Teesside Airport from 150,735 to 1.5m over the next ten years.

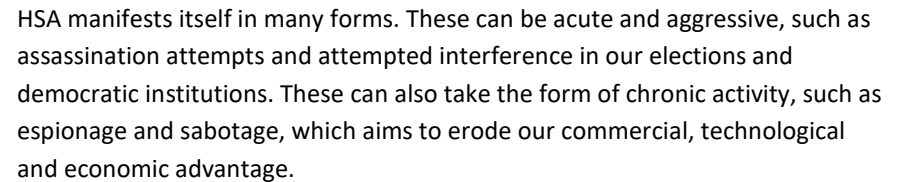
Service demand levels must be continually and closely monitored and predicted through our integrated risk management planning arrangements to ensure that we configure and deploy our finite resources appropriately to support any identified increase in demand associated with changing transport risks. Our road safety prevention services will be reviewed.





On 3rd Nov 2020, the Joint Terrorism Analysis Centre increased the UK national terrorism threat level from 'substantial' to 'severe' (having been 'substantial since November 2019). This means an attack is highly likely.

A Changing Landscape v11



The Government's Counter-Terrorism Strategy (CONTEST) aims to reduce the risk to the UK and its citizens and interests overseas from terrorism so that people can go about their lives freely and with confidence. It ensures that we have the best possible response to the current and future threat from terrorism.

Nearly all of the increase in terrorist attacks have taken place in **publicly accessible locations** that people visit, congregate in, or transit through. These include sports stadiums, festivals, music venues, hotels, pubs, clubs, bars, high streets, retail stores, shopping centres, markets, places of worship, transport hubs, parks and other open spaces.

Attacks on **Transport Systems** include railways, buses, passenger vessels, cargo vessels and aircraft. Physical attacks against such systems could take a variety of forms, including explosives, firearms, noxious or corrosive substances, or attackers wielding blades. In the UK, conventional terrorist attacks on land and air-based transport are more likely than against maritime transport.

Attacks on our **Critical National Infrastructure (CNI)** could include essential human needs, such as electricity or water or be critical to the running of the UK, such as telecommunications or provide a benefit such as healthcare to the general public. Attacks on infrastructure can be carried out through a variety of methods, including explosives, cyber-attack, or through 'insider attack'. The terrorist threat to infrastructure is, for the most part, more limited, though remains aspirational for many international terrorist groups who may deploy improvised explosive devices or chemical, biological, radiological and nuclear weapons to disrupt sectors.

Chemical, biological, radiological and nuclear (CBRN) attacks have the potential to kill, injure and cause wide-ranging harm. Depending on the method used, there is potential for catastrophic blast damage, widespread infection, or contamination of people, animals, the environment, buildings, water supplies and food. Larger-scale CBRN attacks have never happened in the UK, but would be more challenging to respond to than other malicious attacks, due to the potential health impacts and widespread environmental contamination.



What Does this Mean for Us?

In line with the Civil Contingencies Act 2004 we will continue to be fully **prepared to respond** effectively to terrorist attacks across the U.K.

We will continue to train our staff in an approach that follows the Government's Joint Emergency Interoperability Principles (JESIP); and train and equip them to manage casualties in higher risk environments.

As part of the Governments Counter Terrorism Strategy (Contest), we will continue to support activity to prevent people from being drawn into terrorism.

As the nature of these terrorist attacks become more sophisticated we will work with our Partners in the Local Resilience Forum and Emergency Planning Unit to educate our staff on the intricacies of any new crimes.

We will continue to capture and review learning from major events and share good practice with relevant incident commanders.

We must regularly review our local agreements with Cleveland Police and North East Ambulance Service regarding our co-operation arrangements to respond to terrorism or non-terrorist major incidents.

We will continue to test our plans for major events such as Chemical, Biological, Radiological and Nuclear incidents through a rigorous exercise regime.

We will continue to monitor and protect the organisation from the potential threat posed by cyber terrorism. Our electronic systems will be kept up to date and any emerging threats will be dealt with quickly. Data will be protected by robust back up arrangements.



The third wave of Covid-19 infections happening now in mainland Europe will 'wash up' on the UK Shores (Boris Johnson)⁵

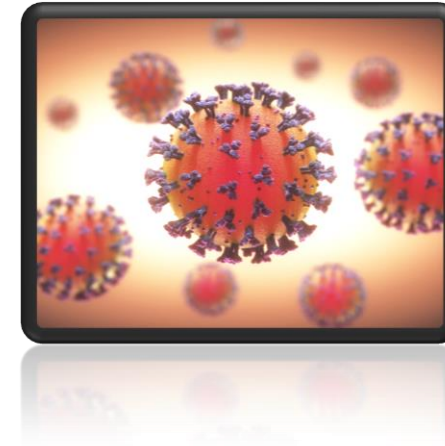
Some infectious diseases in humans have the potential to cause severe public health impacts. These can range from significant outbreaks of 'containable' infectious diseases, which spread slowly and/or can be more easily delayed or stopped but may have a high fatality rate, through to pandemics where the whole population is at risk from a highly infectious virus, which can cause large numbers of fatalities in certain groups.

On 11 March 2020, the World Health Organisation declared COVID-19 to be a global pandemic pointing to the over 118,000 cases of the coronavirus illness in over 110 countries and territories around the world and the sustained risk of further global spread.

As a country, the UK believes that it is well prepared for disease outbreaks, having responded to a wide range of infectious disease outbreaks in the recent past, and having undertaken significant preparedness work for an influenza pandemic for well over a decade.

These plans ensure the UK is equipped to deliver a coordinated multi agency response to minimise wider societal impact that could arise from a significant outbreak. Planning draws on the idea of a 'reasonable worst-case scenario'. This is not a forecast of what is most likely to happen but will ensure that the UK is ready to respond to a range of scenarios. As to be expected those plans have been regularly tested and updated locally and nationally to ensure they are fit for purpose.

⁵ Claire Wilson, New Scientist, March 2021



The current roadmap out of lockdown for England could lead to an extra 15,700 deaths by Summer 2022 according to the Imperial College London's Covid-19 Response Team. It suggests that vaccination alone will not be sufficient to keep the epidemic under control due to eligibility, vaccine hesitancy, and the high transmissibility of the circulating variant.



What Does this Mean for Us?

The Brigade's business continuity plans for dealing with the pandemic have been tested over recent times in both local and multi-agency settings and as we have moved from phases of response to recovery, back to response and now in recovery.

Our assurance processes have ensured that we have captured learning from our experiences relating to the execution of our plans.

Currently we find ourselves living and working in an environment shaped by the coronavirus pandemic in which we are all still learning how to best respond and manage the social and economic consequences of COVID-19. It can be viewed that the pressures and challenges created by the virus have acted as an enabler, causing us to re-think and shift to new operating models including expansion of the working arrangements and an acceleration of digital transformation.

Pre-event Planning

- Our learning will develop an evidence-based approach to prepare for future infectious disease outbreaks and pandemics.
- Shared learning, plans and information across fire and rescue services, with partners in the Local Resilience Forum and the NHS will improve our business continuity arrangements
- Our plans will be fit-for-purpose through regular participation in stress-test exercises, which are run both locally and nationally across government, the public sector, and various parts of the health system.

Strategic Intentions

- We will operate in line with our strategic intentions for the Pandemic

Responding

- Clarification of firefighters' roles will result in fire and rescue services being able to respond quicker to the 'wider response' requirements of future pandemics
- Our employees will support community vaccination programmes

Services

- We will risk assess our service areas to ensure that employees and communities remain safe
- Our services will be delivered in different ways to ensure we are able to continue to meet our statutory responsibilities

Health and Wellbeing

- Staff will be routinely offered COVID vaccinations and health surveillance tests
- Personal Protective Equipment will be readily available to staff

Ways of Working

- We will use technology to explore and expand our flexible ways of working

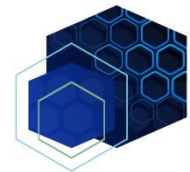


Our Communities

Cleveland Fire Authority Population 2020

- **Gender:** 49.1% Male 50.9% Female
- **Ethnicity:** 94.5% White 5.5% Black and Ethnic Minority
- **Sexual Orientation:** 1.8% Lesbian/Gay/Bisexual
- **Religion:** 67.8% Christian; 22.3% state no religion
- **Age**
0-15 = 19.7% 16-29 = 17.3% 30-44 = 19.4%
45-59 = 20.1% 60-64 = 5.6% 65+= 18.5%
- **Health and Life Expectancy:** significantly worse than the England average
- **% of children living in low income families**
 - Hartlepool: 28.6% (5,500)
 - Middlesbrough: 31.8% (10,000)
 - Redcar and Cleveland: 25.2% (6,400)

POPULATION
569,141





Our Population is increasing

The Office for National Statistics (ONS) ⁶ projects that the **UK population** will increase by 3.0 million (4.5%) by mid-2028 and will pass 70 million by mid-2031 reaching 72.4 million by mid-2043. 27% of this growth is projected to result from more births than deaths, with 73% resulting from net international migration; although net migration falls during this period, the number of deaths rises as those born in the baby boom after World War Two reach older ages. ONS ⁷ projections for:

Cleveland Fire Authority area show that by 2030 there will be an increase of 6,693 people (1.2%) from 567,718 in 2018 to 574,411 - by 2043 the increase is expected to rise to 1.5% (576,253 – 8,535 people).

Hartlepool show that by 2030 there will be an increase of 410 people (0.4%) from 93,242 in 2018 to 93,652 - by 2043 the increase is expected to rise to 0.7% (93,863– 621 people).

Middlesbrough show that by 2030 there will be a decrease of 1,184 people (0.8%) from 140,545 in 2018 to 139,361 - by 2043 the decrease is expected to rise to 1.3% (138,656 – 1,889 people).

Redcar and Cleveland show that by 2030 there will be an increase of 4,236 people (3.1%) from 136,718 in 2018 to 140,954 -by 2043 the increase is expected to rise to 4.3% (142,549 – 5,831 people).



Stockton-on-Tees show that by 2030 there will be an increase of 3,231 people (1.6%) from 197,213 in 2018 to 200,444 - by 2043 the increase is expected to rise to 2% (201,186 (2043) – 3,973 people).

By 2030



There will be 6,000 more people in the Cleveland area than there was in 2018

⁶ ONS Population: National Population Projections: 2018-based

⁷ ONS Population: Projection for Local Authorities in England May 2020



People are living longer

ONS⁸ projects that all regions of the **UK population** will have a greater proportion of people aged 65 years and over by mid-2028 and this will remain the case until 2043. People aged 85 years and over are projected to almost double over the next 25 years. The reason for the ageing population is because of declining fertility and an increase in life expectancy. Peaks in the numbers of births post-World War 1 and post-World War 2 combined with decreases in mortality over the 20th century has resulted in relatively large numbers of people now aged in their late 90s, 70s and 50s respectively.

Women born in the peak of the 1960s baby boom (currently aged in their mid-50s) are twice as likely not to have had children as women born post-WW2 (currently aged in their mid-70s).

High levels of childlessness among the 1960s baby boomers combined with increases in life expectancy mean there will be many older people in the future who do not have adult children. Adult children are the most common providers of informal social care to their parents at older ages when care needs are greatest.

ONS⁹ project that in **Cleveland Fire Authority** area there will be a 24.8% increase in people aged 65 years and over (26,487) - from 106,833 in 2018 to 133,320 in 2030. This increase will be 34.9% (37,242) by 2043 (144,075).

The projections for children aged 0-15 show decreases of 7.9% (8,842) in 2030 – from 111,242 in 2018 to 102,400 in 2030. By 2043 this decrease will have risen to 9.7% (10,844) – 100,398.

⁸ ONS Population: National Population Projections: 2018-based

⁹ ONS Population Projections for Local Authorities in England Mid19



By 2033 it is expected that 11.3 million people will be living on their own (41% of all households in England); in 1961 this was 12% households¹⁰. This growth is particularly marked for older people. The number of people over 65 living on their own is expected to grow from 3 million in 2008 to 4.8 million in 2033 and the number of people over 85 living on their own from 573,000 to 1.4 million¹¹.

By 2030



23% of people in Cleveland area will be aged 65 years and over
Significant increase in people living on their own – particularly older



7.9% less children aged 0-15 years in Cleveland area than in 2018

¹⁰ Communities and Local Government (2010). Report. Updating the Department for Communities and Local Government's household projections to a 2008 base, Final report

¹¹ Communities and Local Government (2010). Report. Household projections, 2008 to 2033, England

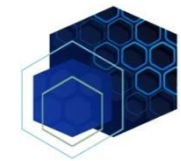


Our Communities are More Diverse

The population is becoming more diverse. By 2031, ethnic populations are estimated to make up 15 per cent of the population in England and 37 per cent of the population in London¹². The increase is driven not only by the impact of migration but by differences between fertility rates of some ethnic groups¹³.

Across England, mixed populations are the fastest growing, followed by newer immigrant groups and traditional communities of South Asian origins.

Currently, ethnic populations make up 4 per cent of the Cleveland area – there is limited data available on how this will change in 2030.



¹² The KingsFund, demography future trends

¹³ Wohland P, Rees P, Norman P, Boden P, Jasinska M (2010). Research paper. 'Ethnic population projections for the UK and local areas, 2001-2015'. University of Leeds



People are connected, mobile, independent, and self-serving

The nation is becoming increasingly 'digitised'; the typical person on the street begins to embrace digital technology in all aspects of their daily lives. According to ONS 87% of British adults used the internet in 2014; including 37% of those aged 75 years and over. Meanwhile mobile devices have become the go-to device to access information services and our contacts through the internet with over a third of all UK mobile traffic now on a handheld mobile or tablet device.

From 2025 onwards, it will be Generation Y – those born between 1982 and early 2000 – that shape service demand. The first generation to be completely immersed in digital life from birth, Generation Y, has expectations that are distinctly different from Generation X that preceded them.

Generation Y is the self-service information generation, comfortable conducting all aspects of their lives online and as such, they want public sector services to be compatible with their lifestyle¹⁴.

The vast majority of the population will expect to access everything they need conveniently through the internet and via connected/wearable devices for both business and pleasure wherever they are. More people will work from home or on the move than ever before, while technology will also empower the population to solve issues themselves online rather than relying on assistance from others, predominately through a smartphone (or a smart vehicle).



¹⁴ Civica: The Changing Landscape for Local Government 2020



What Does this Mean for Us?

The demographic trends will reshape the UK Government's political, financial and social priorities over the next 10 years requiring tougher choices and trade-offs across public services – we will need to assess the impact of any changes in these priorities at a local level.

Future demands on our prevention, protection and emergency response services as a result of changes expected in the demographic profile of the Cleveland area over the next ten years will need to be continually monitored within our integrated risk management planning arrangements.

Working with Partners we will need to continue to target our services to the most vulnerable and continually review the ways we deliver our services to ensure they are accessible to all.

To ensure we remain an 'employer of choice' we will explore new ways of working to address the expectations of our 'next generation' workforces.



Digital Transformation



The pace of technology continues to advance and the adoption of digital applications is accelerating

Digital technologies are evolving and converging rapidly, fuelled by extreme connectivity and growing volumes of real-time, real-world data. This trend will intensify over the next 20 years, benefitting individuals, communities and businesses through easier communication and more efficient access to information, products, services and experiences.

Artificial Intelligence which is already having a significant impact on the health, defence, education and transport sectors, but its status as a platform technology¹⁵ means it could become universal by 2040.

By 2030, more than 125 billion items, ranging from cars to fridges to coffee machines, are expected to be connected to the internet¹⁶, robotics and 3D/4D printing are likely to bring increased productivity and economic growth.

Technological convergence will transform the transport sector by 2040. Combined advances in AI, robotics, electric or hydrogen engines, sensors and satellite navigation systems will allow growing numbers of people to move around in autonomous vehicles while working, surfing the internet or interacting with 'smart' homes.

¹⁵ A 'platform' is a group of technologies which are used as a base upon which other applications, processes or technologies are developed.

¹⁶ IHS Markit: 'The Internet of Things: A movement, not a market'. Available at <https://ihsmarkit.com/Info/1017/internet-of-things.html>



This evolution in 'intelligent mobility' could fundamentally alter travel between and within urban centres.

Digital surveillance technologies are likely to cross new frontiers in the next 20 years.¹⁷ While current digital surveillance systems typically track and record a person's 'digital footprint' (e.g. their internet presence), future systems will possess the ability to interpret people's moods, emotions and (hidden) intentions.

¹⁷ Policy Horizons Canada (2018) Next Generation Global Challenges



What Does this Mean for Us?

As a fire and rescue service we do not operate in a vacuum and we must respond to evolving demands and overcome the internal challenges of complex decision - making structures and outdated legacy infrastructures.

It is important that we make transformational choices on the ways in which we work, harness data, exploit technologies, collaborate with partners and organise ourselves. Data and digital technologies are powerful in this respect and should be given priority as it underpins all areas of our business from front-line response to the targeting of our interventions; from how we manage risk to how we look after our people. It is also important that we must not mistake 'digitalisation' as an end in itself, but understand it instead as an enabler to our mission of keeping people safe. Digital transformation needs to be integrated into how our services are modernised, alongside our partners, and complemented by the skills our people need to do their jobs.

Covid-19 has accelerated the speed of change of digital transformation acting as a springboard to a faster implementation of digital solutions for the provision of front-line services in prevention and protection and for the expansion of our agile 'ways of working' in the future. Supporting our colleagues in the health sector in ways that we have not done before during the Pandemic requires us to make sense of the data generated by such experiences to inform our learning so that we improve our preparedness for future events.

Digital transformation across our Brigade needs to be more than just providing laptops or smartphones to our staff, it needs a change in culture to secure employee and manager buy-in to secure successful implementation. Our focus will not be limited to how we use data, or deploy digital capabilities and new technologies to improve our operations and services; we will also focus on how we protect our critical infrastructure.



The pace of change has never been as fast with remarkable advances in mobile, cloud, artificial intelligence, sensors and analytics. As society becomes increasingly connected – with people spending more and more time online, and our dependence on digital technologies and channels grows – our fire service needs to catch up, and keep up, with a constantly evolving digital landscape.

We will develop a digital transformation strategy which will include projects that are built on insight, responsive to the needs of our communities, staff and Partners and gives us a return on investment. The Strategy will consider the work of the National Fire Chiefs' Council Digital and Data Programme and any learning from recent events and Inquiries.

Ultimately the strategy will provide us with a roadmap that better supports the achievement of our Vision for 2030, addressing the key challenges created by the convergence of the physical, digital and human worlds.

Our Environment

Climate change refers to a large-scale, long-term shift in the planet's weather patterns and average temperatures. Since the mid-1800s, humans have contributed to the release of carbon dioxide and other greenhouse gases into the air mainly by:

- burning of fossil fuels for energy
- agriculture and deforestation
- the manufacture of cement, chemicals and metals

Once in the atmosphere, greenhouse gases form a 'blanket' around the planet which traps the heat from the sun and causes the earth to heat up.

There is clear evidence to show that climate change is happening¹⁸.

Measurements show that the average temperature at the Earth's surface has risen by about 1°C since the pre-industrial period. 17 of the 18 warmest years on record have occurred in the 21st century and each of the last 3 decades have been hotter than the previous one. This change in temperature hasn't been the same everywhere; the increase has been greater over land than over the oceans and has been particularly fast in the Arctic.

The UK is affected by rising temperatures. The most recent decade (2008-2017) has been on average 0.8 °C warmer than the 1961-1990 average. All ten of the warmest years in the UK have occurred since 1990 with the nine warmest occurring since 2002.



¹⁸ <https://www.gov.uk/guidance/climate-change-explained>



Flooding is severely damaging and disrupting everywhere across the UK

According to HM Government¹⁹ everywhere in the UK is currently at risk from at least one of the three main types of flooding:

- coastal (where high tides and storm surges cause the sea to flood inland)
- rivers and streams, known as 'fluvial flooding' (where waterways overflow their banks into surrounding areas)
- surface water (where rainfall overwhelms drainage systems)

When flooding occurs, infrastructure (such as bridges) and flood defences can sometimes be overwhelmed with little, if any, notice, leading to additional disruption. It is also possible for all three forms of flooding to occur in different locations around the UK at the same time.

Consequences of flooding may include:

- fatalities and casualties (physical and psychological)
- evacuation and shelter (sometimes long-term) of residents and employees
- widespread damage to property and infrastructure
- disruption to essential services, particularly transport and energy
- environmental damage or contamination (particularly by sewage)

The Environment Agency reports that we are seeing more extreme rainfall and flooding across the UK²⁰, for example

-

¹⁹ HM Government National Risk Register 2020 edition

²⁰ Local Government Association, Climate emergency, Fire and rescue services



- 2015 a gauge at Honister Pass in Cumbria recorded 341mm of rain in 24 hours, a new record - causing some of the worst flooding in living memory.
- 2017 flash floods at Coverack in Cornwall caused by an extreme rainfall event which set a new UK record for three-hour rainfall intensity.
- 2019 Toddbrook Reservoir in Whaley Bridge nearly failed after heavy rainfall

Whilst the current risk of flooding in Cleveland is low (2019/20 - 66 incidents) it is rising. Over the last five years there has been a 14% rise in flooding incidents.

The UK's Climate Change Risk Assessment 2017 highlighted that if we do not tackle climate change more intense rainfall, more extreme weather and wetter winters are projected to increase the threat of damage and disruption as a result of all types of flooding in the future.

As highlighted in the Tees Valley Climate Change Strategy 2010 - 2020 by 2050 we can expect increased flooding from rivers, streams, sea and drainage systems; increased pressure on emergency services and disruption to services e.g. meals on wheels, particularly during floods; increased erosion of the coastline and a rise in sea levels.



Extreme weather prevails in the UK

The UK sits in the path of predominantly westerly winds where low pressure weather systems frequently move eastwards or north-eastwards across the North Atlantic and then across the UK. This typically brings unsettled and windy weather, particularly in winter. Summers in the UK are usually cooler than those on the European continent, whereas our winters are often much milder²¹.

Climate change has already altered the risk of certain types of extreme UK weather. Extreme heat has become more likely, while the risk of extreme cold has decreased. Both of these trends are expected to continue over the coming decades. The evidence is less clear with regard to storms and droughts, but it does suggest that future storm risk will increase while future drought risk is uncertain. There is a trend toward wetter winters and drier summers, leading to an increasingly complex and challenging picture.

The government assesses the risk from four main types of severe weather:

- storms and gales with damaging wind speeds and possible lightning
- low (sub-zero) temperatures and heavy snow for prolonged periods
- heat waves with high temperatures lasting several weeks, harming peoples' health
- drought as a result of a lack of rainfall over several years, leading to water shortages

Consequences of severe weather may include:

- fatalities and casualties (physical and psychological), particularly among vulnerable groups (such as older adults)

²¹ HM Government National Risk Register 2020 edition



- evacuation and shelter of residents or employees of homes and businesses
- widespread damage to property and infrastructure
- disruption to essential services, particularly transport, water supply, energy and communications
- additional pressure on healthcare
- environmental damage

Examples of severe weather events include:

- Oct 1987: a storm brought down 15 million trees in SE England causing dozens of deaths
- Jan 1990: the 'Burns Day' storm killed 47 people
- Oct 2013: the 'St Jude's Day' storm caused 4 deaths, severe disruption to transport and left 850,000 homes without electricity
- Feb/Mar 2018: 'The Beast from the East' led to widespread disruption across the UK including road, airport and school closures
- Aug 2003: a UK heatwave lasted 10 days and resulted in over 2,000 deaths

'In the future, we will still see a lot of the weather we experience today. The difference, though, is that the intensity of some weather types will change'²².

²² <https://www.metoffice.gov.uk/weather/climate-change/climate-change-in-the-uk>

Wildfires

Whilst severe weather can bring a range of service demands for fire and rescues services the UK is specifically experiencing greater demands for a response to wildfires. In 2019 the UK had more wildfires than any other year on record.

A wildfire is a large destructive fire that spreads quickly over woodland or brush: uncontrolled fire in an area of combustible vegetation occurring in rural areas.

We know that wildfires can start for many reasons, such as mishandled campfires or barbecues, deliberate fire setting, infrastructure incidents such as sparks from electricity lines or rail transport, and natural phenomena such as lightning. Hot, dry and windy weather are ideal conditions for wildfires to start and spread. Such weather tends to be relatively short-lived, but is most likely to occur between the months of April and September.

Nationally, there have been a number of high-profile wildfire incidents. In 2018 regions all over the UK were affected, from Saddleworth Moor in Greater Manchester, Winter Hill in Lancashire, and Ilkley Moor in West Yorkshire to the Vale of Rheidol in Ceredigion, and the Ashdown Forest in Sussex.

The south of our Fire Authority area is predominantly rural, consisting of open moorland and wooded river valleys, and is sparsely populated. Loftus, Skelton, Saltburn and Guisbrough fire stations cover a large outlying area of small villages and communities.

The number of wildfire incidents we currently attend is very low, 43 over last five years; however, there remains a risk of such incidents in the more rural areas.



With the Met Office predicting that climate change is making the heat waves experienced in the UK in 2018 thirty times more likely in the future and by 2050 these will happen every other year we are likely to experience more widespread wildfire events.



Tees Valley will be a global leader in clean energy, low carbon and hydrogen

Renewable energy is **energy generated from natural resources** - such as sunlight, wind, rain, tides and geothermal heat.

Tees Valley is leading developments in the renewable sector boasting a growing cluster of biomass, biofuel, bioethanol and energy from waste plants.

'Tees Valley will be a global leader in clean energy, low carbon and hydrogen. The area will achieve a net zero carbon industrial cluster by 2040, providing good jobs with long-term prospects that local people can access'²³.

The area has been awarded UK Government Core status as a Centre for Offshore Renewable Engineering in recognition of the area's existing port infrastructure, available skills and supply chain while the Low Carbon Action Plan supports the energy sector by continually developing initiatives and being at the forefront of biofuel and low-carbon technology. Plans to develop Europe's first Industrial Carbon Capture and Storage equipped industrial zone will establish Tees Valley as the go-to location for future clean industrial development.

The North East, Yorkshire and Humber Energy Hub demonstrate energy excellence in the region, with the current pipeline including 60 projects with a value of £297m. The hub manages the Rural Community Energy Fund which supports rural communities across the region to develop and set up low and zero carbon energy projects in their area.



²³ Tees Valley Local Industrial Strategy July 2019



What Does this Mean for Us?

Operational Response

An increase in the frequency and intensity of extreme weather events will increasingly impact on population centres. Droughts, heat waves and floods place significant demands on the fire service to provide emergency response and disaster management.

Our integrated risk management planning work will include the monitoring of service demand levels in relation to flooding and wildfires. We will re-configure our resources as demand levels change. Training in water rescue and dealing with wildfires will be extended across our workforce. We will continue to support our colleagues across the U.K. as part of our national resilience arrangements.

Reducing our Carbon Emissions

As a fire and rescue service we are able to reduce our level of carbon emissions in terms of our operations, estates, procurement etc.

We will develop a Climate Change Strategy that reduces our carbon footprint and better supports the Government's intentions of achieving net zero.



Our Organisation



The Grenfell Tower Fire influences Building Safety

On 14 June 2017, a residential fire broke out in the 24-storey Grenfell Tower block of flats in North Kensington, London; it caused 72 deaths and 109 injuries. It was the deadliest structural fire in the United Kingdom since the 1988 Piper Alpha disaster and the worst UK residential fire since the Second World War.

The Grenfell Tower fire and its aftermath has raised concerns across a wide spectrum of social, economic, political and technical matters – with life in Britain now being referred to as ‘before’ and ‘after’ Grenfell.

One of those concerns was about the adequacy of the Building Regulations. Particularly in relation to high rise buildings and situations where a local authority is both the building owner and the building control body.

In Dec 2018 the Government launched its ‘Building a Safer Future’ policy, which is designed to implement the recommendations of the Hackitt review of Building Regulations and fire safety. The Hackitt review made detailed suggestions for change in the construction industry. These included recommendations for action by the government, building control bodies, professionals, developers and the construction industry generally. It also commented that the current system for ensuring fire safety in high-rise buildings was not fit for purpose.



In addition in October 2019 the outcomes of the Government’s Phase 1 Public Inquiry into the Grenfell Fire was published.



What Does this Mean for Us?

Inquiry Recommendations

The Home Office is working with London Fire Brigade and the National Fire Chiefs Council to ensure pace and commitment to the implementation of recommended operational changes from the Grenfell Tower Inquiry Phase One Report, supported by regular and detailed information on progress.

The Home Office has also provided additional funding to fire and rescue services to assist in meeting the recommendations.

Learning from this major fire event is central to our integrated risk management planning work. We will continue to actively consider each of the recommendations contained within the Grenfell Inquiry Phase 1 Report published in Oct 2019 and address any identified gaps in our arrangements.

We are currently reviewing our risk based inspection programme to better identify those buildings that we deem to be high rise. This will inform our fire protection resource requirement and we will invest as necessary using the additional 'one off' funding supplied by the Home Office to support this investment.

Fire Protection Board

The Fire Protection Board, chaired by the National Fire Chiefs Council (NFCC), was established in September 2019 to provide a national forum for key fire protection issues to be considered. The board will take forward the government's commitment that all high-rise residential buildings of 18 metres and above are inspected or reviewed by the end of 2021. This has been

supported with £6 million of additional funding for fire and rescue authorities to support delivery of the Building Risk Review programme, and £4 million to establish a new NFCC central strategic protection function. A further £10 million has been made available to fire and rescue authorities in England, to support the Protection Uplift programme. The programme aims to improve protection capability and capacity, while ensuring the safety of other high-risk buildings that are not covered by the Building Risk Review.

Building Safety

We will continue to target our fire protection resources on the premises where the life safety risk is greatest. In order to ensure compliance with fire safety legislation and mitigate any loss to economic wellbeing, our Risk Based Inspection Programme will continue to focus on non-domestic premises which are at a higher risk from a fire starting, or where the consequences may be greater.

Our blended approach to providing fire safety audits and inspections will use specialist staff alongside operational crews who are experienced at hazard spotting and consequent management.

High Rise Buildings

We will focus on keeping the residents of our high rise buildings safe. High rise properties and offices are not deemed to be at higher risk from fire, but we recognise that escaping from tall buildings is more complicated and takes more time compared to a single-storey house. Our dedicated prevention and protection teams continue to work with building owners to ensure compliance with new and existing legislation. If a fire starts in a high rise building we will ensure that our crews arrive in the shortest time possible with the right number of fire engines.





Changing Landscapes
Published April 2021