Kent and Medway Risk Profile

Kent Fire and Rescue Service
October 2021

Produced by Business Intelligence Team

Contents

Introduction

The role of the Fire Service and its statutory duties are defined within the Fire and Rescue Services Act 2004. Alongside this, The Civil Contingencies Act 2004 defines the roles and responsibilities of the Fire and Rescue Authority in relation to civil protection and resilience arrangements, along with those of other regional public bodies.

The above legislation focuses on our statutory duty to respond to fire and fire related incidents. Services are also governed by guidance within The Fire and Rescue National Framework for England, which outlines the priorities and objectives of the government for fire and rescue authorities. One of the key priorities within the national framework outlines:

"Identify and assess the full range of foreseeable fire and rescue related risks their areas face, make provision for prevention, protection activities, and respond to incidents appropriately"

To achieve this Kent Fire & Rescue Service (KFRS) conducts varying levels of analysis to support its understanding of risk within the county and how this relates to demand for our services.

KFRS continually monitors demand and risk profiles across the county. Information from local authorities and partner organisations is also used to identify any significant developments and infrastructure changes that may impact our service delivery or provide indications of future risks within the county. We use a variety of data and information such as, The Kent and Medway Growth and Infrastructure Framework, Local Transport Plan, Community Risk Register as well as information provided from internal departments and operational intelligence.

Along with our partner agencies, we invest in planning for emergencies in sites of specific risk. Specific sites are identified through various work streams and the relevant operational intelligence is captured and recorded providing valuable information to our planning and profiling. In conjunction with our analysis the service also conducts workload modelling that allows us to assess anticipated changes on our performance and activity.

To further support our work, we utilise data provided from a variety of external sources such as, The Office of National Statistics, Environment Agency, Heritage England, Met Office and demographics. We are continually seeking new data that can enhance our analysis and profiling within Kent. A detailed explanation of how we assess risk is published alongside our Customer Safety Plan.

All this information is then used to provide profiles of risk and activity that inform the production of strategies which underpin the Customer Safety Plan in order to deliver our response, prevention and protection activities.

Ultimately it is about understanding our county, our communities and how we can provide the best service to you.

County Overview

The County of Kent, also known as the "Gateway to Europe" covers a large and diverse area of land, which encompasses both Kent and the Medway towns. 85% of the county is classed as greenspace, 12% has been developed and 3% is covered by water.

1,442 square	1,290 people	350 miles	107 miles of	5 main
Major miles	per sq. mile	Coastline	Motorway	Rivers

Kent covers an area of 1,367 square miles and has a population of 1,581,555, giving it a population density of 1,157 persons per square mile.

Medway covers an area of 75 square miles with a population of 278,556, giving this an area population density of 3,719 persons per square mile, making it one of the county's more populated areas.

Combined the County of Kent has a population of 1,860,111 a total area of 1,442 square miles and a population density of 1,290 persons per square mile.

The famous White Cliffs of Dover overlook the English Channel and provide a view of France some 21 miles away, spanning the length of the County are the North Downs and Greensand Ridge which create a series of valleys. As well as 'The Gateway to Europe', Kent is also referred to as 'The Garden of England', the valleys created by the North Downs and Greensand Ridge are home to an abundance of hop and fruit growing facilities.

The county has water borders with the River Thames, North Sea, Straights of Dover and the English Channel and has land borders with London, Surrey and East Sussex. Kent also borders Essex along the river Thames (connected by the Dartford Crossing) and the French department of Pas-de Calais along the English Channel (with connection via the channel tunnel).

Kent has an extensive motorway network which links the channel ports to the M25. In all there are four motorways, the M2, M20, M26 and M25 measuring a total of 107 miles, as well as some major roads including the Dartford Crossing which links the M25 between Kent and Essex.

Kent is also home to the High Speed rail link which is used to link Ashford International station to the London terminus of St Pancreas, this line provides a link from London to mainland Europe with travel times of under 2 hours. The rail line is 67 miles long with trains travelling at up to 186mph between the Channel Tunnel and the river Thames tunnel in the north of the County.

The map below outlines the ceremonial county boundary for Kent.

Kent Fire and Rescue Service © Crown Copyright 100033707 2021
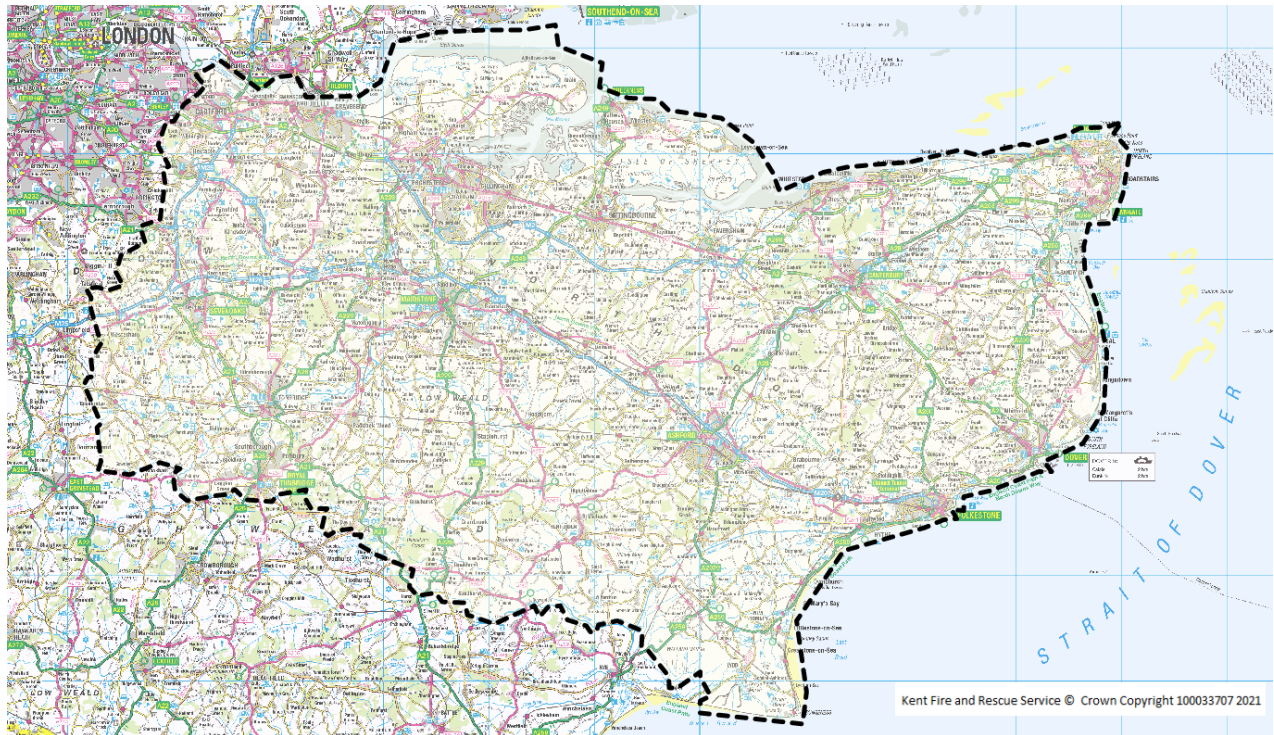
The administration of the County of Kent is divided between Kent County Council (KCC) and Medway Unitary Authority, which are combined for representation at parliament. KCC is then further divided into 12 local district councils. For the purpose of reporting within this document Medway will be reported at the same level as the districts. These geographical areas will be used within this document to provide information that is relatable to you and where you live or work.

The map below outlines the breakdown of these areas within the County.

Kent Fire and Rescue Service @ Crown Copyright 100033707 2019
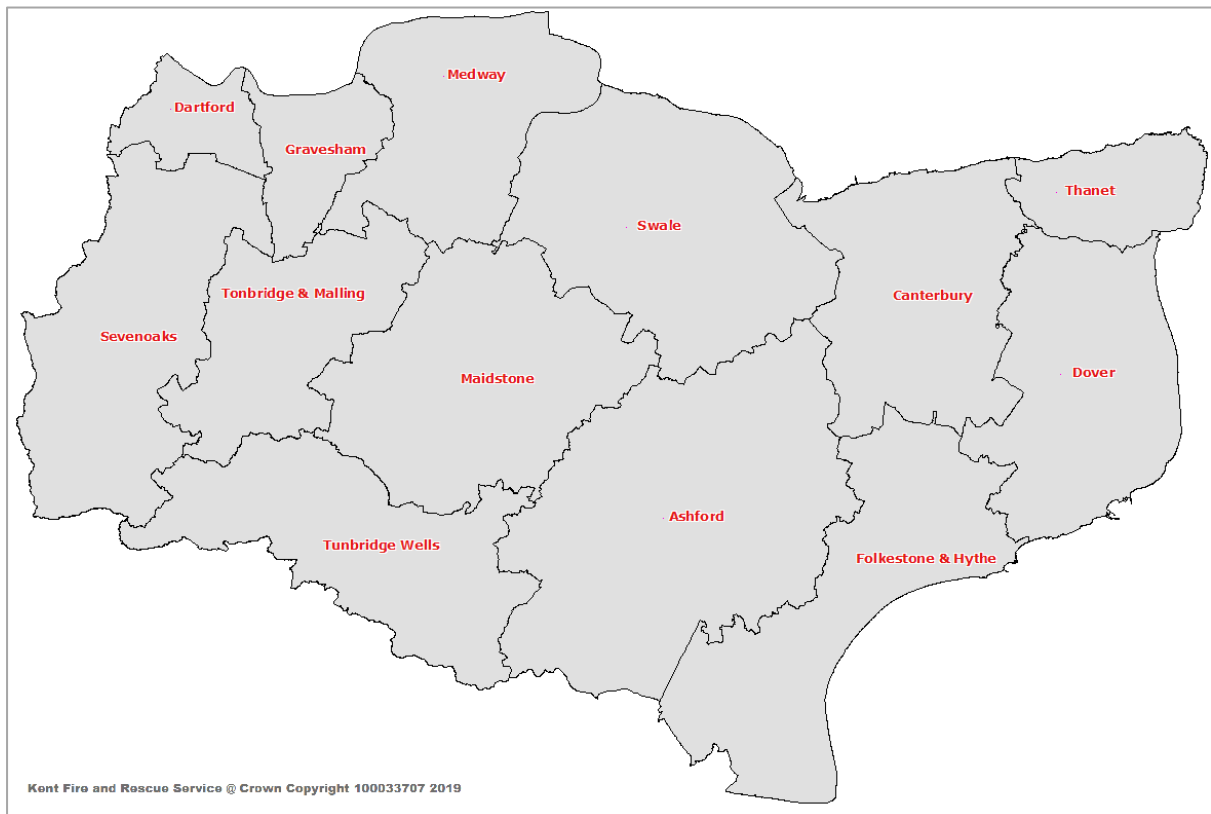
The people we serve

To be able to provide a first-class service to the people of Kent, we first need to understand who it is we are serving. Demographics form an important part in allowing us to understand our communities. Population data allows us to monitor the population numbers and ratios to see how population profiles are changing. We also use geodemographic segmentation to understand the different types of households and how they are represented within certain incident types.

How we allocate and deliver our services is based around those who are more at risk of fire or other emergencies. We can only do this by understanding the environment of Kent and those people in the community who are more vulnerable and may need us. This means that, as the population and other factors change, we need to adjust our services and resources accordingly. We are however limited in available numerical data as this information is generally provided through the Census, which quickly becomes out of date. The Office for National Statistics produce mid-year estimates for some high level data but it cannot cover the entire content of the original survey.
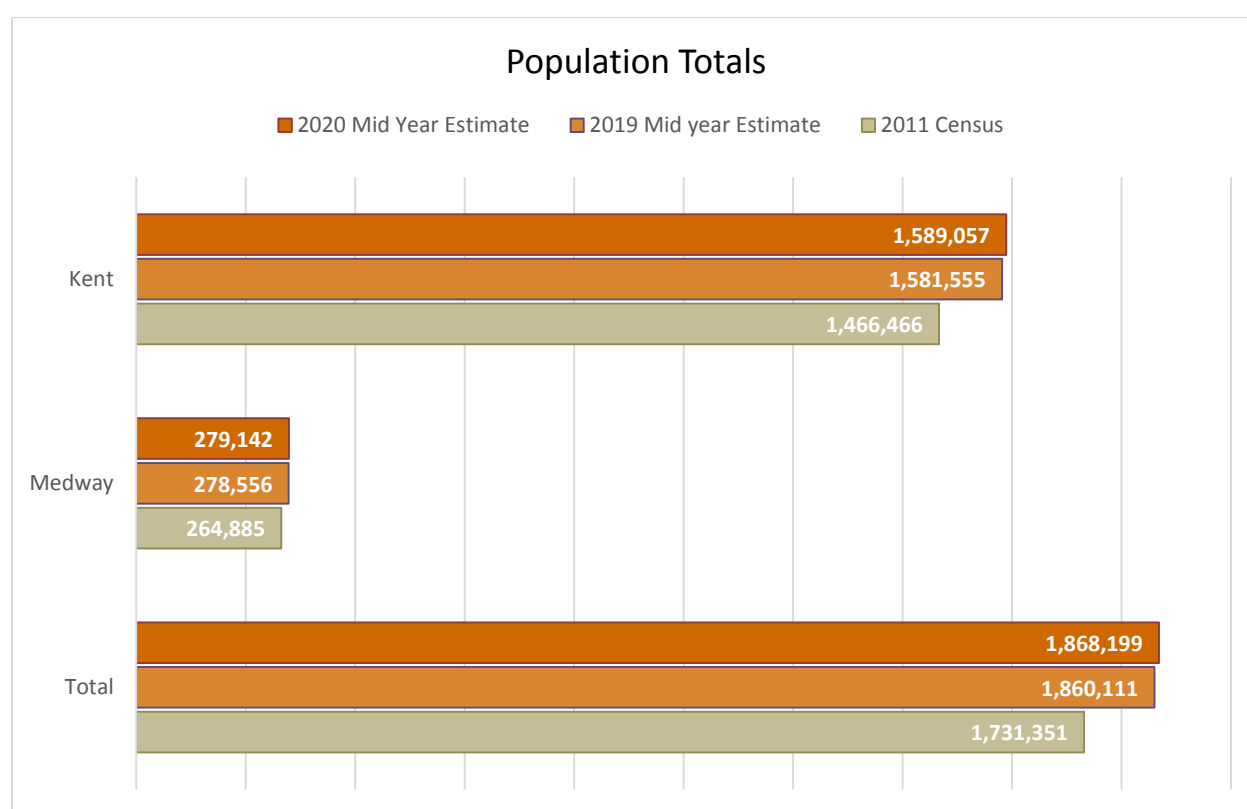
We also review the Index of Multiple Deprivation as it is widely accepted and evidenced that there are strong links between levels of deprivation and incidents of fire. The following section provides information regarding each of these areas.

Population and population growth

The latest Census was carried out in early 2021 the results of which will not be available until next year (2022), so to provide us with an insight into the people of Kent we utilise data provided by the mid-year population figures supplied by the Office of National Statistics.

The Office of National Statistics is the UK's largest independent producer of official statistics and the recognised National statistical institute of the UK and is responsible for collecting and publishing statistics relating to the economy, population and society.

As is the case across the country, as a county we are seeing an increase in the size of the population. The 2020 mid-year estimate indicates a population increase of 136,848 against the 2011 census which is just over 7%.

Population Totals

■ 2020 Mid Year Estimate   ■ 2019 Mid year Estimate   ■ 2011 Census

Area	2020 Mid Year Estimate	2019 Mid year Estimate	2011 Census
Kent	1,589,057	1,581,555	1,466,466
Medway	279,142	278,556	264,885
Total	1,868,199	1,860,111	1,731,351

Gender

The population remains largely evenly split between male and female, although it can be seen that the percentages have been inversed between 2011 and the latest estimates.

Currently there are no data sources that provide information on gender reassignment or the number of transgender residents in Kent that are publicly available. The government carried out a survey in 2017 which provided some national insights, however this survey has not been repeated to date. The 2021 census has expanded questions on gender identity so this will be incorporated once it is available.

2011 Census

Male 49%

Female 51%

2020 Mid Year Estimate

Male 51%
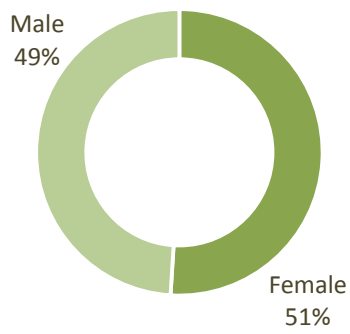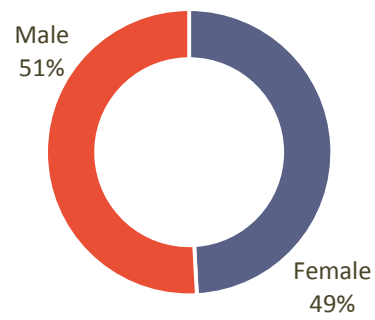
Female 49%

Age

The graph below compares population by age and gender using 2020 Mid-year estimate. The higher age groups have proportionally more females than males whilst the opposite is true in younger age brackets.

Breakdown by Age

■ 2020 Males   ■ 2020 Females

0-4 5-9 10-14 15-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 55-59 60-64 65-69 70-74 75-79 80-84 85-89
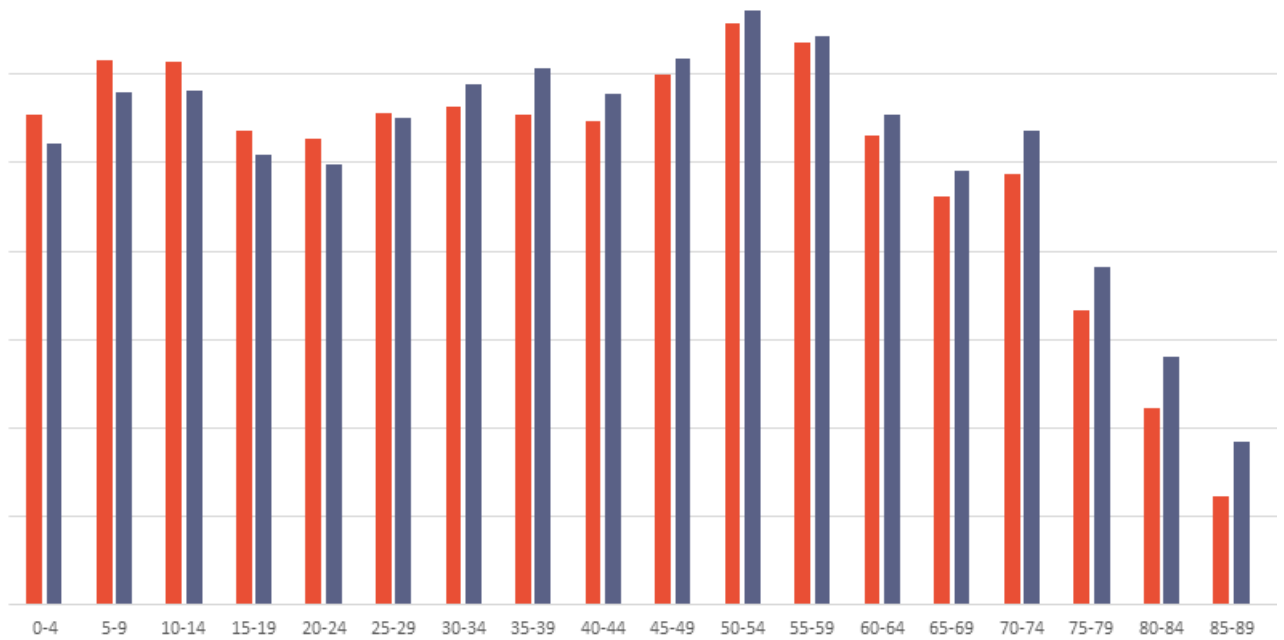
The following graphic provides a comparison of population at a district level between the 2011 census and mid-year 2020 estimate figures.

Mid Year Estimate by District

■ 2011 Census ■ 2020 Mid Year Estimate

District	2011 Census	2020 Mid Year Estimate
Tunbridge Wells	115,049	118,939
Tonbridge and Malling	120,805	132,571
Thanet	134,186	141,458
Swale	135,835	151,015
Sevenoaks	114,893	121,387
Medway	263,925	279,142
Maidstone	155,143	173,132
Gravesham	101,720	106,890
Folkestone and Hythe	107,969	113,320
Dover	111,674	118,514
Dartford	97,365	114,051
Canterbury	151,145	166,762
Ashford	117,956	131,018

Transient workforce, population and visitors

With 85% of Kent being classed as greenspace, there is a great deal of opportunity for a migratory workforce in the agricultural sector, this is enhanced by Kent's proximity to mainland Europe. Due to transient nature of this workforce, it is complex to get exact numbers for this demographic, therefore we acknowledge the fact that during summer periods there is an increase in population around the rural areas of Kent to meet the demand of increased productivity. At the present time, it is also unknown as to the impacts brought around by Brexit on the numbers of migrant workers that come to the county which also add to this number.

It is recognized that with 350 miles of coastline and large swaths of countryside, there is a high number of second homes owned in the county, this adds to a fluid population number in the county especially around the summer months and predominantly coastal areas of the county. We also acknowledge that this increase in population also brings an increase in risk for other areas of operation, such as increased traffic volumes and mobile home usage.

As well as those that reside in Kent, due to our location, we attract a large number of visitors into the county. A significant percentage of these visitors are making their way through the county to access mainland Europe via the ports and Euro tunnel. Data provided by Visit Britain provides us with an insight into how many people visit Kent, the purpose, periods and duration of the visits, unfortunately however, due to the pandemic recent data has not been available. Over the last year, with people taking their holiday breaks in the UK rather than abroad we will have seen an increase in tourism in the county which is a trend that may continue in a post pandemic world. There is currently no indication that this is leading to an increase in incident activity or risk but we will monitor the situation to assess any potential impacts.

Deprivation

Since the 1970s the Department for Communities and Local Government and its predecessors have calculated local measures of deprivation in England. It is important to note that these are a measure of relative deprivation, not affluence, and to recognise that not every person in a highly deprived area will themselves be deprived. Likewise, there will be some deprived people living in the least deprived areas.

The English Indices of Deprivation 2019 are based on 39 separate indicators, organised across seven distinct domains of deprivation which are combined, using appropriate weights, to calculate the Index of Multiple Deprivation 2019.

There are 7 domains of deprivation, which combine to create the Index of Multiple Deprivation (IMD2019):

Income (22.5%) — Measures the proportion of the population experiencing deprivation relating to low income

Supplementary Indices

Income Deprivation Affecting Children Index (IDACI) measures the proportion of all children aged 0 to 15 living in income deprived families

Income Deprivation Affecting Older People Index (IDAOPI) measures the proportion of those aged 60+ who experience income deprivation

Employment (22.5%) — Measures the proportion of the working age population in an area involuntarily excluded from the labour market

Education (13.5%) — Measures the lack of attainment and skills in the local population

Health (13.5%) — Measures the risk of premature death and the impairment of quality of life through poor physical or mental health

Crime (9.3%) — Measures the risk of personal and material victimisation at local level

Barriers to Housing & Services (9.3%) — Measures the physical and financial accessibility of housing and local services

**Living Environment (9.3%)** — Measures the quality of both the 'indoor' and 'outdoor' local environment

This is an overall measure of multiple deprivation experienced by people living in an area and is calculated for every Lower layer Super Output Area (LSOA, a geographic area with a population of approx. 1500), or neighbourhood, in England. Every such neighbourhood in England is ranked according to its level of deprivation relative to that of other areas.

The Index of Multiple Deprivation ranks every small area in England from 1 (most deprived area) to 32,844 (least deprived area). Currently within Kent there are 1,065 LSOA's and these rank between 4 and 32,788 nationally.

It is common to describe how relatively deprived a small area is by saying whether it falls among the most deprived 10 per cent, 20 per cent or 30 per cent of small areas in England.

To help with this, deprivation 'deciles' are published alongside ranks. Deciles are calculated by ranking the small areas in England from the most deprived to least deprived and dividing them into 10 equal groups.

The graph below shows the number of LSOA's within Kent that fall within each IMD decile.
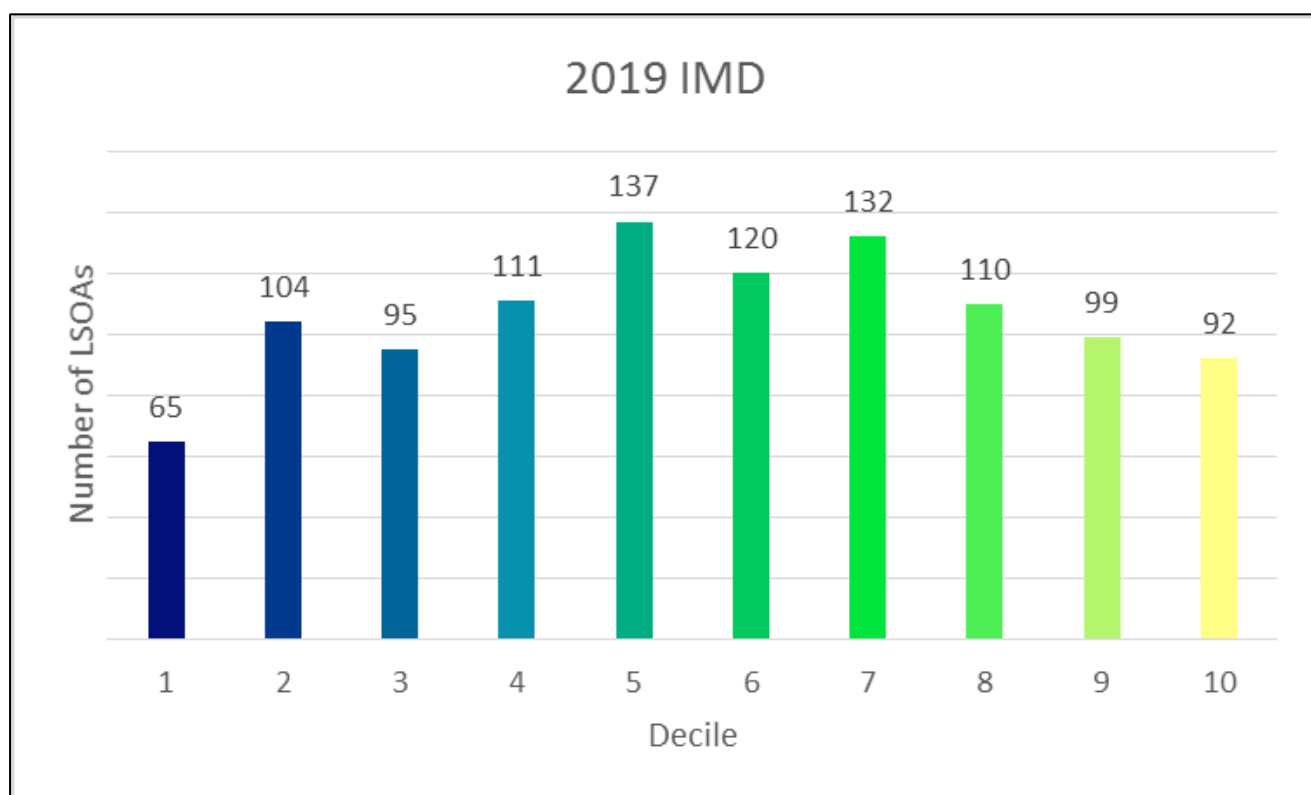
The map below provides a visual representation of the distribution of current deciles for IMD across Kent.

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Legend: 2019 IMD
LSOAs by decile (number of LSOAs)

10% of most deprived LSOAs in Kent (65)	3rd decile (95)	5th decile (137)	7th decile (132)	9th decile (99)
2nd decile (104)	4th decile (111)	6th decile (120)	8th decile (110)	10% of least deprived LSOAs in Kent (92)
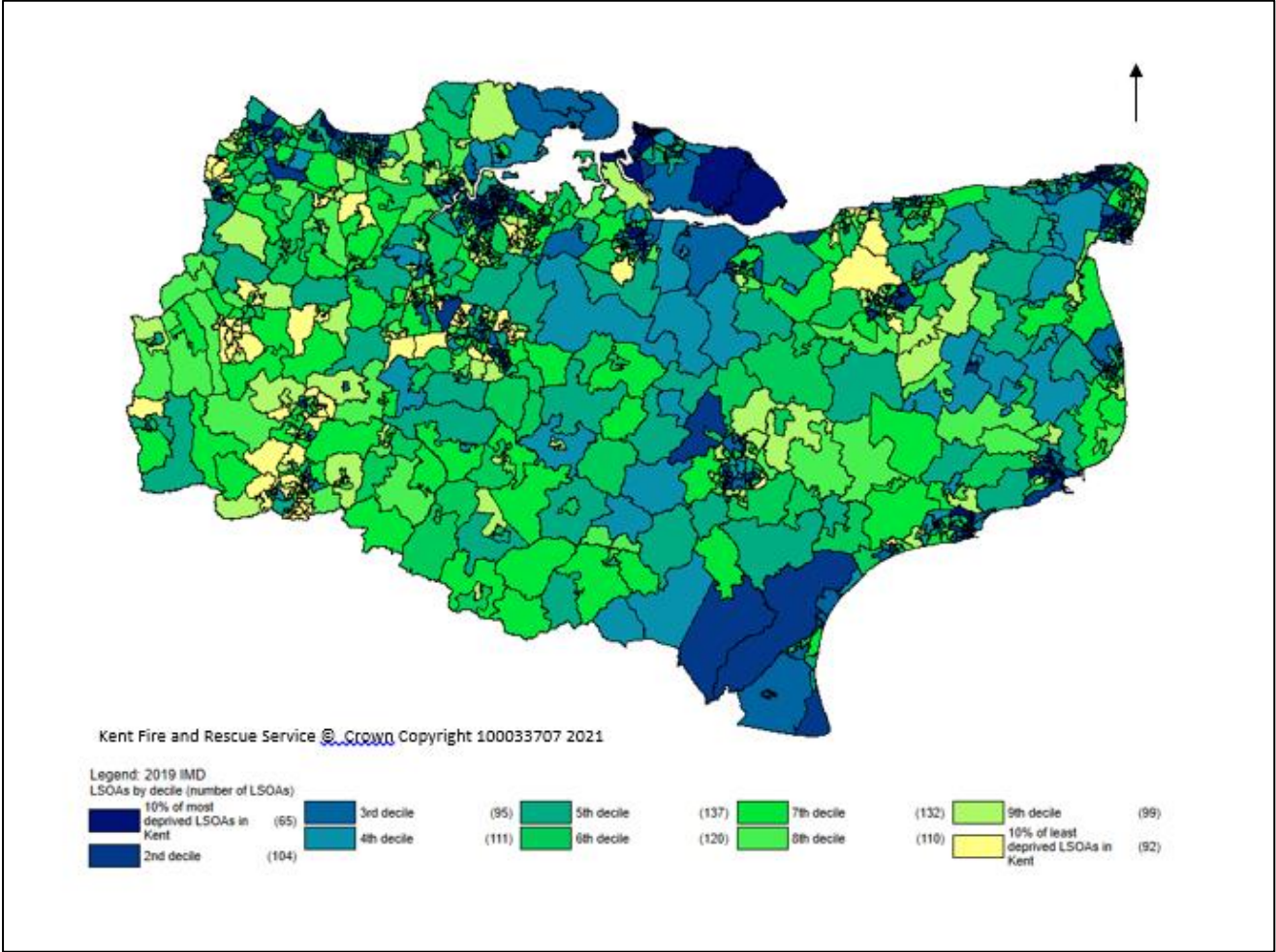
Geodemographic Segmentation

Geodemographic segmentation is used to classify and characterise neighbourhoods or localities based on profiling. We use a product called Mosaic Public Sector (Mosaic).

Mosaic is a lifestyle profiling tool which provides a wide range of information about people's lifestyle and lifestyle choices, based on a profile of the area they live in. Developed from a commercial marketing tool, Mosaic is now available to help public service organisations gain a detailed understanding of the communities they serve and improve engagement in those communities. Using this information allows us to understand the demographics, lifestyle, preferences, and behaviours of people within Kent and Medway to support targeting those who need us most.

Mosaic allows categorisation of domestic properties into one of fifteen top level categories. Each of these categories can be sub dived for further types of analysis if required.

The current 2020 Mosaic data contains 792,830 households that are profiled within Kent.

The table below provides a breakdown of these households by Mosaic groups.

Households	Mosaic Group	Description
56,083	Country Living	Well-off owners in rural locations enjoying the benefits of country life
70,273	Prestige Positions	Established families in large, detached homes living upmarket lifestyles
4,343	City Prosperity	High status city dwellers living in central locations and pursuing careers with high rewards
67,123	Domestic Success	Thriving families who are busy bringing up children and following careers
66,944	Suburban Stability	Mature suburban owners living settled lives in mid-range housing
79,274	Senior Security	Elderly people with assets who are enjoying a comfortable retirement
50,006	Rural Reality	Householders living in less expensive homes in village communities
101,635	Aspiring Homemakers	Younger households settling down in housing priced within their means
15,577	Urban Cohesion	Residents of settled urban communities with a strong sense of identity
59,586	Rental Hubs	Educated young people privately renting in urban neighbourhoods
41,644	Modest Traditions	Mature homeowners of value homes enjoying stable lifestyles
52,825	Transient Renters	Single people renting low-cost homes for the short term

Households	Mosaic Group	Description
64,852	Family Basics	Families with limited resources who budget to make ends meet
45,230	Vintage Value	Elderly people with limited pension income, mostly living alone
17,435	Municipal Tenants	Urban residents renting high density housing from social landlords
Total: 792,830		

Understanding Risk in Kent

Risk assessment is commonplace in many applications and considers the likelihood of occurrence against the estimated severity of the outcome. In context, within the fire service, this can be seen as the likelihood of an incident occurring and the severity of its outcome. The likelihood can be based on many underlying factors or influences, and outcomes are mainly attributed to levels of casualties, fatalities, property damage or loss, societal loss, or any combination of these.

Our attendance at incidents demonstrates where the underlying risk has become realised. Monitoring when, where and why incidents happen can be a good indicator for assessing where they may occur again but, there are also many other underlying factors that we consider and review to ensure we have a full profile of the risk across Kent.

The location and positioning of our fire resources are in essence a control measure for risk that becomes realised. As a service other control measures are also delivered into the community via our Community Safety and Building Safety teams to provide prevention and protection activities to assist in reducing the risk, minimising the chances of the risk becoming realised and reducing the severity of any outcomes should an incident occur.

The main aim for understanding the risk to our customers is to reduce the number of people killed or seriously injured across our communities, minimise loss and reduce societal impacts. Unfortunately, most casualties and fatalities occur in two predominant incident types, Road Traffic Collison's, and Accidental Dwelling fires. For this reason, these incident types are reviewed as individual risk types whereas some others are grouped together due to the low frequency of incidents and casualties.

Alongside the two main incident types outlined above, it is widely recognised and accepted nationally that building usage type is also an indicator of risk. We commonly refer to this as "Other Buildings Risk."

As well as the areas mentioned above other factors are considered when assessing or profiling risk within our county, these include but are not limited to:

- Infrastructure: Airports, Air traffic, Railways, Ports
- Environmental: Sites of Specific Interest, Water protection zones, Flooding
- Specific Risk Sites
- Future Development and Growth

The following section aims to provide you with an overview of the information used to create and assess the profile of risk within Kent.

Community risk register

Under the Civil Contingencies Act 2004 Kent Resilience Forum (KRF) partners are required to assess the risks in their area. KRF partners achieve this by working together to develop the 'Kent Community Risk Register'.

The risk register is informed by national guidance and developed locally with partners and subject matter experts. The final register is endorsed by the strategic representatives of all KRF partners.

The register has two key purposes:

1. To ensure that partners have a common perception and understanding of risks. The register ensures that all partners fully understand the likelihood of risks occurring and the impacts that will happen if they do.
2. To assure the people of Kent that risks are being researched and multi-agency plans are put in place to deal with them. The register also advises the public what they can do to protect themselves.

The Kent Community Risk Register can be accessed here.

Dwellings

In August of 2020, Kent County Council released a document looking at the Housing Stock 2019, this document provides us with one insight into the dwellings in Kent and their usage. The document pulls together data from two different sources, these are estimates from the Ministry of Housing, Communities & Local Government (MHCLG) and council tax data from The Valuation Office Agency (VOA).

Ministry of Housing, Communities & Local Government (MHCLG) Data: These estimates for total stock are derived from the Census. In between census years, the total figures are produced by adding the annual net supply of housing to the existing dwelling stock and are used as evidence in policy making by both central and local government and in the development and production of other government statistics by the Office for National Statistics. This data provides an estimate of dwelling stock, dwelling stock by tenure, vacant dwellings and second homes. This dataset gives us the highest dwelling count.

Valuation Office Agency (VOA) Data: The agency compiles and maintains lists of all domestic properties in England and Wales which includes property types and number of bedrooms and is used to support the collection of council tax and the valuation of homes for the purpose of assigning council tax bands. This dataset gives a lower estimate of the total stock of dwellings than the MHCLG estimates.

It is important to note, that depending on the dataset utilised, a varying number of total dwellings will be seen, MHCLG, VOA and Experian all measure with differing variables, the average for all 3 datasets is around 800,000 dwellings

Using the highest available estimate from MHCLG, there are 801,927 dwellings in the county which is an increase of nearly 8,000 dwellings from 2019. It is not surprising to note there has been a substantial increase in dwellings in Kent and Medway over the last 10 years which is a trend that looks set to continue over the next 10 years.

The dwellings stock is comprised of: Local Authority 34,531 (4.3%), Private Registered Provider 63,460 (7.9%), Other Public Sector 904 (0.1%) and Private Sector 699,365 (87.7%)

Dwelling Fire Risk

The risk of dwelling fires can be attributed to many variables. In order to maintain a profile of the dwelling fire risk we utilise three years of historical incident information from within our own incident recording system alongside geodemographic segmentation.

By analysing our historic incident data and matching this to a mosaic group, it allows us to build a picture of which mosaic groups are most at risk from an accidental fire in the home. This work is reviewed and refreshed on an annual basis to ensure that we are focusing our prevention activities on the most appropriate group for the following year.

We currently estimate the risk of dwelling fires at output area level (a geographic area with a population of approx. 300) which can be broken down by Mosaic group to provide a 5 point scale ranging from least to most likely areas for a fire or casualty to occur when compared in relation to each other.

The map below provides a relative overview of risk areas and indicates highest estimated casualty/risk per output area on a four point scale.

2021 ADF risk profile:
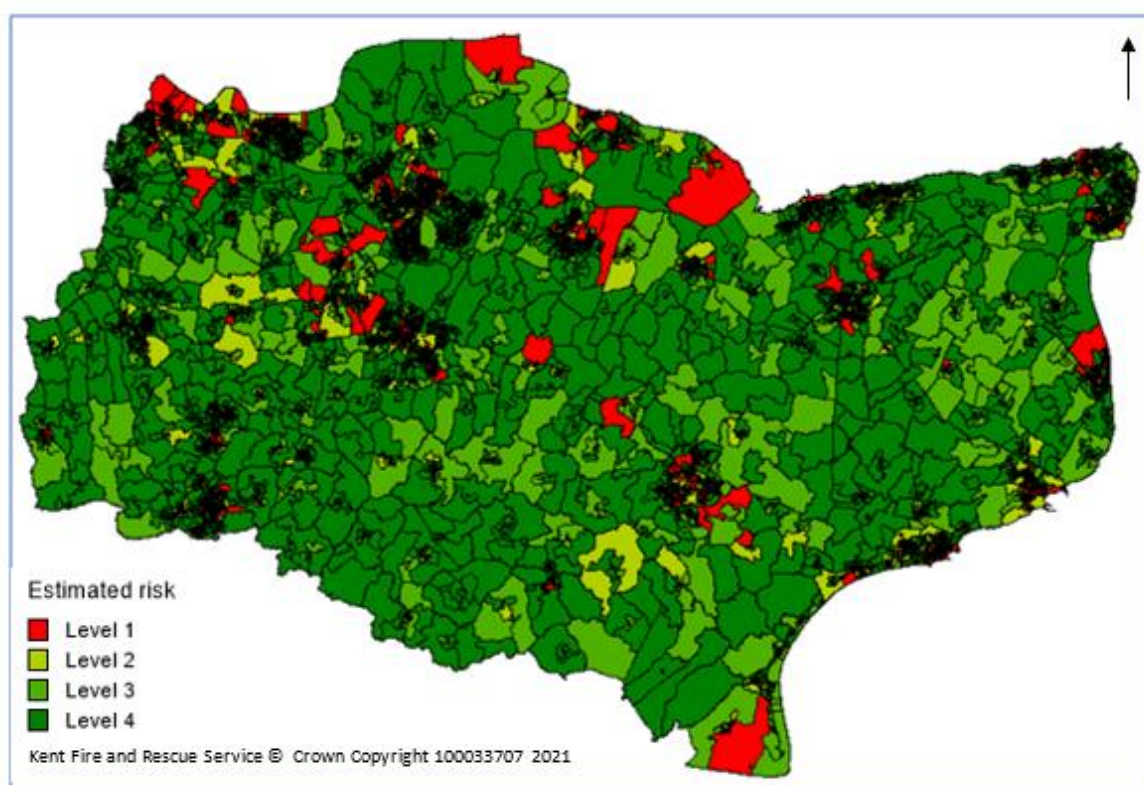
High Rise Buildings

The definition of a tall building used within regulations varies. Fire and rescue services, and other agencies, may adopt different terms for tall buildings based on risk management planning and local procedure.

Common terms used to categorise tall buildings include:

- Medium-rise buildings - sometimes referred to as buildings between 11m and 18m to the highest occupied floor, or buildings with 4 storeys or more

- High-rise buildings – sometimes referred to as buildings over 18m to the highest occupied floor, or buildings with 7 storeys or more

- Supertall buildings – any building over 300m

As well as these medium/tall buildings, there are also High Risk Residential Buildings (HRRB), these are buildings which are at least 18 metres in height, or have at least 7 storeys, and contain at least 2 residential units. This includes multi-use buildings (buildings with residential dwellings and other uses, for example retail)

Currently within Kent, we have 173 buildings which fall into this category and are classified as high rise.

Road Traffic Collisions

RTC's account for the largest proportion of casualties we attend across the county. Estimating when and where this is likely to happen can be exceedingly difficult due to the wide range of casual factors that can be involved. We know from analysis of national data that the key contributing factors that influence road traffic collision casualties are:

- Inappropriate speed
- Driver distraction (most commonly mobile phones)
- Lack of seatbelts
- Alcohol or drug impermanent

Alongside these a key contributing factor in RTC's is failure to observe safe following distances. The primary data to support this analysis comes from accident data that is collected via police forces. While this provides an extremely valuable source of data to support our understanding of RTC (Road Traffic Collision) risk it does not represent our interaction with these incident types as we do not attend all RTC's. Because of this difference we utilise our own data to understand the number and severity of RTC's that we are attending to ensure we keep our resources and equipment where we are needed.

We use data from our own incident recording system to provide information on location, frequency and severity of incidents we are attending. We utilise a series of models to estimate the risk of RTC's based on different road types. These provide us with an estimate of the RTC risk based on major, urban and rural roads.

We can then bring these individual estimates together to provide an overview based on all road types. From this we are then able to provide a 5 point scale ranging from least to most likely areas that RTC's may occur when compared in relation to each other

The map below outlines the current profile of RTC's using the 5 point scale.
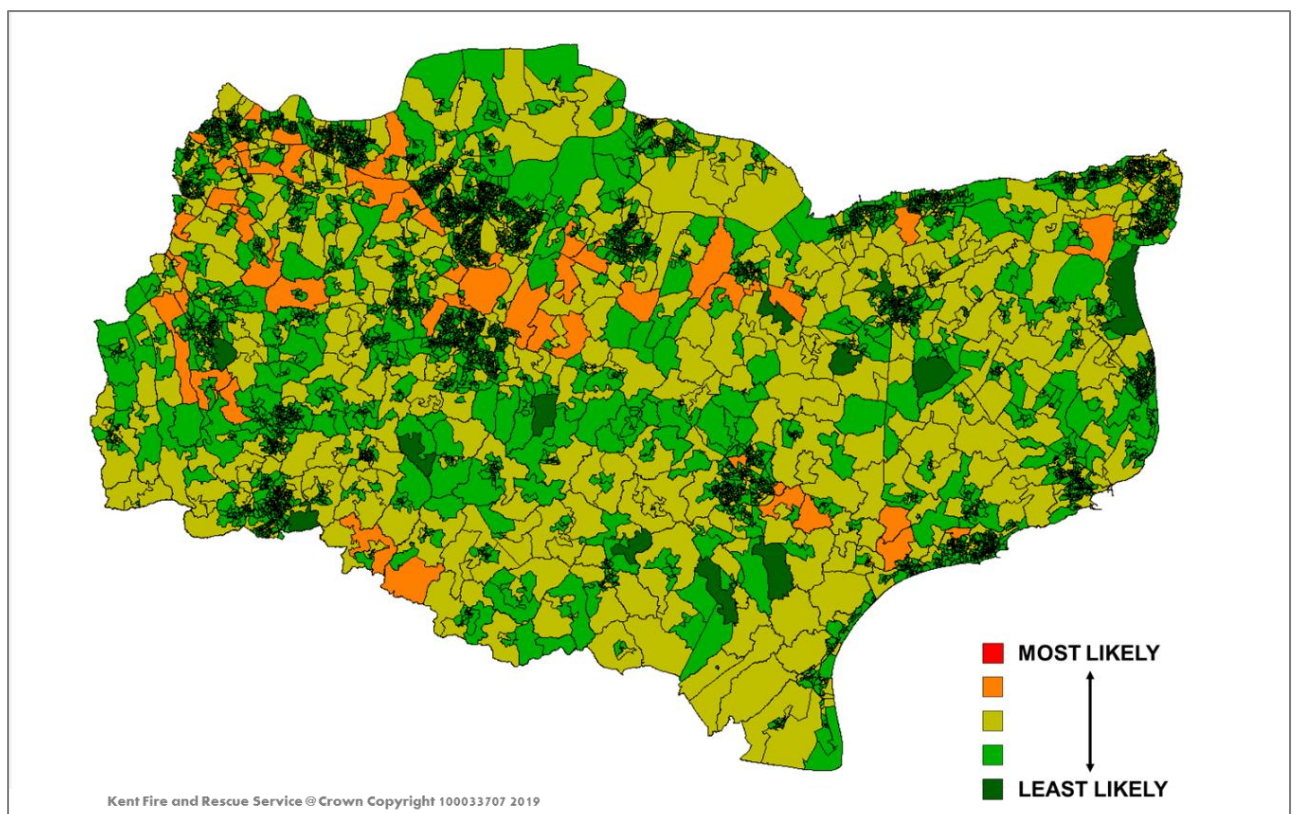
NOTE: The combined profile of RTC's does not show any output areas that reach 5th scale point. This means that the most likely risk falls within the 4th scale point.

Other Building Risk

As well as Kent's housing stock, we also have a number of other buildings within the county which we need to understand. It is recognised and accepted nationally that building usage type is

also an indicator of risk. Part of this established understanding identifies that 80% of the risk of fire fatalities and casualties involve buildings where people sleep (Sleeping Risk), but are not classified as dwellings. The other 20% of risk is mainly attributed to commercial and public premises (Non Sleeping Risk).

Sleeping risk

The five main building types under this category are:

- Hospitals
- Care Homes
- Houses of Multiple Occupancy
- Hotels
- Hostels

Whilst some other premises may contain elements of sleeping risk such as boarding schools, prisons, police station etc. these are considered under non sleeping risk. The above premise types, often referred to as the 5H's, are identified as the higher risk premises as they are most likely to have high levels of sleeping accommodation alongside other influencing factors.

Non Sleeping Risk

Those buildings which do not provide sleeping accommodation or limited sleeping accommodation account for the remaining risk.

Premises that are included within this are:

- Factories/Warehouses
- Further Education Establishments
- Licensed Premises
- Offices
- Premises Open to the Public
- Other Sleeping accommodation
- Other Workplaces
- Public Buildings
- Schools
- Shops

Although these building types only account for part of the overall risk they do contain the highest number of building counts and different property types. To enhance information we hold for building risk we utilise a new data product provided by Experian. This data combines various data sets available regarding building use, stock levels, location etc. The combined data creates

a mega data file that allows Experian to perform further levels of analysis and provide an estimated risk of fire and assigned percentile for each premise.

The current data file for Kent contains 97,511 entries. The data provided contains elements of risk from both sleeping and non-sleeping risk as well as registered businesses at domestic premises.

The table below details the number of premises in the dataset split by district and by business type.

	Ashford	Canterbury	Dartford	Dover	Gravesham	Maidstone	Medway	Sevenoaks	Shepway	Swale	Thanet	Tonbridge and Malling	Tunbridge Wells	No UPRN	Total
Office & Administration	1,611	1,584	1,180	900	993	2,060	2,318	2,016	1,040	1,337	1,061	1,591	1,775	4,274	23,740
Shops & Other Retail Outlets	781	1,257	682	725	523	975	1,415	685	732	856	1,036	681	848	3,308	14,504
Business at Home	420	474	272	366	289	541	687	389	326	389	425	386	371	512	5,847
Factories & Manufacturing	248	180	79	147	80	235	219	207	129	198	127	154	169	689	2,861
Other	184	210	109	126	108	204	271	185	177	175	174	149	162	558	2,792
Unknown	432	390	188	273	188	439	490	392	306	373	301	303	331	1,247	5,653
Hospital & Medical Establishment	103	210	97	137	81	172	265	119	159	139	171	110	150	604	2,517
Sports, Leisure, Entertainment, Holiday Activities	103	182	65	126	65	131	177	109	117	140	155	95	102	722	2,289
Schools & Educational Establishments	129	151	83	107	76	145	206	114	95	133	113	123	120	497	2,092
Workshops & Repair Centre's	153	146	77	103	67	159	195	120	76	130	115	87	92	542	2,062
Head Office	75	93	52	68	51	111	117	88	43	73	48	81	88	334	1,322
Warehouses & Wholesalers	53	64	39	32	28	70	74	46	36	50	37	64	50	226	869
Places of Worship	25	35	20	22	22	17	52	27	19	19	21	15	28	142	464
Transport	22	25	23	21	20	25	27	22	22	28	18	23	24	115	415
Police, Fire, Ambulance, Courts, Prisons, Civil Defence, Libraries	2	5	3	4	2	12	7	4	5	4	4	6	4	80	142
Total	**6,156**	**6,722**	**5,305**	**4,230**	**4,531**	**7,736**	**10,207**	**6,407**	**4,502**	**5,601**	**5,581**	**5,615**	**6,108**	**18,810**	**97,511**

Heritage Sites & Structures

When a building is recognised as being of special architectural or historic interest it is added to the statutory 'List'. This is compiled by the Department for Digital, Culture, Media and Sport (DCMS) on advice from Historic England. Buildings on the List are given one of three grades which note their level of importance, Grade I being the highest and Grade II the lowest:

- Grade I (one) - of exceptional interest
- Grade II* (two star) - particularly important
- Grade II (two) - of special interest

Structures that might not be classified as 'buildings' - such as railings, gate piers, walls, war memorials, gravestones, post boxes and telephone boxes - can all be Listed Buildings. The dataset is added to on a regular basis and currently comprises over 379,000 entries. Related to Listed Buildings are Certificates of Immunity (COI) and Building Preservation Notices (BPN).

- Listed buildings – 17,992 records in Kent
- Scheduled monuments – 424 records in Kent
- Protected wreck sites – No records in Kent
- Registered parks and gardens – 62 records in Kent
- Registered battlefields – No records in Kent
- World Heritage Sites – 2 records in Kent
- Buildings with Building Preservation Notices – No records in Kent
- Buildings with a Certificate of Immunity – 2 records in Kent

The table below details the number of Listed Buildings by Grade and district as of May 2021:

District	I	II	II*	Total
Ashford	52	2,220	130	2,402
Canterbury	62	1,738	80	1,880
Dartford	7	164	10	181
Dover	38	1,777	110	1,925
Gravesham	10	279	21	310
Maidstone	42	1,875	105	2,022
Medway	49	524	78	651
Sevenoaks	31	1,530	91	1,652

| District	I	II	II*	Total
Shepway	30	848	39	917
Swale	37	1,311	92	1,440
Thanet	11	1,009	28	1,048
Tonbridge and Malling	38	1,203	76	1,317
Tunbridge Wells	28	2,086	133	2,247
Total	**435**	**16,564**	**993**	**17,992**

Infrastructure

With Kent's proximity to both London and mainland Europe, the counties infrastructure must have the ability to maintain the rigorous demands placed on it from domestic, commercial and the tourist industry. Access from London to mainland Europe is provided by both cross-channel ports as well as high speed rail lines which feature within Kent.

Road

Due to our location, Kent has a high number of motorway miles to enable easy access to and from the cross-channel ports, combined with the rural make-up of the county provides a wide variety of road type, with many parts of the county being accessed by single track roads.

In total Kent has 7,293 miles of highways.
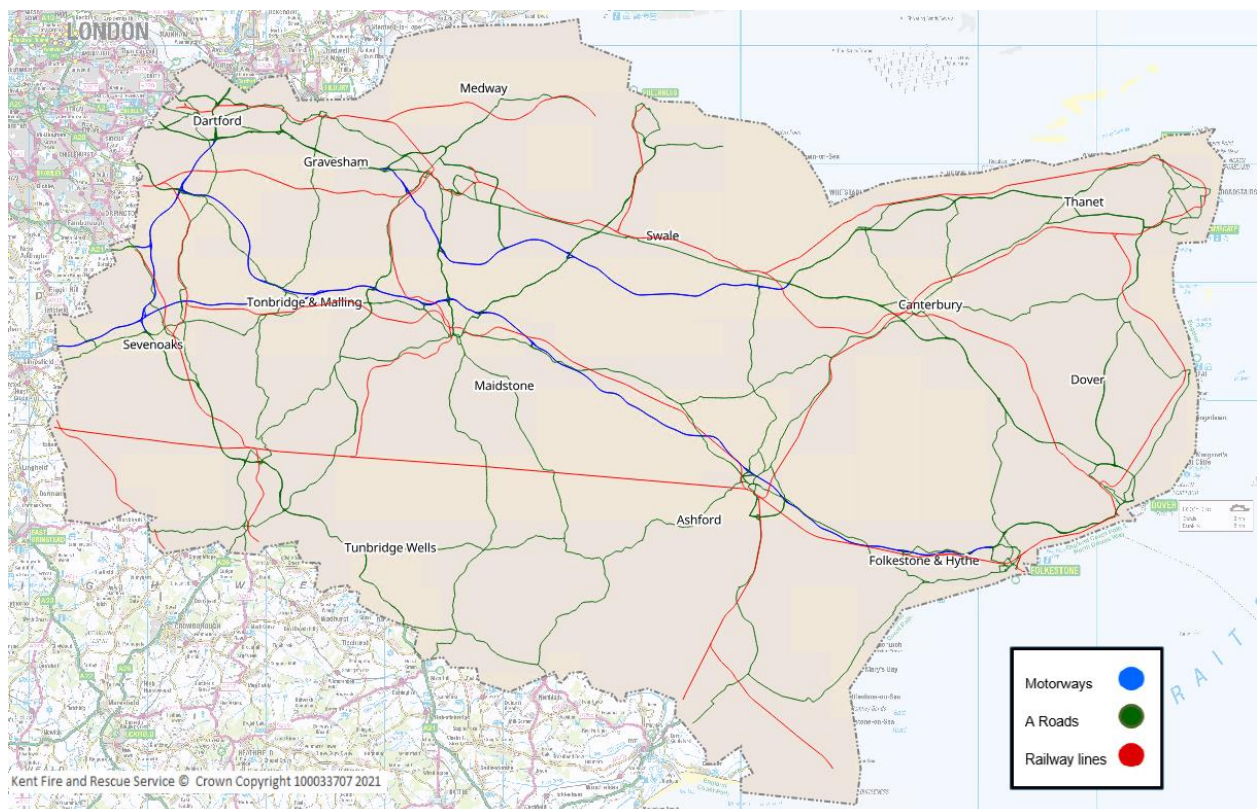
Rail

Many parts of Kent and Medway provide easy access to the city of London, which makes the county an attractive area for commuters into the city for work along with a top destination for tourism and traffic for mainland Europe, all of which provides vital economic prosperity to the region.

Kent and Medway is served by South-eastern Rail whose network covers London, Kent and parts of East Sussex

In total Kent and Medway have 179 Railway stations and provide over 2,600 trains every weekday with over 300,000 passengers per day.

Kent is also home to the High Speed 1 (HS1) or Channel Tunnel Rail Link (CTRL) which consists of 67 miles of high-speed rail line from the channel tunnel to London St Pancras station, with intermediate stations at both Ashford international and Ebbsfleet international.

Aviation

Currently in Kent and Medway, there are four listed main airports, with one being Manston and another being Biggin Hill, Manston currently has ceased operation although still capable of receiving traffic, and Biggin Hill although in Kent falls under the authority of London. The other two airports are Lydd in the southwest of the county and Rochester to the north.

Lydd provides a commercial service to mainland Europe and Rochester operates private commercial services

There are a further 85 current and dormant airfields/airstrips within the county including helipads at varying locations throughout the county.

Ports

With the county of Kent being a coastal county and having access to mainland Europe, there is within the county 5 operation ports, these are

- Port of Medway
- Port of Whitstable
- Port of Ramsgate
- Port of Dover
- Port of Folkestone

Each of these facilities provides the service with their own individual risks. The Port of Medway located in Sheerness allows an entry point into the county for (predominantly) fresh produce coming into the country, the majority of the traffic into this port is commercial.

The Port of Whitstable's traffic consists of fishing and small commercial vessels, which is similar to the Port of Ramsgate which has an addition of a lifeboat

The Ports of Dover and Folkestone provide the bulk of the marine traffic and are located at the end of two major road links within the county, these provide easy access from the ports

to the rest of the country, Folkestone is predominantly disused presently but the Port of Dover provides a large number of Ferry, Commercial/Cargo as well as Cruise traffic.

Waterways

There are five main rivers within Kent and Medway not including the Thames which borders the county to the north, each of the five are unique in their make-up and either have tributaries or form part of a natural geological boundary, such as the River Rother, and Wealden river which forms a boundary between Kent and East Sussex.

Listed below are the five main rivers and their tributaries:-

River Medway
- River Eden
- River Grom
- River Bourne
- River Tiese
- River Beult
- Wateringbury Stream
- River Loose
- River Len

River Stour
- East Stour
- Little Stour
- River Wantsum
- Whitewater Dyke
- Ruckinge Dyke
- Aylesford Stream

River Darent
- River Cray

River Dour

River Rother

The River Medway divides the county and runs from east to west for a total length of just over 70 miles. The River Stour has a length of just short of 50 miles whilst the River Darent covers 20 miles, and the River Dour is approximately 4 miles long.

Other identified risks

COMAH sites

The Control of Major Accident Hazards Regulations 1999 (COMAH) and their amendments 2005, are the enforcing regulations within the United Kingdom which are applicable to any site which stores or handles copious quantities of industrial chemicals of a hazardous nature. The regulations operate on two levels which depend on the site's status, either Top Tier or Lower Tier sites.

Across Kent and Medway there are 5 Top Tier and 15 Lower Tier COMAH sites.

Sites of Specific Scientific Interest (SSSI)

As the name suggests Sites of Specific Scientific Interest are formal conservation designation areas which are of particular interest to science. These are often important habitats such as grasslands, parkland and woodland areas, which contain rare species of fauna, flora, geological or physiological features.

Areas designated as SSSIs (Sites of Specific Scientific Interest) are given a higher protection compared to Areas of Natural Beauty and must be managed and protected accordingly.

The map below displays the spread of these across the County.

Flooding

With a combination of the geology and infrastructure requirements in Kent combined with alterations in climatic conditions, the residents of Kent are becoming more at risk from the effects of flooding. Kent County Council try to mitigate this effect by forming a local flood risk management strategy (Local-Flood-Risk-Management-Strategy-2017-2023.pdf).

This strategy highlights how KCC intend;

- To support and improve the safety and wellbeing of Kent's residents and the economy of Kent through appropriate flood risk management;
- To ensure that we all work together effectively to understand and deliver appropriate flood risk management in Kent
- To contribute to sustainable development, regeneration and land management in Kent through the promotion of sustainable flood risk management practices that utilise natural processes where appropriate

Essentially there are a number of different types of flooding, these are.

- Flash floods – often caused by cloud bursts and only affect certain areas
- Coastal floods – often caused by the sea over-topping sea defenses
- Urban floods – blocking of drains
- River (or fluvial) flooding
- Ponding (or pluvial) flooding – sometimes caused by rising of groundwater or rain water laying in a sunken or lower area.
- Groundwater flooding – this occurs when the water table reaches ground level and is saturated and usually follows prolonged rainfall, this may last for a number of weeks.

There is also a category known as unnatural flooding which is generally caused by a man-made structure failing, such as burst pipe or main.

Within Kent there are nearly 70,000 properties that are at risk from flooding, in addition there are many people that work in, visit or travel through potentially vulnerable areas.

Over the past 20 years there have been a number of larger scale flooding events within the county, notably these are;

- October 2000 – Fluvial flooding affecting many communities in Kent and East Sussex
- December 2013 – Coastal flooding, following a storm which hit the UK on 5th and 6th and resulting in the most serious tidal surge for 60 years
- December 2013 - February 2014 - Fluvial flooding following heavy rainfall resulting in more than 700 homes being flooded

- January - April 2014 – Ground water flooding, widespread flooding following sustained rainfall over the winter period

The following maps outline some of the information we use to from our partner agencies to support our work in protecting our communities and the environment.

The map below is the Flood Map for Planning (Rivers and Sea) provided by the Environment Agency[4]. This map covers Flood Zone 2 which is the estimate of the areas of land at risk of flooding, when the presence of flood defences are ignored and, covers land between Zone 3 and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year. This map also includes those areas defined in Flood Zone 3 which is an estimate of the areas of land at risk of flooding, when the presence of flood defences are ignored and covers land with a 1 in 100 (1%) or greater chance of flooding each year from Rivers; or with a 1 in 200 (0.5%) or greater chance of flooding each year from the Sea.

The information provided is largely based on modelled data and is therefore indicative rather than specific. Locations may also be at risk from other sources of flooding, such as high groundwater levels, overland run off from heavy rain, or failure of infrastructure such as sewers and storm drains.

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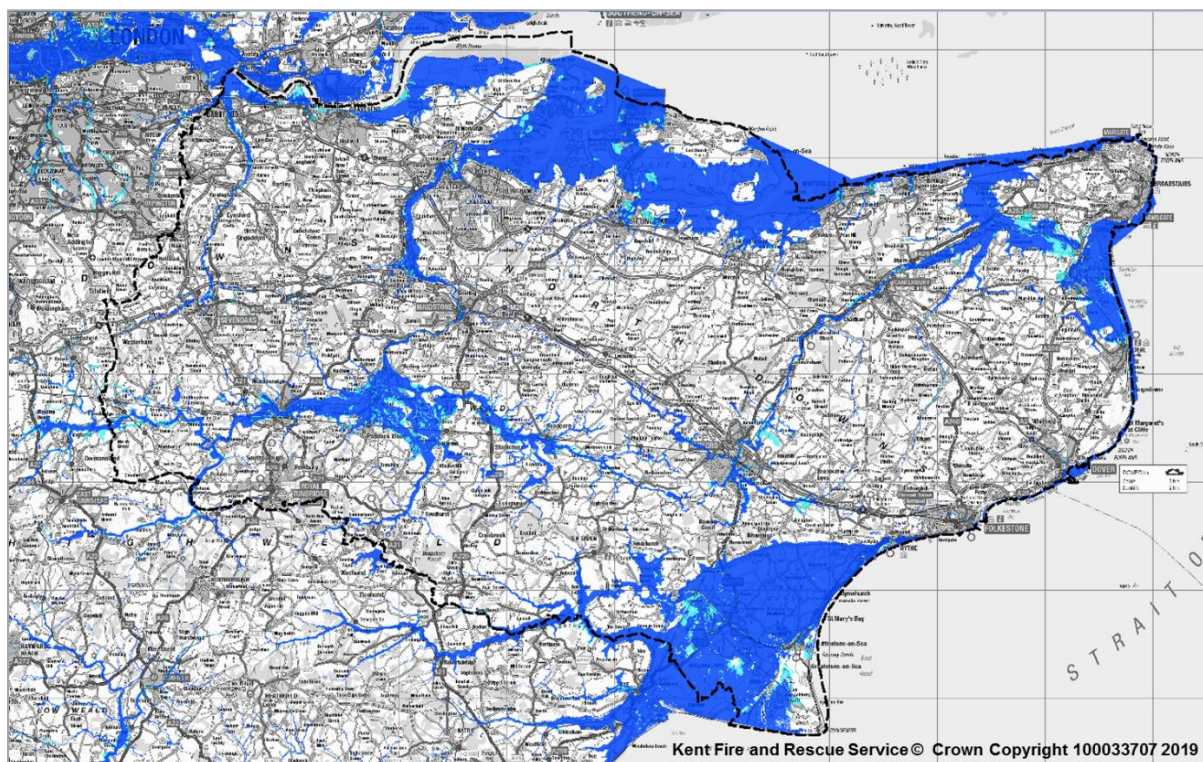
Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding. a new [online interactive map](#) is available which provides varying levels of flooding information using mapping for visualisation.

Groundwater Source Protection Zones

Groundwater provides a third of our drinking water in England, and it also maintains the flow in many of our rivers. In some areas of Southern England, groundwater supplies up to 80% of the drinking water that you get through your taps. It is crucial that we look after these sources and ensure that your water is completely safe to drink.

The Environment Agency has defined Source Protection Zones (SPZs) for groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which we occasionally apply, to a groundwater source.

The map below outlines the source protection zones within Kent
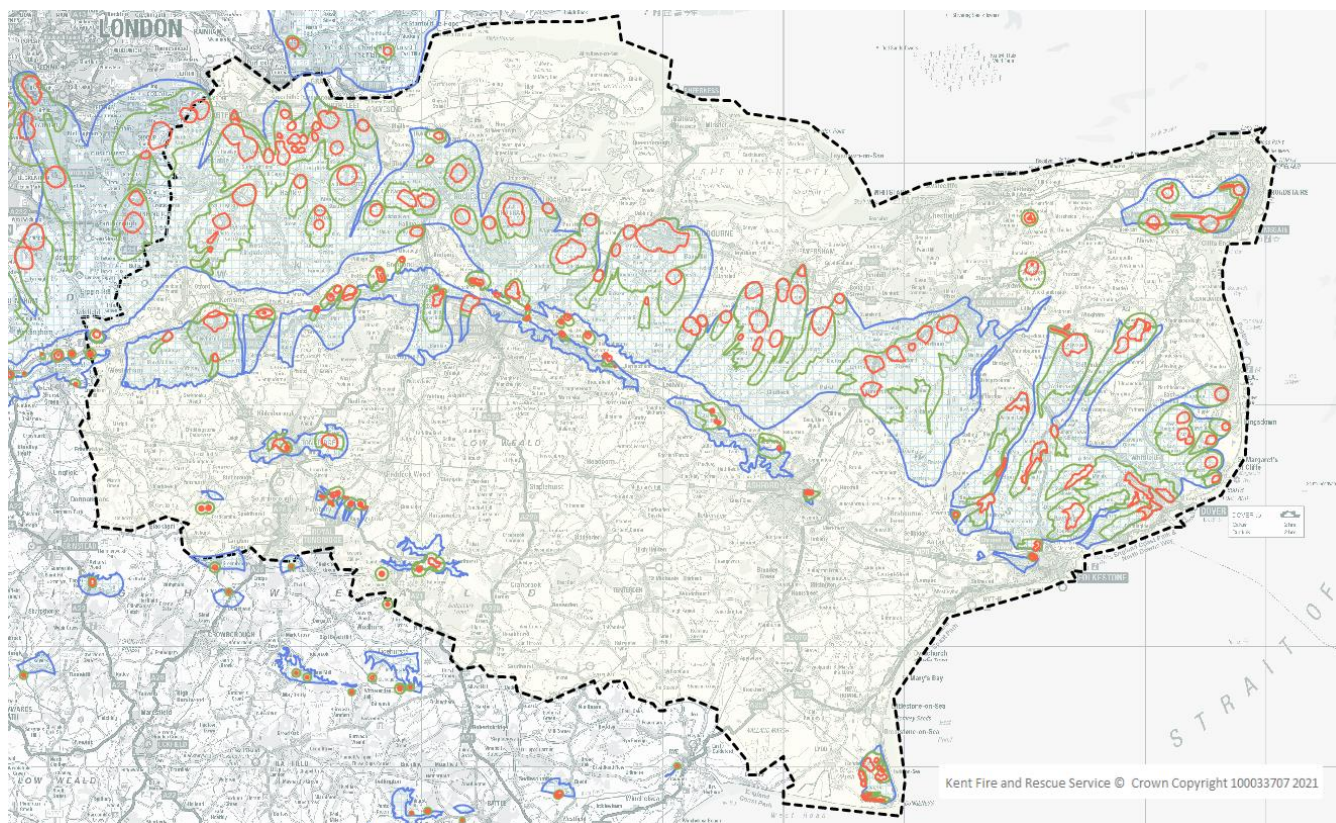
Future Development and Growth

As part of our review process and risk profiling for county we review future housing, population and infrastructure growth as an indicator of potential future risks.

Local Councils are required to produce a core strategies under the National Planning Policy Framework as well as Local Plans for projected development. These plans and associated documentation are brought together and consolidated within the Kent and Medway Growth and Infrastructure Framework. The framework has been developed by Kent County Council, in collaboration with Medway Council and the 12 district councils within Kent. It provides planners, developers and government departments at all levels with information relating to growth and infrastructure at a strategic level until 2031.

Kent has seen a significant increase in the usage of the counties roads and rail network over the last few years and housing and population growth continue to outpace infrastructure growth. Over the last few years Kent has delivered some of the highest rates of housing delivery in the country. The current pace of development has an average requirement of 8,900 homes per year until 2031.

The framework reviews key growth across 3 geographical areas North, East and West.

The table below outlines the councils within each area:

NORTH	EAST	WEST
Dartford	Ashford	Sevenoaks
Gravesham	Canterbury	Tonbridge & Malling
Maidstone	Dover	Tunbridge Wells
Medway	Shepway (Folkestone & Hythe)	
Swale	Thanet	

Key growth summery across Kent 2011 – 2031

178,600 Additional Homes **(24% growth)**

NORTH	EAST	WEST
78,600	68,600	31,400

396,300 Additional People **(23 % growth)**

NORTH	EAST	WEST
186,800	146,700	62,800

170,300 Additional Jobs **(21% growth)**

ALL AREAS

There are numerous strategic projects being planned and proposed across Kent to support economic growth. These range across a variety of housing developments, business developments, transport links and re-generation schemes. The following information provides an overview of the key strategic projects within each group.

NORTH KENT		
Lower Thames crossing	Thames riverside development	North Kent enterprise zone
Ebbsfleet garden city		London Resort
Dartford		
▪ Dartford town centre regeneration and developments ▪ Crossrail extension ▪ Northern gateway ▪ Bluewater expansion		
Gravesham		
▪ Gravesend town centre regeneration ▪ Northfleet Embankment		
Medway		
▪ Strood town centre ▪ Rochester riverside ▪ Rochester Airport & Chatham Maritime ▪ Hoo peninsula housing opportunities		
Swale		
▪ Sittingbourne town centre regeneration ▪ North West Sittingbourne development ▪ A249 Improvements ▪ Eurolink Business Park		
Maidstone		
▪ Town centre gyratory ▪ Expansion of surrounding villages		

EAST KENT		
Otterpool Garden Town	London Ashford Airport	Ashford Commercial Quarter
Increase rail capacity	Business support funding	Upgrading broadband

Ashford
- M20 Junction 10A   - Town centre transformation   - Designer outlet expansion   - International station   - College campus

Canterbury
- Canterbury Christ Church University EDGE project   - Kent medical school and research complex   - A28 Corridor   - Sturry link road   - Eastern bypass   - Western link road

Thanet
- Margate & Clifftonville regeneration   - Developing out Euro Kent   - Thanet parkway

Dover
- White Cliffs business park   - Dover bus rapid transport system   - A2 Improvements   - Duke of York roundabout   - Road duelling between Lydden and Dover town   - Duelling of A256

Shepway (Folkestone & Hythe)
- Folkestone harbour & seafront   - Westenhanger lorry park   - Westenhanger rail station

WEST KENT		
M20/M25/M26/M2/A2 Congestion alleviation	A21,A228,A264 Capacity improvements	Broadband & Mobile connectivity

Sevenoaks
Swanley town centre regeneration

Tonbridge & Malling
- Tonbridge town centre regeneration   - Kings Hill regeneration

Tunbridge Wells
- Royal Tunbridge Wells town centre regeneration   - Cultural & Learning hub   - Civic developments   - New theatre   - Office space   - Royal Victoria place extension   - Redevelopment of former cinema site   - Knights Wood & Hawkenbury residential developments

If you would like further information regarding Kent's Growth and Infrastructure Framework Update 2018 the full document is available via Kent County Council's website:

https://www.kent.gov.uk/__data/assets/pdf_file/0018/80145/GIF-Framework-full-document.pdf

KFRS Structure

To ensure that Kent Fire and Rescue Service (KFRS) provides the best possible service it can to our customers across the county, we regularly review where our resources are located within the county and how these locations are staffed. We appreciate that risks within the county change through time and external factors, such as: -

- New developments
- Commerce and industry
- Climate change
- Migration
- Infrastructure expansion

Along with other factors all play a part in altering the risk though-out the county, as such it is vital that KFRS carriers out a periodic review of our emergency response provision to ensure that we have our resources in the right places to meet these risks, as well as having an eye on the horizon to make sure we are meeting, as near as practicably possible, any upcoming risk.

These reviews take 3 factors into consideration: -

- Where are our risks?
- What is our historic demand?
- Points of isolation

By looking at these 3 factors and looking at what's coming up in the county, we can strategically place our resources to meet these risks and the demand.

Currently KFRS has 56 resource locations crewed by 3 different crewing models that can respond anywhere within the county when required to do so

- **13 X Whole Time Shift:** Firefighters operate and respond from the station 24 hours a day 7 days a week
- **9 X Whole Time Day Crewed:** Firefighters operate and respond from the station during the day and respond as On Call during the night.
- **34 X On Call:** Firefighters are paged to respond to the station when required from other locations, such as, workplace or home.

🔴 Whole Time Shift
🔵 Whole Time Day Crewed
🟡 On Call
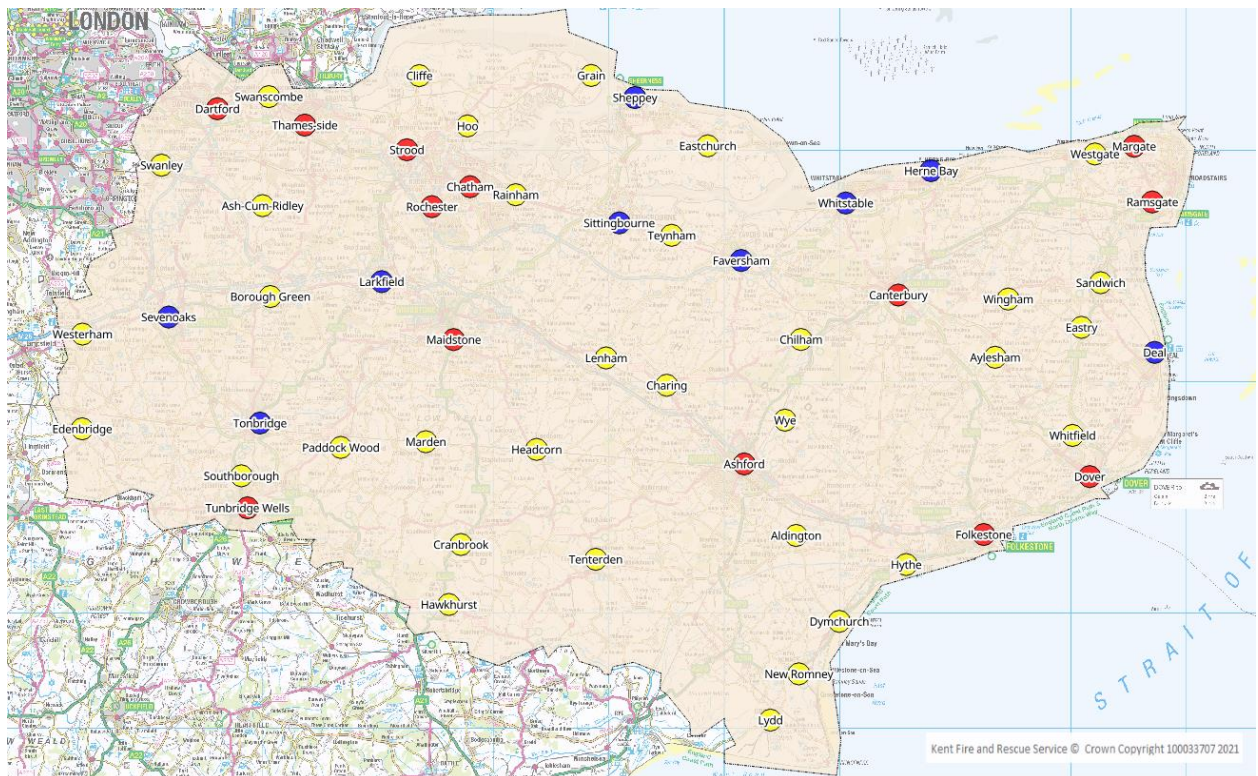
KFRS has a total of 75 fire appliances spread across these locations which it can be called on day or night to deal with any incidents which may occur. These appliances are equipped to 3 different levels dependent on the majority of the risk within the area they are based along with the historical use of equipment within the location.

Heavy Rescue Appliance • Heavy duty RTC equipment • Safe access (working at height) equipment • Compressed air foam • RTC working platform • Water rescue equipment	
Rescue Appliance • RTC equipment • 13.5m ladder • Water rescue equipment • Foam capability • Working at height equipment	

Pumping Appliance
- Smaller size for country lanes
- Automatic controlled pump
- Compressed air foam
- Light portable pump
- Large diameter hose reel

Alongside fire engines we have other specialist vehicles and capabilities, such as:

- Height Vehicle
- Bulk Water Unit
- Hose Layer
- Incident Support Unit
- Command Support Vehicle

- Line Rescue
- Water Safety Units
- Animal Rescue Unit
- Fire Fogging Unit
- Technical Rescue

All of these specialist vehicles and capabilities are strategically located across the county. The locations of these are monitored and reviewed to ensure they are in the most appropriate positions.

As well as our local assets, KFRS has a number of assets which provide national resilience and can be utilised both locally and nationally in times of need, these resources are located strategically within the county and are staffed by fire-fighters with enhanced skills. These resources include:-

- High volume pump
- Detection identification and monitoring
- Decontamination units
- Enhanced logistics

KFRS also has a technical rescue team, based out of Maidstone, forms part of 20 teams located in 17 strategic locations nationally. This team of firefighters are trained in additional specialist skills which helps them to respond to and resolve serious incidents involving structural collapse of buildings and heavy transport incidents which includes technical search, K9 search, stabilisation of structures along with the ability to perform rope rescue. This team will attend incidents such as natural disasters, large scale incidents and terrorist activities where humanitarian aid is required. Kent's technical rescue team, also form part of the UK's International Search and Rescue team who respond to incidents globally and provide expert advice and an operational capability.

Service Activity

In the last financial year (April 2020-March 2021) Kent Fire and Rescue service attended **17,849** incidents, 119 of which were over the border in other services. The information provided below outlines the types of incidents we have attended, where they happen and when they occur.

The data used is extracted from our own incident recording system. Where applicable a comparison has been made to the previous year or 5 years to provide a perspective of changes in our activity.

The three main incident categories reported include:

🔥   Fire: all incidents where a fire has occurred

🚨   Non Fire: all incidents that require our services to rescue, assist or support

🚫   False Alarms: all incidents that were confirmed as false alarms

In addition to the levels outlined above, further analysis of separate incident types is routinely carried out against a suite of local performance indicators.

The chart below shows a breakdown of the total number of incidents into the three main incident categories used by KFRS. The data presented in the remainder of this section do not include any incidents attended over the border in other services.

Incident Category Breakdown

False Alarm, 5,106

Fires, 4,439

Non Fires, 8,185
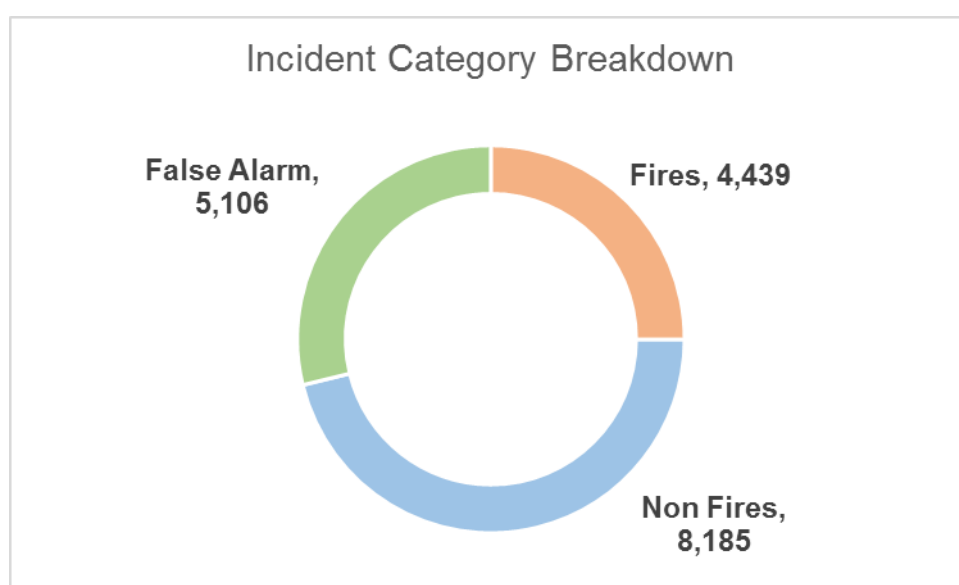
The graph below provides a 5 year comparison of the numbers of incidents attended by incident type. Over the last few years our attendance at Non Fire incidents has increased.

This is primarily due to our work alongside South East Coast Ambulance Service attending medical emergency incidents (Co-Responding). Activity levels have decreased in 2020/21 but this will have been impacted both by the pandemic where RTCs were considerably fewer than the level we would normally expect.
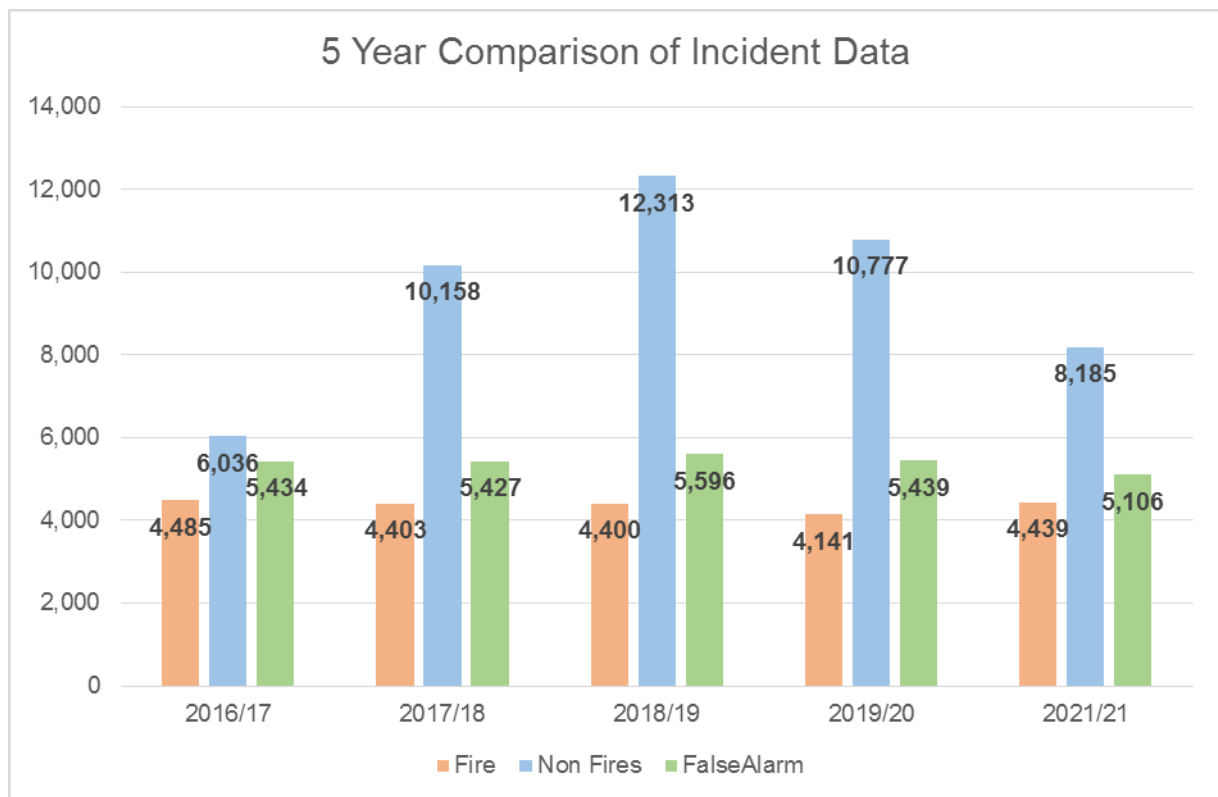

Year	Incident Count
2016/17	15,955
2017/18	19,988
2018/19	22,309
2019/20	20,357
2020/21	17,730

The charts and tables below provide a further breakdown of the three main incident categories and how they are made up.

Fires

A breakdown of fires attended in 2020/21 by the type of property involved shows that over half of our fire incidents are outdoor fires such as grassland and rubbish. These types of incidents are heavily influenced by prolonged periods of warm dry weather.
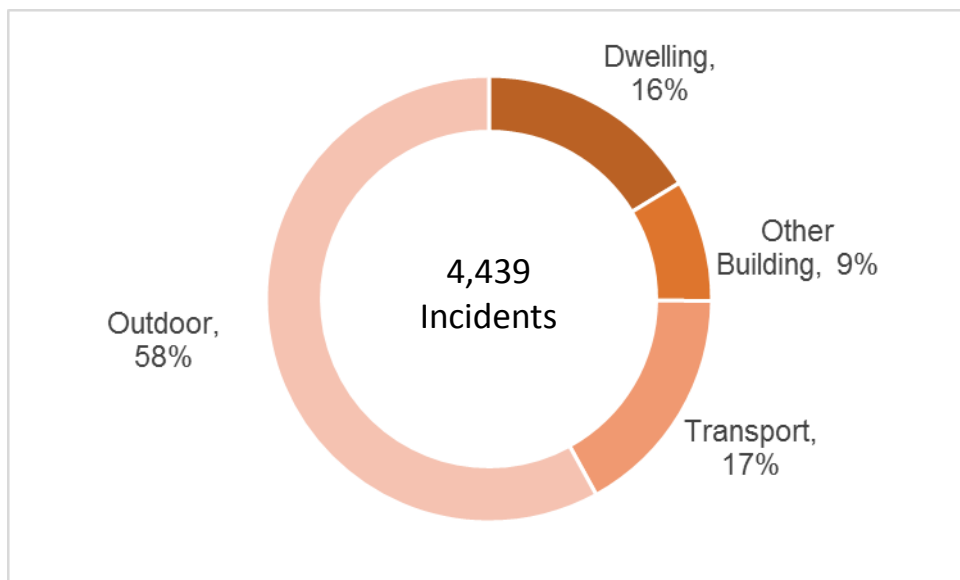
The table below details the fires attended by district.

	2016/17	2017/18	2018/19	2019/20	2020/21
Ashford	304	297	323	302	304
Canterbury	369	354	337	301	329
Dartford	370	314	338	320	304
Dover	239	268	265	214	262
Gravesham	278	315	322	336	360
Maidstone	381	367	401	287	369
Medway	729	638	629	585	535
Sevenoaks	230	282	303	261	307
Shepway	213	210	217	219	235
Swale	526	490	440	412	501
Thanet	400	419	378	387	420
Tonbridge & Malling	241	266	241	223	294
Tunbridge Wells	200	180	206	194	219
Kent	**4,485**	**4,403**	**4,400**	**4,141**	**4,439**

Looking at our incident recording system, we can see when our busiest and quietest times are along with the type of fire that provides the most of incidents, unsurprisingly our busiest months tend to be July and August with grassland fires making up nearly a quarter of all the fires attended last year.

Data would suggest that each day of the week has an even split of fires, and the busier times being from 15:00 – 21:00.

Non Fire Incidents

These are the incidents that are attended which fall outside of the categories above and require and attendance, these types of incidents can be things such as;

- Road traffic collisions
- Medical response
- Rescue from height or water
- Lift rescues
- Assisting other agencies
- Gaining entry into a property

This is obviously not an exhaustive list but provides an overview of the type of additional requirement on KFRS. Special service calls make up a significant percentage of the total incidents attended by KFRS.

The table below details the non fire incidents (excl. medical response) attended by district.

	2016/17	2017/18	2018/19	2019/20	2020/21
Ashford	286	327	398	384	318
Canterbury	318	453	552	522	493
Dartford	261	361	391	381	273
Dover	254	302	446	440	427
Gravesham	234	300	394	363	325
Maidstone	354	466	601	614	524
Medway	485	824	1,023	960	949
Sevenoaks	266	316	374	326	302
Shepway	262	326	397	400	360
Swale	305	457	604	591	535
Thanet	451	589	731	790	705
Tonbridge & Malling	241	287	373	377	352
Tunbridge Wells	235	366	383	369	384
Kent	**3,952**	**5,374**	**6,667**	**6,517**	**5,947**

The table below details the number of road traffic collisions attended by district.

	2016/17	2017/18	2018/19	2019/20	2020/21
Ashford	110	87	87	83	57
Canterbury	94	93	82	70	60
Dartford	103	92	78	73	48
Dover	57	50	76	66	46
Gravesham	50	43	58	41	25
Maidstone	105	99	105	107	60
Medway	102	110	125	97	72
Sevenoaks	93	97	92	66	76
Shepway	62	60	65	58	39
Swale	79	105	119	105	69
Thanet	78	64	64	53	39
Tonbridge & Malling	83	78	72	74	49
Tunbridge Wells	70	66	75	71	32
Kent	**1,090**	**1,044**	**1,098**	**964**	**672**

The vast majority (in excess of 80%) of road traffic collisions occur across the county on minor roads.

False Alarms

False alarms can be broken down into 3 sub sets, these are;

- Good intent – This will be predominantly where someone has mistakenly called us to a fire
- Malicious – This is where we have intentionally been called to a location where it is known that no incident is located
- AFA – Automated fire alarm which has had an accidental actuation, either through a system failure or accidental manual activation.

Over the last five years, the number of false alarm calls has remained consistent at around 5,500 calls. The exception to this was in 2020 where activity levels reduced but this will have been impacted by the pandemic. Further information on the number of incidents by district is available in the table below.

	2016/17	2017/18	2018/19	2019/20	2020/21
Ashford	380	348	366	353	310
Canterbury	421	457	415	451	410
Dartford	282	285	308	294	275
Dover	417	390	399	332	315
Gravesham	360	420	487	509	378
Maidstone	483	402	487	463	435
Medway	661	635	701	608	633
Sevenoaks	413	443	417	372	348
Shepway	394	362	365	354	428
Swale	439	500	461	494	477
Thanet	507	563	549	574	526
Tonbridge & Malling	330	340	335	309	270
Tunbridge Wells	368	306	328	330	301
Kent	**5,455**	**5,451**	**5,618**	**5,443**	**5,106**