Kent County Council Flood Response Plan

Issue 7 November 2019

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Next scheduled review: November 2021

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Issue & Review Register

Summary of changes	Issue number & date	Approved by
New Issue	Issue 1 February 2010	David Cloake Head of Emergency Planning
Minor updates	Issue 1.1 February 2013	Steven Terry Emergency Planning Manager
Entire document updated, incorporating lessons from winter 2013/14 severe weather events, and subsequent debriefs	Issue 2 June 2014	Tony Harwood Senior Resilience Officer
Minor updates	Issue 3 December 2014	Tony Harwood Senior Resilience Officer
Minor updates	Issue 4 June 2015	Tony Harwood Resilience and Emergencies Manager
Plan format change and updates	Issue 5 June 2016	Tony Harwood Resilience and Emergencies Manager
Update and synchronisation with latest version Pan Kent Flood Plan	Issue 6 July 2017	Tony Harwood Principal Resilience Officer
Major updates	Issue 7 November 2019	Louise Butfoy Project Officer

NOTE: The latest version of this plan can always be found at on Resilience Direct and Kent.gov.

Next review scheduled: November 2021

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Role Resilience and Emergency Planning Manager
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Distribution List (electronic):

Title	Role/Organisation
Duty Directors and Support	KCC
Environment Agency Incident Room (Kent Office)	EA
Flood Management Team	Environment Agency
KCC Cabinet Members	KCC
KCC Contact Point / Agilisys	KCC
KCC Cross Directorate Resilience Group	KCC
KCC Flood Risk Management Committee Members	KCC
KCC Flood Risk Manager	KCC
KCC Highway Management Unit	KCC
KCC Highways and Transportation Duty Officers	KCC
Kent Resilience Team	Multi-agency
Tactical Managers and Support	KCC

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1. Response Summary

1.1 Flood Alert Response

- Upon notification from Environment Agency, the Duty Emergency Planning Officer (DEPO) will consult with Environment Agency, Met Office and/or the KCC Highways, Transport and Waste Duty Manager on likely impacts and, in particular, the potential for the situation to escalate.

- A decision will be made as to whether a Severe Weather Advisory Group (SWAG) will be required.

- If no SWAG is required, a watching brief will be maintained and the KCC Highways, Transport and Waste Duty Manager will consider whether an Operational Impact Warning will be issued.

- If a SWAG is initiated, it will be chaired by the Environment Agency, and will utilise the standing agenda and circulation list available on Resilience Direct*. The situation will be monitored and further action by individual agencies may be initiated through the SWAG.

1.2 Flood Warning Response

- Upon notification from Environment Agency who will initiate a SWAG, the DEPO will contact and brief the KCC On-call Duty Director.

- The SWAG will be chaired by the Environment Agency and will utilise the standing agenda and circulation list available on Resilience Direct*. The situation will be monitored and further action by individual agencies may be initiated through the SWAG.

- Alternatively, if it is required, the DEPO, in consultation with the KCC On-call Duty Director, will determine whether it is necessary to activate the KCC Flood Response Emergency Plan and further initiation of multi-agency Command and Control.

- The corporate KCC response, in the event of the activation of the KCC Flood Response Emergency Plan, will be co-ordinated through the DEPO and/or the County Emergency Centre (CEC), with specialist services mobilised as required.

1.3 Severe Flood Warning Response

- Upon notification from Environment Agency who will initiate a SWAG, the DEPO will contact the KCC On-call Duty Director, the KCC On-call Duty Director is required to attend.

- The SWAG will be chaired by the Environment Agency and will utilise the standing agenda and circulation list available on Resilience Direct*.

- The DEPO, in consultation with the KCC On-call Duty Director, will activate the KCC Flood Response Emergency Plan and further initiation of multi-agency Command and Control.

- The corporate KCC response, in the event of the activation of the KCC Flood Response Emergency Plan, will be co-ordinated through the DEPO and/or the County Emergency Centre (CEC), with specialist services mobilised as required.

*To access SWAG resources on Resilience Direct go to; Kent Resilience Forum, Kent Responses, Severe Weather Advisory Group Resources.

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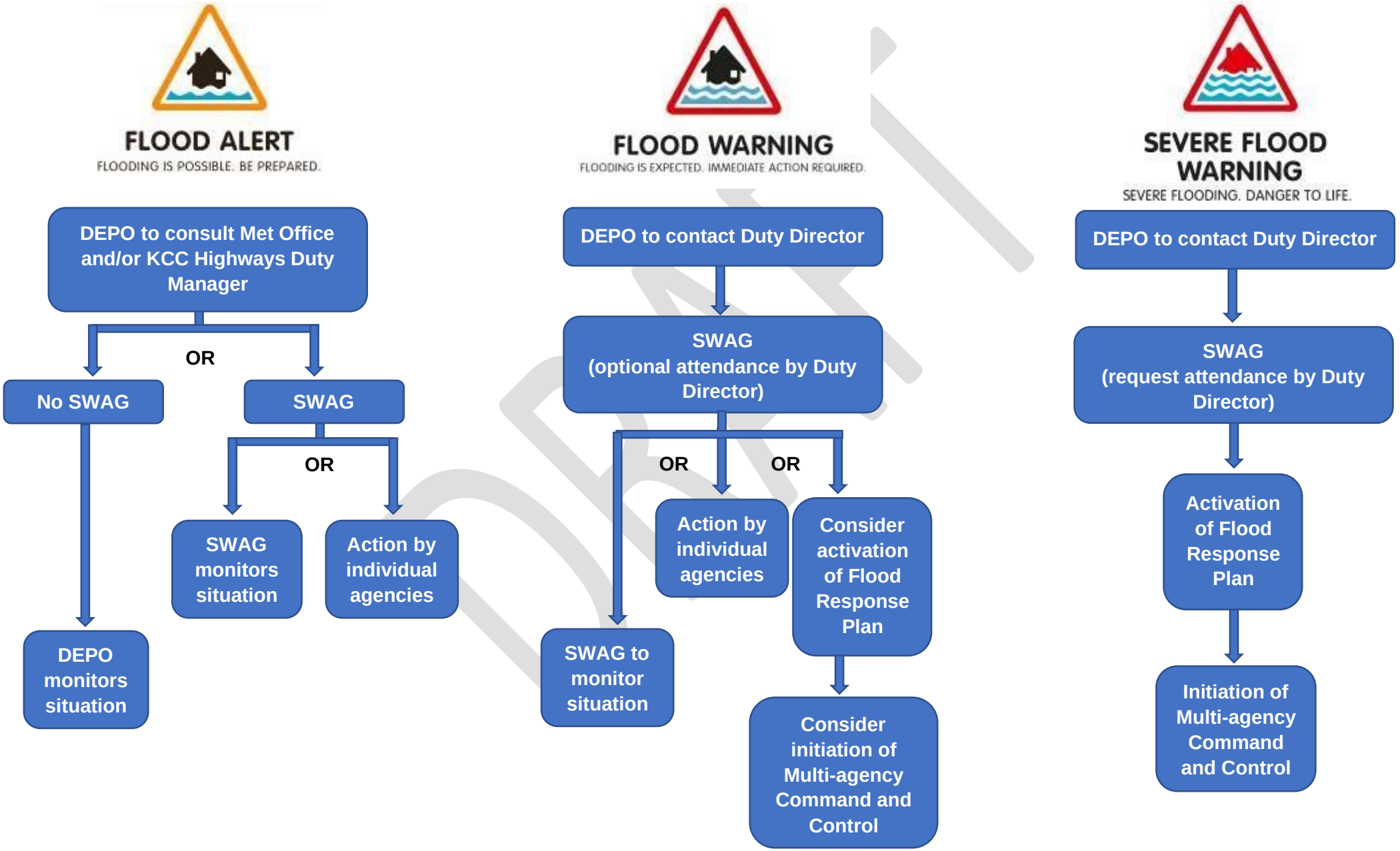
Figure 1.4 – Plan Activation Summary



2. Introduction

2.1 The purpose of this plan is to set out the principles that govern Kent County Council's response to a flooding event within their local authority administrative area.

2.2 This Plan is produced and maintained by Kent County Council Resilience and Emergency Planning Service to meet the requirements of the Civil Contingencies Act 2004.

3. Scope

3.1 The main objective of the Plan is to ensure an informed and co-ordinated response to a flood event, which will protect life and well-being; with the mitigation of property and environmental damage as a strong supporting objective.

3.2 The focus of this plan is primarily on coastal, fluvial (river), surface water and ground water flooding.

3.3 This plan incorporates guidance arising from the Pitt Review, acknowledging and recognising the impacts of climate change and other associated extreme climatic events, as identified in the UK Climate Change Risk Assessment 2017.

3.4 The Plan provides information on actions, roles and responsibilities in response to a flood in the Kent County Council administrative area. A range of Kent-wide plans/frameworks have been published by the Kent Resilience Forum which compliment this plan and may be found in electronic format on Resilience Direct. Specifically, these include the following:

- Pan Kent Strategic Emergency Framework;
- Pan Kent Multi-agency Flood Plan;
- Kent County Council Recovery Framework;
- Kent County Council Flood Response Plan;
- Local Multi-agency Flood Plans;
- Kent Resilience Forum Welfare Centre Guidelines;
- Kent Resilience Forum Psychological Care Guidelines;
- Kent Resilience Forum Resilient Communities Plan; and
- KRF Identifying Vulnerable People in an Emergency Plan.

3.5 The procedures in this response plan will be activated when any of the following criteria are met:

- Met Office Severe Weather Warning received for heavy rain or rapid snow melt;

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- Flood Alert/Flood Warning /Severe Flood Warning issued;
- Intelligence received from KCC colleagues, partners or public indicating flooding may occur;
- Properties are threatened by flooding;
- Properties are affected by flooding; and
- Intelligence indicates that human or animal welfare is threatened by flooding or risk of flooding.

See section seven for more detail of the plan activation.

4. Audience

4.1 This document is intended for use by all Kent County Council Directorates, duty officers and command and control personnel to inform and support their planning for and response to major flooding events within the County.

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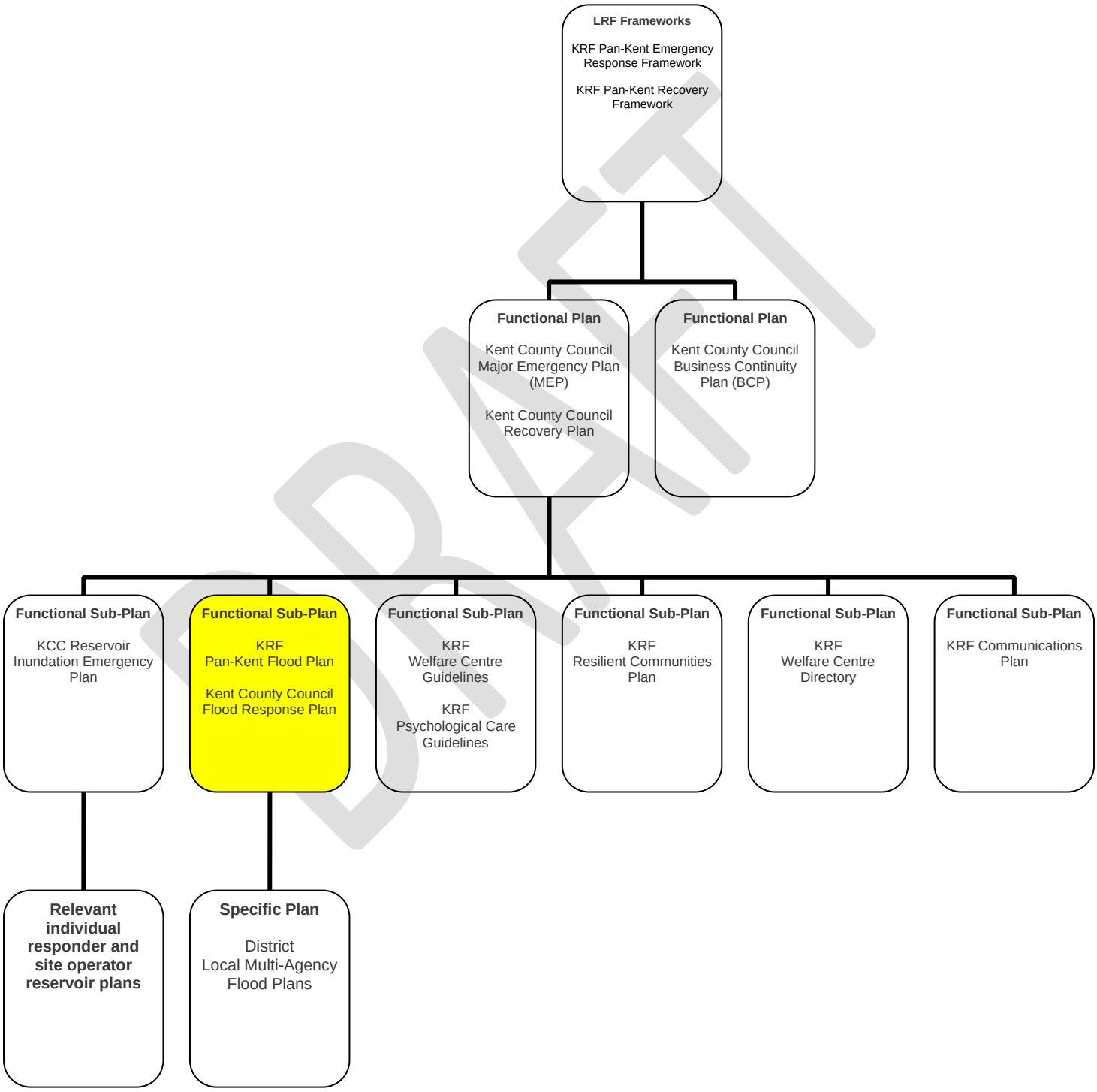
5. Related and Interdependent Plans

The relationships between response plans are indicated in the diagram below.

Figure 5.1 - Related and Interdependent Plans



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6. The Risk of Flooding

6.1 Risk Assessment

Risk is a product of the likelihood and impact of a given hazard or threat. The impact will depend upon the exposure of people and property to the hazard and their respective vulnerability to harm. In Kent, the risks from flooding vary according to the source of the flooding and the characteristics of the people and property exposed to flooding.

Assessed risk details, including critical infrastructure, are contained in the National and Local Risk Registers at LRF (Local Resilience Forum) and at a local responder level.

Residual risk is that which remains after the mitigation measures (in this case tidal and fluvial defences) have been taken; recognising that flood risk cannot be eliminated entirely.

6.1.1 Community Risk Register

An assessment of the risk of flooding in Kent can be found in the Community Risk Register 2015 (at Local Resilience Forum level) which is accessible via Resilience Direct.

The risk of flooding in Kent is divided into 7 main categories under the Hazard Category of Severe Weather.

H19 - Flooding: Major coastal and tidal flooding affecting more than two UK regions (This is the national picture to provide context for local risk assessment).

HL16 - Local coastal / tidal flooding (affecting more than one Region).

HL17 - Local coastal / tidal flooding (in one Region).

H21 - Flooding: Major fluvial flooding affecting parts of more than two UK regions. (This is the national picture to provide context for local risk assessment)

HL18 - Local / Urban flooding (fluvial or surface run-off).

HL19 - Local fluvial flooding.

HL20 - Localised, extremely hazardous flash flooding.

An overall Risk Rating is assessed based on the likelihood and impact. The risk assessment within the Community Risk Register gives a ‘Very High’ Risk Rating outcome for all the hazards mentioned above.

More locally, coastal flood risk is seen by the Kent Resilience Forum Risk Assessment Group and Severe Weather Group as the highest of risks due to the length of coastline in Kent, the nature of that coastline and

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the size and demographic profile of the communities living in coastal areas, following the advice from the Environment Agency (see Appendix D).

6.2 Flood Risk

In total, around 88,000 properties in Kent are estimated to be at risk of flooding, and there is a significant development pressure across the county which will cause this figure to increase. In addition, many more people work in, visit or travel through potentially vulnerable areas and could be unaware of the risk.

As a result of man-made climate change, both the chance and consequence of flooding are increasing. According to the UK Climate Change Risk Assessment 2017, sea levels will rise, more frequent and higher storm surges, increased winter rainfall and more intense summer rainfalls are predicted to add to the existing risk. Given these changes, it may not be possible to improve fixed defences sufficiently to maintain or raise protection standards. As such, more work will be needed across the county to decrease the impact of flooding by building resilience in infrastructure, the environment, society and the local economy.

Floods are predominantly natural events that result from excessive rainfall which may exceed the capacity of drainage (natural or man-made), which can cause rivers to burst their banks. Tidal storm surges on the coast or in estuaries may cause the level of the sea to rise, all potentially resulting in death and damage.

Some areas are protected from flooding by flood defence measures, which may include flood storage reservoirs, flood walls and bypass channels. These do not eliminate the risk of flooding occurring, they only reduce it. They may though, lead to a false sense of security or complacency in those living or working in the defended areas, who would be unprepared for a flood should one occur. The consequences of flooding are best controlled by avoiding inappropriate development in flood risk areas.

This Plan is an element of the response to potential major and significant flooding in Kent.

In this document, reference to risk implies a function of both the chance or likelihood of a hazard becoming a reality and the consequences or impact of that occurrence. The consequence will depend upon the exposure of people and property to the hazard and their respective vulnerability to harm.

6.3 Climate Change Impacts & Uncertainty

Projected climate change impacts in the South East include, but are not limited to, shifts in seasonal and rainfall patterns; increases in the frequency and magnitude of extreme weather events such as an increasing frequency and intensity of rainfall and storm events, resulting in escalating coastal storm surges and an elevated risk of tidal/coastal flooding events; glacier and ice sheet melting; thawing of permafrost; sea-level rise (which, in relative terms, is predicted to be greater in the South East compared to in other parts of England); acidification of the oceans and average temperature increase, causing drier summers and more frequent drought conditions as well as wetter and milder winters.

However, the ‘scale and magnitude of impact will depend on the pattern of future greenhouse gas emissions’, and it must also be noted that the UK has always been subject to long-term weather variability, which informs

the Intergovernmental Panel on Climate Change (IPCC) potential future emission scenarios. (McCoy and Watts, 2014).

The consequences of the direct impacts of heat and extreme weather events may include: a deterioration of access to essentials such as clean water, nutritious food and shelter; forced migration, conflict and societal disruption; and loss of biodiversity' as well as, increasing physical and mental stress from flooding; cold and heat related mortality and the prevalence of vector-borne diseases, whilst also negatively impacting people with existing respiratory diseases (Haines, 1991; Frumkin et al, 2008; McCoy and Watts, 2014).

In Kent, there are currently approximately 64,000 properties at risk of coastal and fluvial flooding, and 24,000 at risk of flooding from surface water runoff (2019). As a result of climate change, the frequency, distribution and severity of flooding may change, and areas that have not been affected by flooding previously may be at risk from flooding in the future, for example, the risk of severe flooding of coastal areas is likely to increase as a result of rising sea levels and increased storm surges (CCC, 2016; Kent County Council, 2017).

6.4 Flooding Sources

Kent is potentially vulnerable from several flooding sources (as described below). These may occur separately or in combination.

6.4.1 Tidal Flood Risk

6.4.1.1 Tidal Flood Risk General Information

Tidal flooding occurs as a result of a severe storm surge, which raises the level of the sea and can inundate coastal areas directly or by overtopping the flood defences. Flood defences may also be breached during a storm surge, which can occur naturally, or as an accident, failure to close a gate or through a malicious act.

There are defended and undefended tidal floodplains on the Kent coastline. The tidal defences for the Kent coastline, where several of which are private, provide varied levels of protection against a storm surge. Furthermore, some areas do not benefit from any formal defences, and are therefore at risk of flooding from small storm surges, while other formal defences deliver protection of only 1 in 5 years. Parts of the Thames Estuary Barrier are designed to withstand a 1 in 1,000-year severe weather event.

The chance of tidal defences overtopping from a storm surge should be evident several hours beforehand. There is continuous monitoring of tide levels, and the Environment Agency aims to issue a warning at least 2 hours in advance. If tidal flood defences are overtopped, floodwater may be trapped behind the defences, even after the storm has passed. This can lead to flood waters several metres deep in places and, close to the site of overtopping, floodwater velocities could be enough to sweep people off their feet. Recovery may require pumping and the water could be present in an area for weeks. The water will be brackish as well as polluted which will cause additional damage.

By its nature, a breach in defences is unlikely to be predictable, although it is possible that signs of weakness may be evident prior to failure. No advance warning will be provided. The risk of a breach occurring would increase with the severity of a storm and responders should be alert to the possibility of a breach when a flood warning or severe flood warning has been issued. A breach during a storm surge may result in a torrent

of floodwater affecting an area behind the defence which will present a threat to life and possibly cause damage to buildings. An added hazard would result from large objects, such as cars, and other debris carried by the floodwater. Depending on the nature of a breach, some floodwater may drain away as the tide recedes, but it is likely that many areas will remain inundated.

6.4.1.2 Tidal Flood Risk in Kent

The Kent coastline is some 326 miles long (524.6 km) and poses a potential tidal flooding risk to 369 square miles of land (593.8 km) within the county (excluding Medway's administrative area). A map showing areas within Kent potentially vulnerable to coastal (or tidal) flooding can be found at Figure 6.5. With a predicted cumulative sea level rise of 1.2m in the South East by 2115 (source: Environment Agency) and an increasing likelihood and severity of stormy conditions the threat from a North Sea storm surge is a key and growing risk to Kent.

6.4.2 Fluvial Flood Risk

6.4.2.1 Fluvial Flood Risk General Information

Fluvial flooding will occur when freshwater flows within a watercourse exceeding the capacity of the channel, or overtop flood defences, or escape through a breach in flood defences. High freshwater flows may result from intense or prolonged rainfall, snowmelt, reservoir dam failure or blockage of a channel.

Larger fluvial flooding events in Kent and Medway are most likely to occur from the autumn through to the spring and there will generally be a warning issued in advance by the Environment Agency when there is the likelihood of flooding.

The standard of the protection held by defences varies from river to river and, in many cases, along the watercourse itself. Fluvial flood defences take many different forms, in contrast to tidal defences. Many significant fluvial flood defences are provided by flood storage areas, which are designated as reservoirs. A breach of these defences is addressed by the KCC Reservoir Inundation Emergency Plan. Other fluvial flood defences may be breached, but due to the lower water levels there is a lower risk than with tidal flooding. As with a tidal breach, no advance warning of a breach in fluvial defences can be expected.

6.4.2.2 Fluvial Flood Risk in Kent

The landscape of Kent is defined by its river systems. The largest, the catchment of the **River Medway**, covers 930 square miles (2,409 km^2) comprising some 25% of the area of the County. The River Medway flows for 70 miles (113 km) from just inside the West Sussex border to the point where it enters the Thames Estuary in north Kent. The River Medway is tidal downstream of Allington Lock, Maidstone.

Tributaries of the River Medway include:

- **The River Eden** - flows through the Weald of Kent from the border with Surrey, rising from the source in Surrey parish Titsey, and flowing eastward through the Wealden clay to join the River Medway near Penshurst.

- **The River Bourne** - begins its course west of Oldbury Hill on the Greensand Ridge in the parish of Ightham and enters the River Medway upstream of East Peckham.

- **The River Teise** - begins in Dunorlan Park in Tunbridge Wells and flows eastwards through Lamberhurst, passing Bayham Abbey. Here the small River Bewl, on which is the reservoir Bewl Water, joins the Teise. The Teise bifurcates 1.2 miles (2km) south west of Marden, the minor stream flows directly to Twyford Bridge in Yalding, while the major stream joins the River Beult at Hunton, 0.9 miles (1.5km) downstream from Yalding.

- **The River Beult** - has its several sources on the Weald west of Ashford, and then flows through Headcorn, where it is joined by the major stream of the Teise. The river enters the Medway at Yalding.

- **The Shaw and Loose Streams** - The Shaw Stream rises near Langley, south east of Maidstone, and runs towards Boughton Monchelsea where it goes underground and re-emerges at Loose as the Loose Stream before joining the River Medway at Tovil. The Shaw Stream is heavily modified, with a dam structure at Parkwood Farm (TQ 78205 51438) as well as numerous culverts at points where it flows under the local road network. Loose Stream is now a largely urban watercourse with significant modification along most of its length.

- **The River Sherway** - flows from Egerton to the River Beult at Headcorn.

- **The River Len** - has its source at a small watershed south of Lenham. This heavily modified small river flows in a westerly direction and joins the Medway at the Archbishop's Palace Gardens in Maidstone town centre. The Len has been dammed at various points along its course, including Chegworth Mill, Leeds Castle, Mote Park, Turkey Mill and Palace Avenue Mill Pond. Several tributaries of the River Len rise at the springlines at the foot of the Kent Downs AONB to the north and Greensand Ridge to the south. Some of these tributaries, such as the Lilk Stream at Bearsted and Fair Bourne at Fairbourne Heath, are seasonally swollen by increased surface and groundwater flows.

The second largest catchment in Kent is that of the **River Stour**. The River Stour is the generic name for a group of rivers. The major towns at Ashford and Canterbury have grown up on the banks of the River Stour. The river is tidal downstream of Fordwich.

Its catchment area covers the eastern part of Kent and tributaries include:

- **River Upper Great Stour** - flowing from near Lenham to Ashford.

- **River East Stour** - rising near Hythe to Ashford.

- **River Great Stour** – flowing from Ashford to east of Canterbury.

- **River Little Stour** – from Postling to join the Great Stour at Plucks Gutter, north west of Canterbury.

- **River Wantsum** - part of the old Wantsum Channel separating the Isle of Thanet from mainland Kent.

- **Whitewater Dyke** - running from Shadoxhurst to Ashford

- **Ruckinge Dyke** - from north of Hamstreet to Ashford

- **Aylesford Stream** - its source is north of Sevington to Willesborough

Other Kent rivers include the **River Darent** which rises at Westerham and Limpsfield Chart and joins the **River Cray** at Dartford Marshes before flowing into the tidal Thames at **Dartford Creek**, the **River Fleet** which rises at Springhead Nursery and joins the River Thames at Northfleet, the **River Dour** which flows from Temple Ewell to the sea at Dover and the **River Rother** which forms part of the geographical boundary between the administrative counties of Kent and East Sussex.

In addition, many smaller watercourses continue within the county which can contribute to localised flooding. Significantly, these include the **Brockhill, Mill Lease, Saltwood and Seabrook Streams** all rising at the foot of the scarp of the Kent Downs and flowing into the **Royal Military Canal**. The **Enbrook Stream** and (now heavily modified) **Pent Stream A, B, C and D** have the same origin but flow into the English Channel and Folkestone Harbour respectively. The heavily modified courses of the **Gorrell Stream** at Whitstable, **The Brook** and **Swalecliffe Brook** at Swalecliffe, **West Brook** at Hampton and **Plenty Brook** at Herne Bay have all contributed to historic flooding events as they flow (or are pumped) to the sea. A map showing areas within Kent vulnerable to fluvial flooding can be found at figure 6.5 at the end of Section 6.

6.4.3 Surface Water/Overland Flow and Sewer Flood Risk

Surface water flooding results from rainfall that exceeds the capacity of the land or drainage infrastructure to receive it.

Sewer flooding occurs when drains and sewers are overwhelmed by rainfall and discharge away from where the rainwater entered them. Where the sewers are combined (that is they convey foul and surface water), contaminated water may be released.

Surface water and sewer flooding generally occur as a result of intense rainfall which is relatively unpredictable and so may result in flooding without any prior warning. Flooding may also result from high river and tide levels preventing the discharge of sewers and drains.

Water depths from surface water and sewer flooding are rarely vast, other than in local depressions or unless associated with river or tidal flooding. Local circumstances may give rise to significant water velocities. Surface water flooding, when unaccompanied by fluvial or tidal flooding, is likely to trigger a major incident only when widespread occurrence causes significant traffic disruption or strains the response capability. An Environment Agency map showing areas within Kent vulnerable to surface-water flooding can be found at figure 6.6 at the end of Section 6.

6.4.4 Groundwater Flood Risk

Groundwater flooding occurs when the water table exceeds the level of the ground and groundwater emerges. Due to the nature of groundwater, flooding may overflow large areas and cause a prolonged flood event; leaving areas waterlogged and/or flooded for up to months at a time. In these areas the groundwater levels are monitored by Environment Agency boreholes, and due to the slow onset of groundwater flooding it can be prepared for, but not stopped.

Groundwater in Kent is most notably in the chalk catchments in the east of the county (**Little Stour, Nailbourne and Petham Bourne**) and west of the county (**Darent catchment. Including former chalk quarries in northwest Kent**). Historic records of groundwater flooding also exist for the greensand catchments within the County. An Environment Agency groundwater emergence map can be found at figure 6.7 at the end of Section 6 and a Kent and Medway Surface Water Flood Disadvantage Map at Figure 9.4.

The following are not covered by this plan:

- Foul Sewage - the impact is likely to be local: resulting from blockage or surcharging of the sewerage network leading to overflow through manholes etc., responsibility for response lies with the relevant utility company. However, flood water contaminated by foul water sewage may require additional actions by responders. This type of flooding often occurs in conjunction with, or as a result of, other forms of flooding and the source may be difficult to determine. This means that it is dealt with as part of the response to other forms of flooding listed above.

- Water Main Burst - the impact is likely to be local; responsibility lies with the relevant utility company.

- Contained Water - this includes statutory and other reservoirs, private lakes and canals. In respect of reservoirs covered by The Reservoirs Act 1975, this planning is addressed through the KCC Reservoir Inundation Emergency Plan.

The Environment Agency will co-ordinate with the affected water utility in the event of a wastewater or sewage pollution incidents affecting the aquatic or marine environment.

In the circumstances of mechanical or electrical failures at wastewater pumping stations (WwPSs) and/or wastewater treatment works (WwTWs), where discharges of sewage may not be screened and will not have the benefit of storm rainfall to dilute flows. The water company, the Environment Agency and the Local Authorities must then co-ordinate and communicate to ensure the correct public information is made available in a timely fashion and is maintained through the duration of the incident.

Early notification from the Water Company is key. The Environment Agency have a 24/7 Hotline for the reporting of incident (**tel. 0800 80 70 60**). These calls will be referred to the Environment Management Duty Officer for assessment. The local authorities, who will be alerted by the Environment Agency and/or relevant water utility, are encouraged to log and maintain their own notification procedures and these should be shared with the water company and the Environment Agency so that they and the Environment Agency are informed simultaneously.

The water company will have the responsibility to maintain technical and asset condition information to partners, how this information will be shared with partners will need to be established early in the event. In the event of more significant incidents, it is recommended that a multi-agency Tactical Co-ordination Centre is established. The Environment Agency will provide water quality information to partners as part of the incident response process. The Local Authorities will use the information from the water company and the Environment Agency to produce suitable public information displays for beaches and bathing waters. In the event of large or prolonged spills, or those that could impact upon a protected site or shellfish beds the information should also be shared with other key partners such as Natural England, Cefas, IFCAs, etc.

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Figure 6.5 - Map of Kent showing coastal and fluvial (river) flood zones 2 and 3 (source: Environment Agency)

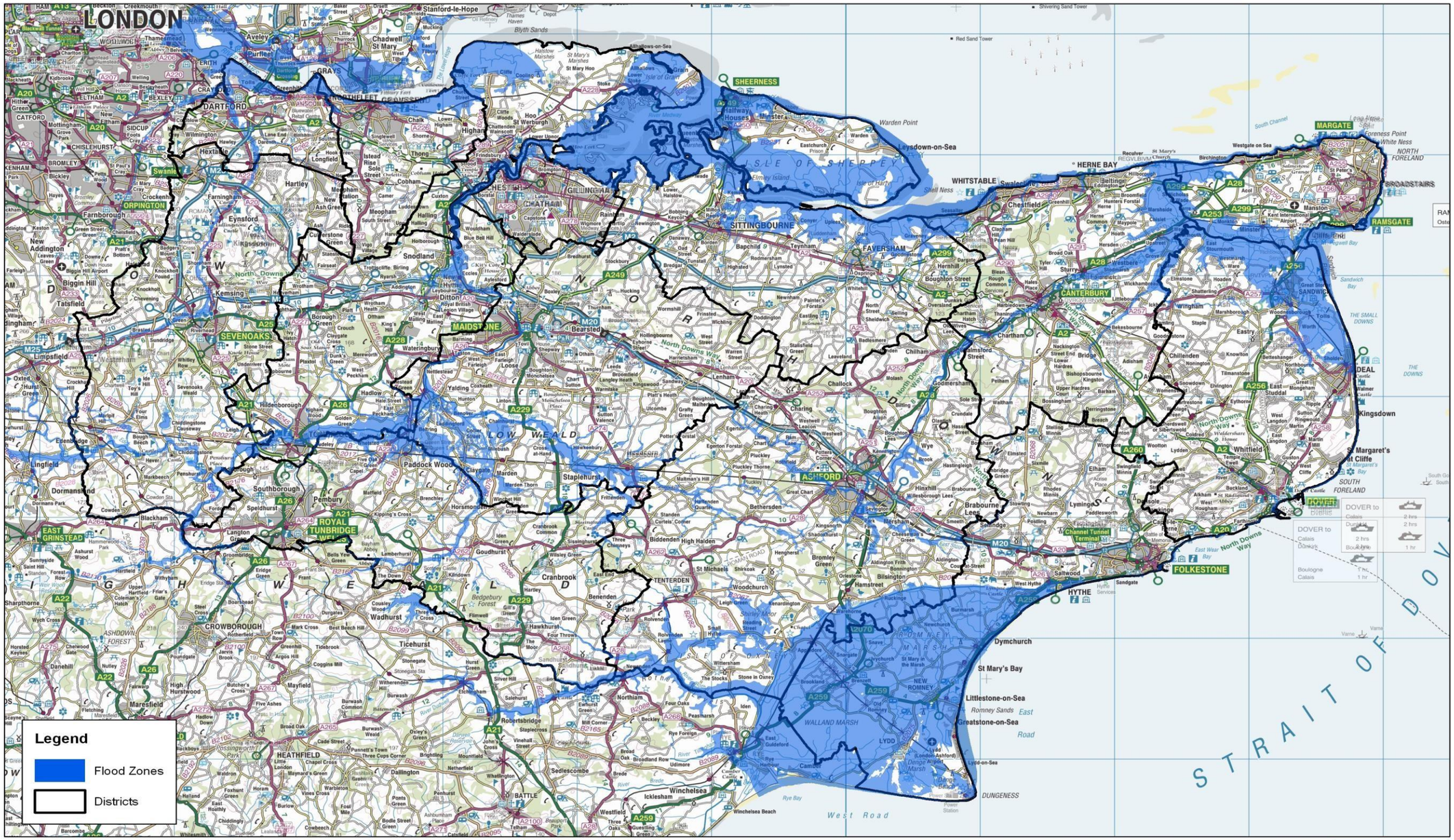

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Figure 6.6 - Map of Kent showing surface water flood risk (source: Environment Agency)

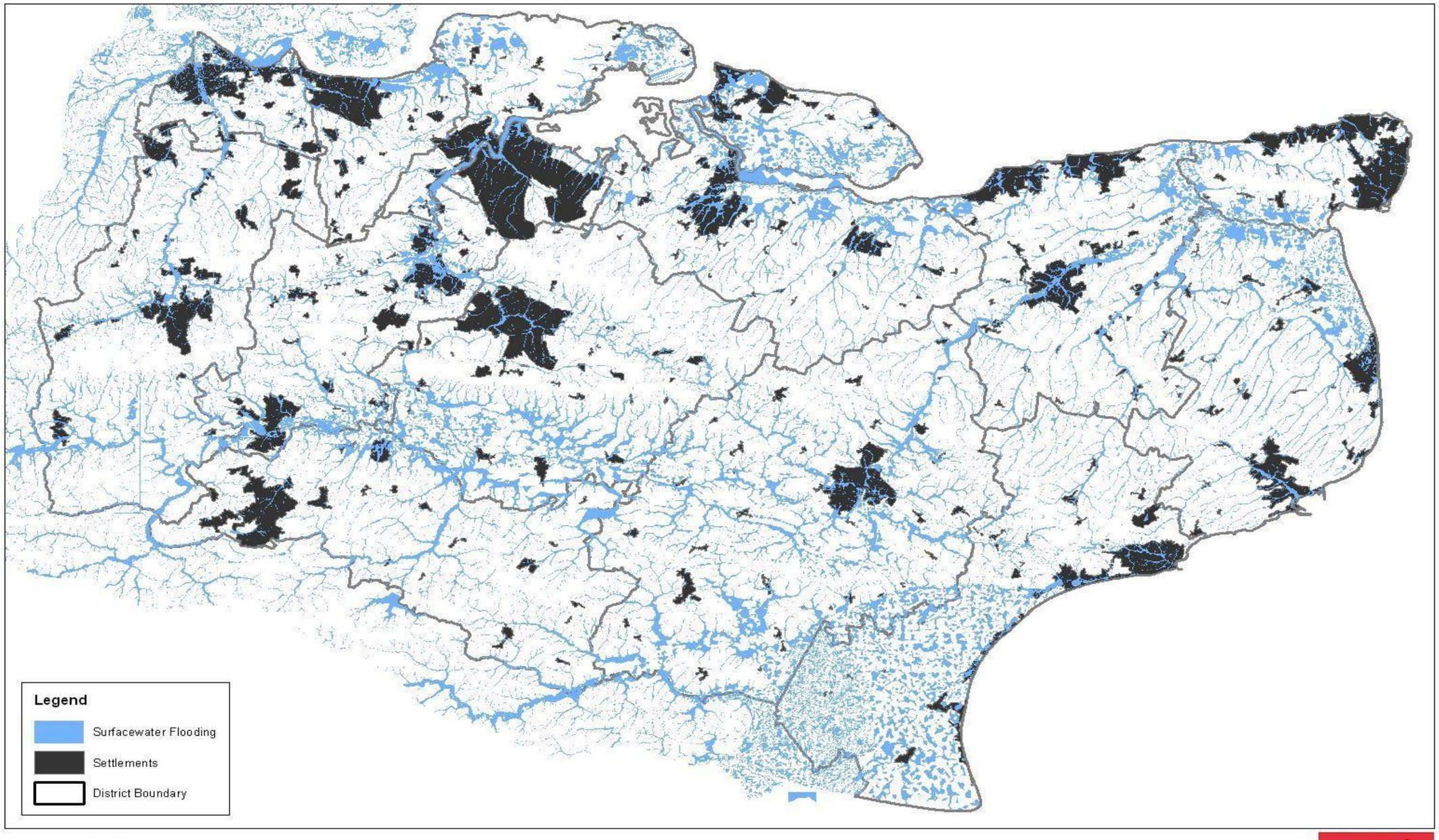

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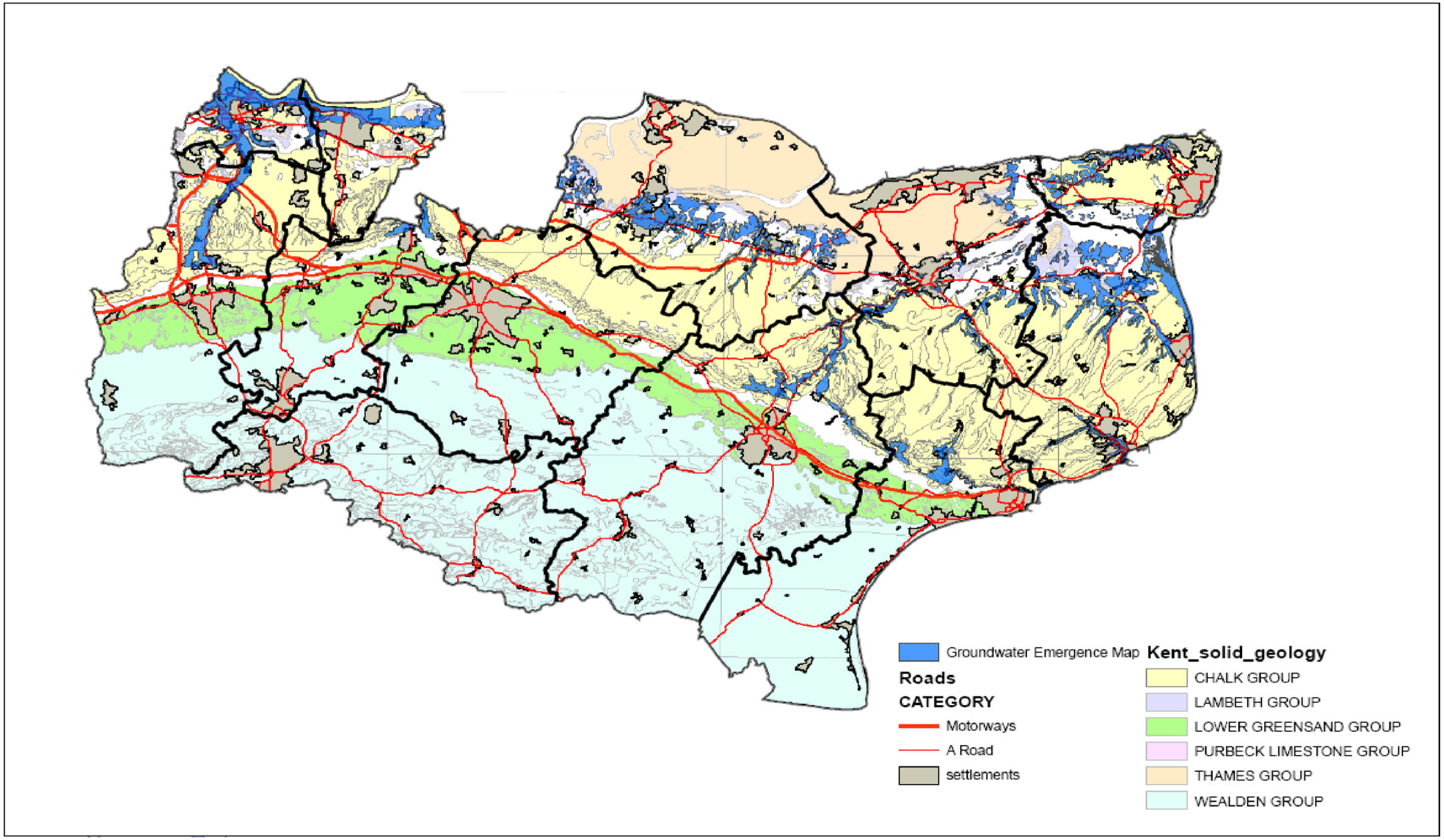
Figure 6.7 - Map of Kent showing ground water flood risk (source: Environment Agency)



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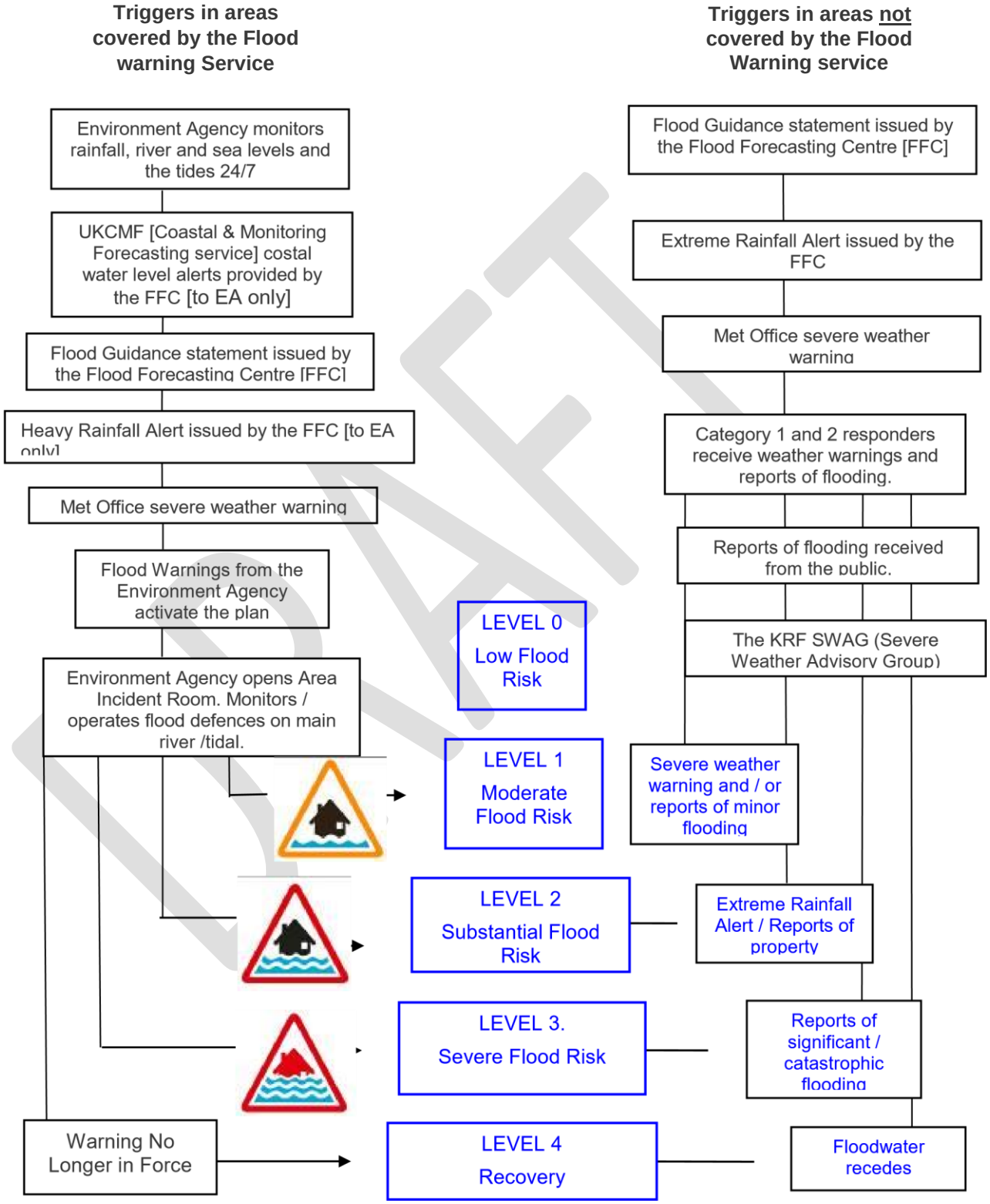
7. Plan Activation

Figure 7.1 - Plan Activation Flow Diagram



***** please refer to Figure 6.2 on next page "Common Triggers and Thresholds" and to the specific actions contained in Part 2 of this plan.

Figure 7.2 - Common Triggers and Thresholds

Warning Level	Action
SWAG called	**EA** will lead Severe Weather Advisory Group (SWAG) for flood events and consider opening their area incident room and monitor the situation closely. **EA** teams will be clearing grills and monitoring or operating their defence assets as necessary.
Flood Alert  Severe weather warning and / or reports of minor flooding	Emergency response unlikely **EA** will keep partners informed either via SWAG, Strategic or Tactical command, and provide info where requested. **EA** will lead Severe Weather Advisory Group (SWAG) if it is still required and consider opening their area incident room. **EA** teams will be clearing grills and monitoring or operating their defence assets as necessary. **EA** will possibly be issuing alerts and monitoring the situation closely.
Flood Warning  Extreme Rainfall Alert / Reports of property flooding	Emergency response likely but limited **EA** will keep partners informed either via SWAG, Strategic or Tactical command, and provide info where requested. **EA** will lead Severe Weather Advisory Group (SWAG) if it is still required. Incident Room is likely to be operational. **EA** teams will be clearing grills and monitoring or operating their defence assets as necessary. **EA** will possibly be issuing alerts or warnings dependant on the situation and monitoring the situation closely. Open sandbag stores in Paddock Wood, Five Oak Green and Lamberhurst. Assess when monthly maintenance of culverts was last carried out and possibly carry out additional work.

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Severe Flood Warning	
 Reports of significant / catastrophic flooding	Emergency response probable **EA** will keep partners informed either via Strategic or Tactical command and provide info where requested. **EA** will lead Severe Weather Advisory Group (SWAG) if it is still required. Incident Room is likely to be operational. **EA** teams will be clearing grills and monitoring or operating their defence assets as necessary. **EA** will possibly be issuing severe flood warnings and monitoring the situation closely. Contractor on standby for possible assistance with delivering sandbags to householders.
Warning No Longer in Force Floodwater recedes	Consider recovery **EA** will keep partners informed either via Strategic or Tactical command and provide info where requested. **EA** Incident Room is likely to be stood down. **EA** teams will be clearing grills and monitoring or operating their defence assets as necessary and begin necessary repair works. **EA** will continue to monitor the situation closely.

NOTE

See also 'Area Specific Thresholds and Triggers' for each area in Part 2.

7.3 Flood Warnings

7.3.1 Environment Agency Flood Warnings

1. Flood Alert

Flood Alerts are issued earlier than a Flood Warning, to give customers advance notice of the possibility of flooding.

Rivers will be running bank full and further rainfall is expected. Flooding of property is possible, particularly in low lying and riverside areas. There may be minor flooding of low-lying land, roads and gardens. The alert is issued in order that the public at risk, the emergency services, local authorities and other bodies are aware of increasing chance of flooding and take appropriate preparatory action.

People should: STAY ALERT, STAY VIGILANT, MAKE EARLY LOW-LEVEL PREPARATIONS FOR FLOODING.

2. Flood Warning

Flood Warnings are used to warn customers that flooding of property is expected, and they should take immediate action to protect themselves and/or their property.

When flooding of homes and businesses is expected, those issued will be property owners, the public at risk, the emergency services, local authorities and other bodies who should act to protect life and property.

People should: TAKE ACTION TO PROTECT THEMSELVES AND THEIR PROPERTY

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3. Severe Flood Warning

Severe Flood Warnings are used to warn customers of significant risk to life or significant disruption to the community caused by widespread or prolonged flooding. Customers may have already received a Flood Warning, or they may receive a Severe Flood Warning as their first warning of expected flooding depending on the situation.

Significant risk to life may be caused by:

- deep and fast flowing water (e.g. caused by significant overtopping of defences or sudden onset flooding from dam/defence failure);
- rapid onset of flooding;
- presence of debris in the water that could cause death or injury;
- potential/observed collapse of buildings/structures; and
- the vulnerability of the population or their surroundings (e.g. deep/fast flowing water through a caravan park).

Significant disruption to communities may mean:

- it is likely to affect whole community;
- community isolated by floodwaters with no obvious means of escape;
- critical resources/infrastructure for communities disabled (e.g. no access to food, water, electricity);
- emergency services and authorities unable to cope with large volumes of evacuees and rest centres at full capacity; and
- mutual aid/military support necessary or called upon.

Property owners, the public at risk, the emergency services and the civil authority should act to protect life and property. This is likely to involve an enhanced response and the commitment of significant resource.

People should: TAKE ACTION TO PROTECT THEMSELVES AND FOLLOW THE ADVICE OF THE EMERGENCY SERVICES.

4. No Longer in Force

To signal stand down and to close communications with people.

5. Extended Floodline Service (EFS)

The aim of EFS is to improve the experience for callers whose query is outside Floodline's usual remit, and who would otherwise have to be redirect - specifically callers who EA may advise to contact their Local Authority (see Appendix F). The EFS is able to provide the answers to common and frequently asked

questions regarding those things that may fall under the Local Authority remit while educating callers in who to contact in the future, such as on:

- Sandbags or property level protection;
- Drains, culverts, sewers or water mains**;
- Surface water flooding, flooded properties or flooded roads;
- Evacuation, rest centres, helping vulnerable people or longer-term assistance;
- Recovery following flooding; and
- Contacting the LA or community assistance.

**Signposting to third party organisations can be added to EFS, where it is locally specific, and provides only publicly available details – e.g. the name and number of the local water company.

7.3.2 Flood Warnings Received by Kent County Council

KCC Resilience and Emergencies Unit, KCC Adult Social Care and Health (via their emergency planning lead) and Kent Highways, Transportation and Waste are registered to receive these warnings:

7.3.3 Flood Warning Lead Time

Expected flood warning lead in times:

Fluvial	**2 hours** where possible, but for many areas there may be **little or no** warning.
Surface water flooding	**No** warning likely
Tidal	**9 hours** approximate warning of flooding (this does not consider breaches in existing defences where there is likely to be **no** warning at all). Note that on the North Kent coast normal flood defence closures of the Thames Barrier are accompanied by Flood Alerts issued to riparian authorities downstream of the Barrier at Woolwich.

The Environment Agency will endeavour to provide the respective lead times above, but this is not always possible, and this fact should not be relied upon.

7.3.4 Flood Warning Dissemination Methods

- Flood Warning Service, by registering to this free service, Flood Warnings can be received directly by either phone, text or email.
- Floodline - 0345 988 1188 (24 hours).
- Flood Warning service website - https://flood-warning-information.service.gov.uk/warnings

- Floodline Warnings Direct - can be signed up for and automatically sends advance warning of area specific flooding by telephone, mobile, fax, pager, SMS text message or email. The system was designed to replace the Automated Voice Messaging System (AVMS) and gives information on the type of warning, the location, the situation and advice.
- The Environment Agency website – www.environment-agency.gov.uk/flood
- The Media - broadcasting on radio stations across Kent and national and local television news stations.
- Social media.
- Loudhailer - Kent Police/Environment Agency messages.

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8. Communication

8.1 Kent County Council Alerting Responsibilities

The Pan Kent Strategic Emergency Framework document setting out the agreed major incident alerting principles operated within Kent are set out at figure 8.5.

Kent County Council operate a 24 hour, 7 days a week Duty Emergency Planning Officer (DEPO) system and, on receiving intelligence of actual or imminent flooding, will cascade alerting calls to relevant KCC personnel (potentially including the On Call Duty Director, Tactical Manager and Emergency Response Team) as well as external partner agencies (including District Councils and the military). Dependent upon the level of threat or scale of flooding the KCC County Emergency Centre may be mobilised to facilitate effective alerting, communication and command and control over operational response.

8.2 Kent County Council Elected Member Alerting and Engagement

Floods can be high profile and generate significant public concern and interest. Community leadership by the Leader, Cabinet and wider Elected Membership can therefore be particularly important during the response and recovery phases of flooding events.

It is a role of the On-call Duty Director to alert and brief Leader and Cabinet and the wider Elected Membership in the event of a major incident such as significant flooding.

The following narrative sets out County Councillor roles and is based upon guidance contained within the County Council's Resilience Guidance for Elected Members.

8.2.1 Executive Members

The Leader of the Council carries a political responsibility for emergencies affecting the County, and as such, will be the principal political spokesperson for the County Council in the event of a major flood.

The Cabinet Member for Community and Regulatory Services has a particular understanding and knowledge of the resilience agenda and is responsible for ensuring that suitable emergency and business continuity plans and arrangements are in place for the authority – both before, during and after an incident.

The Cabinet Member for Adult Social Care and Public Health has a key and potentially sensitive role in relation to community leadership and advocacy for post incident welfare following a flooding event, including support for vulnerable people, psycho-social interventions and public health messaging. Ensuring effective service business continuity contingencies and both personal and institutional resilience may also be key roles.

The Cabinet Member for Integrated Children's Services and Cabinet Member for Education and Skills have key and potentially sensitive roles in relation to community leadership and advocacy for post incident welfare following a flooding event, including support for vulnerable young people and psycho-social interventions. Ensuring effective service business continuity contingencies and both personal and institutional resilience may also be key roles.

The Cabinet Member for Corporate and Democratic Services has a leadership role in relation to ensuring appropriate risk management, disaster recovery and legal compliance systems are in place. Championing of effective post incident governance and human resources policy and practice will likely be a key focus of the recovery phase following a major flooding event.

The Cabinet Member for Communication, Engagement and People has a leadership role to champion and support effective communication with customers and communities affected by major flooding events and/or disruption to business and service delivery and will have a significant leadership role within the recovery phase.

The Cabinet Member for Economic Development portfolio will come to the fore in the recovery phase of flood emergencies impacting business or business confidence within the County. Championing regeneration and restoration following damage to the built or agricultural environment arising from disaster may be another key focus of the recovery.

The Cabinet Member for Finance, Corporate and Traded Services has a key role in relation to both business continuity and disaster recovery, potentially including advocacy for cost recovery which can be particularly important in the circumstances of a damaging flood event.

The Cabinet Member for Environment has a key role in ensuring that decision making considers the flood resilience of Kent's natural, farmed and built environment. Environmental issues will often come to the fore in the recovery phase of a flooding event.

The Cabinet Member for Highways and Transport will likely have a high profile role within the response and recovery to flooding events as highways, transportation and highway drainage systems may all be central to or impacted by major flooding incidents, and therefore leadership and advocacy as relates to such 'critical infrastructure' may be a key focus of incident response and recovery.

Deputy Cabinet Members will have a key role supporting the Cabinet Member and may be delegated specific roles in relation to emergency planning, business continuity and recovery before during and after a flooding event.

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8.2.2 All Elected Members

All Elected Members have a role in preparing for and responding to a major flooding incident, given their role in representing local communities. Both prior to and in response and recovery to an incident, the role of a local County Councillor will be vital in championing resilience and supporting the local community and KCC officers in preparation and response to a flood event. Where an individual Division is affected, this community leadership role may be amplified for the local Elected Member.

8.3 Door Knocking High Risk Properties

Within the Pitt Review of the 2007 floods, he recommended the enhancement of Flood Warnings being issued with door knocking in the areas likely to be affected. Kent County Council and the NHS will identify vulnerable people and inform the Police.

As part of this work, Kent Police have a procedure for door knocking which can be used in any emergency situation. They have agreed that this could be enacted, making use of their workforce within a flood situation in conjunction with appropriate KCC and affected district council personnel.

During this interim period, those areas possibly requiring door knocking arrangements can be identified on an informed basis by KCC, affected District Council(s), Environment Agency and/or Police. With the data generated via GIS and RD Mapping assisting in this process.

KCC Community Wardens can contribute with the door knocking of high-risk properties both physically and by assisting in the identification of vulnerable members of the community and by the use of the Community Warden Support Team to reach outlying areas.

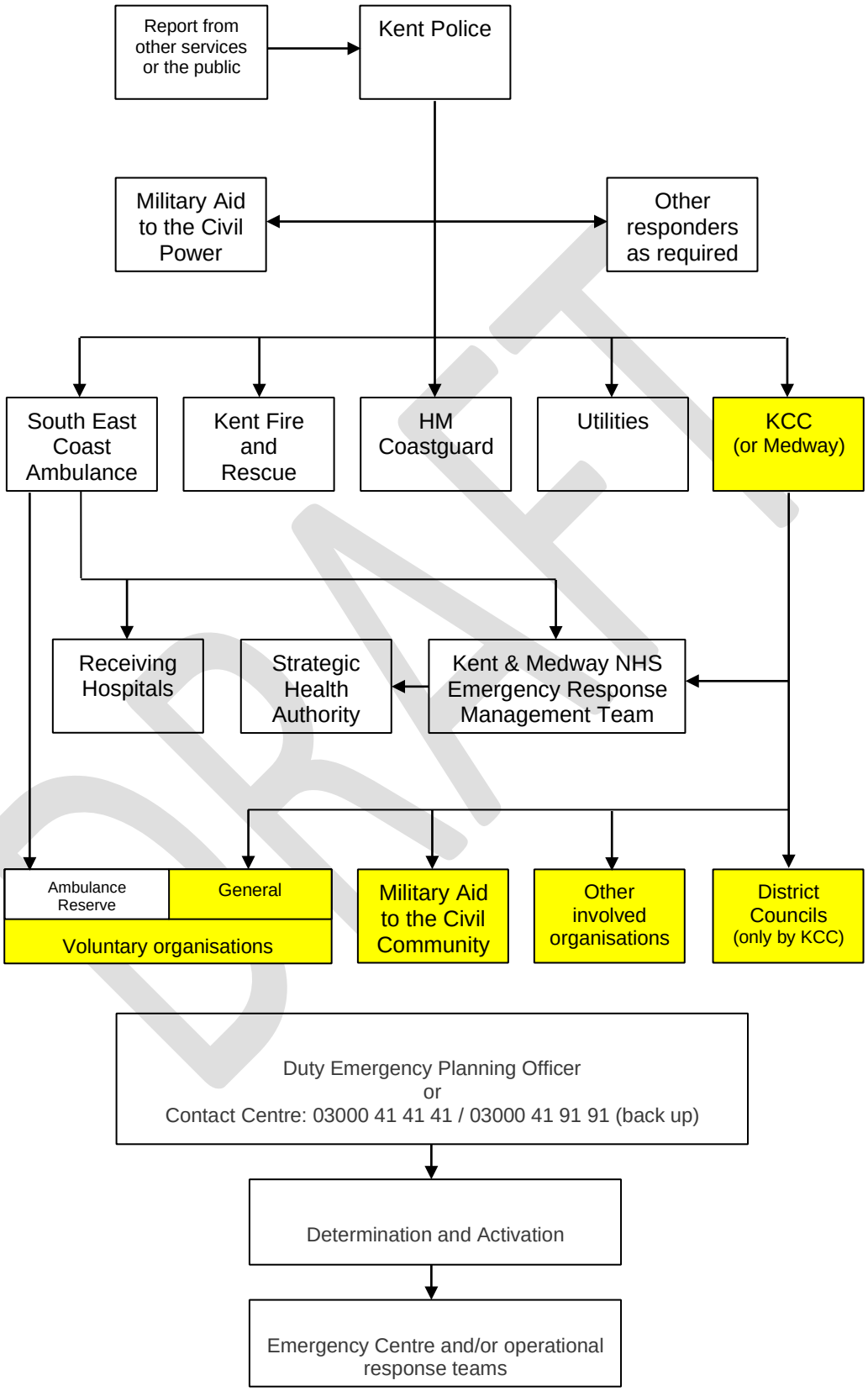
In addition, KCC Community Wardens can assist in the distribution of Severe Weather Warnings to all areas of their communities and by the identification of community leaders within local communities who have access to possible evacuation centres or have skills or equipment which may be of use during the emergency.

The KCC Community Warden Service can be activated through the KCC Duty Emergency Planning Officer.

8.4 Communicating with the Public

The Kent Resilience Forum has a communications strategy document titled; **Kent Resilience Forum Media & Communications Plan**. Within this document there are appendices relating to the specific information and advice regarding the process of communications in a flood incident and the way in which this information will be shared between partners. In **Section 7.3.4** of this document is an internet link to the Environment Agency website providing messages and advice that should be used during a flood incident. These should be used by all organisations as an agreed set of advice and guidance.

Figure 8.5 - The Pan Kent Strategic Emergency Framework Document: Major Incident Alerting Principles:



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9. Actions, Roles and Responsibilities

Figure 9.1 - Flood Specific Roles and Responsibilities

KCC Directorate	Pre-planning Roles and Responsibilities	Emergency Roles and Responsibilities	Recovery Roles and Responsibilities
Growth Environment and Transportation	Ensure that all personnel are trained in and aware of emergency planning roles and responsibilities (all Heads of Service) Ensure that spatial plans, strategies, guidance and day-to-day working practices incorporate a philosophy of "making space for water" and acknowledge and address surface water, ground water, fluvial and coastal flood risk (all Heads of Service) Ensure that Business Continuity Management principles are embedded within Directorate planning and training programmes (all Heads of Service)	Receive Environment Agency Flood Warning alert and cascade alert to internal and external partners (Resilience and Emergency Planning Service) Receive flooding alert from any other source and cascade alert to internal and external partners (Resilience and Emergency Planning Service) Provide co-ordination, co-operation, advice and liaison role for duration of incident (Emergency Planning Group) Maintain emergency log for duration of incident (Resilience and Emergency Planning Service) (If required) Mobilise County Emergency Centre (Resilience and Emergency Planning Service)	Provide support and advice in framing the recovery strategy (Emergency Planning Group) Mobilise appropriate staff representation to County Emergency Centre recovery group to support the Recovery Director and liaison personnel to partner recovery groups as required (all Heads of Service) Ensure that key data is maintained, and relevant data is entered into SWIMS to assist debrief, recovery and any subsequent inquiry (all Heads of Service)

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Growth Environment and Transportation	**Ensure emergency communication and alerting strategy is in place for internal and external service provision (all Heads of Service)** **Ensure that KCC Environment, Highways, Transportation and Waste Major Emergency Plan is maintained (All Heads of Service)** **Identify vulnerability of critical transport infrastructure (Highways, Transportation & Waste Division)** **Maintain registration with Environment Agency Flood Warning alert system (Highways, Transportation & Waste Division)** **Provide expert analysis role, particularly in identifying flood disadvantage areas and horizon-scanning of emerging risks and patterns (Sustainable business & Communities)**	**Attend and/or facilitate relevant KCC officer attendance of Severe Weather Advisory Group (Resilience and Emergency Planning Service)** **Ensure that critical infrastructure is maintained during flooding incidents (Highways, Transportation & Waste Division)** **Deploy personnel and internal and external contractor resources and assets to assist the practical emergency response to flooding (Highways, Transportation & Waste Division)** **Provide intelligence on condition and viability of transport infrastructure, including GIS and Flood Depth Indication System data (Highways, Transportation & Waste Division)** **Seek to protect highways infrastructure from flooding, using sandbags and other physical barriers (Highways, Transportation & Waste Division)**	**Accommodate and manage increased demand for services following flooding event (all Heads of Service)** **Provide expert analysis role, particularly in identifying flood disadvantage areas and horizon-scanning of emerging risks and patterns (Sustainable business & Communities)** **Deploy personnel and internal and external contractor resources and assets to assist the recovery (Highway, Transportation & Waste Division)** **It should be noted that removal and disposal of sandbags is the responsibility of the agency which deploys them.**

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KCC Directorate	Pre-planning Roles and Responsibilities	Emergency Roles and Responsibilities	Recovery Roles and Responsibilities
Growth Environment and Transportation		**Provide intelligence on condition and viability of waste disposal infrastructure during flood event (Kent Highways, Transportation and Waste)** **Provide intelligence on impacts upon the built and natural environment during flood event (all relevant teams)** **Mobilise personnel for operational response including specialist teams (all Heads of Service)** **Ensure that critical services are maintained in compliance with business continuity plans (all Heads of Service)** **Mobilise senior management representation to County Emergency Centre and liaison personnel to Severe Weather Advisory Groups and partner agency emergency centres as required (all Heads of Service)**	**Provide publicity regarding doorstep and other rogue traders, including promotion of KCC Approved Trader Scheme (Trading Standards and Public Protection intelligence Team)** **Send Trading Standards Alert messages as appropriate on doorstep and rogue traders (Trading Standards, Public Protection Intelligence Team and Public Protection Customer Information Team)** **Enhance intelligence focus and collection appropriate on doorstep and rogue traders (Public Protection Intelligence Team)** **Prepare FAQs and briefings for CC/CDSE (Trading Standards)**

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KCC Directorate	Pre-planning Roles and Responsibilities	Emergency Roles and Responsibilities	Recovery Roles and Responsibilities
Growth Environment and Transportation		**Community Wardens can deliver: a uniformed presence at scene, assistance to police with cordon control, assist the police with evacuation, provide local knowledge, supply public information to communities, provide on-the-ground intelligence and aid in operation and security of rest centres** **Communicate with partner agencies to ensure that care is provided to vulnerable individuals and communities affected by flooding (Community Wardens)** **Communicate with Defra, RSPCA and District Councils on welfare of livestock, domestic, exotic and wild animals threatened or affected by flooding (Trading Standards and Resilience and Emergency Planning Service)** **Communicate with partner agencies to ensure protection and amelioration of adverse impacts upon critical infra-structure and the wider environment during flooding (all relevant teams)** **Provide information and support within welfare centres (Libraries, Registration and Archives)**	**Libraries and other cultural outlets to host publicity events and display material to assist community recovery from flood event (Libraries, Registration and Archives)**

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Adult Social Care and Health	**Maintain plans for the purpose of ensuring that if an emergency occurs or is likely to occur the Directorate can perform its functions so far as necessary or desirable for the purpose of;** **a) preventing the emergency,** **b) reducing, controlling or mitigating its effects, or** **c) taking other action in connection with it** **Plans must have particular regard to 'the vulnerable' 'who are less able to help themselves in the circumstances of an emergency'** **Ensure sufficient number of staff are trained to support a multiagency response including supervising the care of individuals at a Rest Centre, Survivor Reception Centre or Humanitarian Assistance Centre**	**Statutory and non-statutory (voluntary) response activities:** • **Maintain business continuity of Health and Social Care services across the whole system economy (jointly with Health and providers)** • **Command, Control and Co-ordination of Health and Social Care Organisations County-wide at a strategic level (Joint Health and Social Care Accountable Officers)** • **Discharge the Humanitarian Assistance Lead Officer responsibilities** • **Plan a social care response – early assessment of emerging needs** • **Set the standards of care to be provided as part of a statutory and voluntary response** • **Identify vulnerable groups and people** • **Identify critical Health and Social Care infrastructure at risk**	**Managing Recovery – impact assessment, risk assessment and promoting critical and strategic thinking around recovery provision. Directing activity and resources through Task and Finish Groups** **Work closely with health professionals and Police Family Liaison Officers where appropriate to ensure the needs of families and the community are properly met** **Manage "hand over" cases from any centralised provision (especially Humanitarian Assistance Centres) to the Local Authority and local health partners** **Undertake internal debrief of staff involved in the response phase to then inform a multiagency debrief** **Identification of lessons arising from the way the incident was handled, develop and implement action plans as appropriate** **Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry (all Heads of Service)**

KCC Directorate	Pre-planning Roles and Responsibilities	Emergency Roles and Responsibilities	Recovery Roles and Responsibilities
Adult Social Care and Health	**Through established contract performance monitoring mechanisms, ensure that providers' Business Continuity arrangements are suitable, sufficient and align with the Authority's requirements** **Work with strategic partners to ensure flood risk is appropriately reflected in commissioning decisions, including the location of critical health and social care infrastructure**	• **Manage a social care response – against identified needs in crisis, in care, emergencies in Health, and safeguarding, community response including providing psychosocial support jointly with health partners** • **Provision of information, advice and guidance** • **Assessment, referral and signposting**	

KCC Directorate	Pre-planning Roles and Responsibilities	Emergency Roles and Responsibilities	Recovery Roles and Responsibilities
Children, Young People and Education	**Ensure that all personnel are trained in and aware of emergency planning roles, including Children's Social Care and the provision and support to welfare centres (all Heads of Service)** **Ensure that school meals contracts incorporate the emergency feeding clause** **Ensure that schools maintain up-to-date emergency and business continuity plans to address flooding** **To ensure that robust plans are in place to support individuals and schools affected by flooding (Educational Psychology Service)** **Ensure Business Continuity Management principles embedded within Directorate planning and training programmes**	**Provide: premises, feeding, specialist teams and logistical support for the welfare centre response to flood and other incidents (all relevant teams)** **Provide senior manager representation within County Emergency Centre, liaison personnel to Severe Weather Advisory Groups and partner agency emergency centres as required (all Heads of Service)**	**Ensure cleaning and repair of education premises affected by flooding or used as emergency rest centres** **Provide support to schools and pupils who are emotionally affected by flood events (Educational Psychology Service)** **Accommodate and manage increased demand for services following flooding event (all Heads of Service)** **Mobilise appropriate staff representation to County Emergency Centre recovery group to support the Recovery Director and liaison personnel to partner recovery groups as required (all Heads of Service)** **Ensure that key data is maintained, and relevant data is entered into SWIMS to assist debrief, recovery and any subsequent inquiry (all Heads of Service)**

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Strategic and Corporate Services	**Ensure that all personnel are trained in and aware of emergency planning roles and responsibilities (all Heads of Service)** **The Directorate must plan for emergencies involving a risk to public health** **Ensure that plans, strategies, guidance and day-to-day working practices incorporate a philosophy of "making space for water" and acknowledge and address surface water, ground water, fluvial and coastal flood risk (all Heads of Service)** **Ensure that Business Continuity Management principles are embedded within Directorate planning and training programmes (all Heads of Service)** **Ensure emergency communication and alerting strategy is in place for internal and external service provision (all Heads of Service)**	**Ensure that critical information communication technology infrastructure is maintained during flooding incidents (ICT)** **Ensure plans are in place to protect the health of the population** **Provide intelligence on condition and viability of ICT infrastructure during a flood event (ICT)** **Ensure that Geographical Information Systems (GIS) are corporately available providing mapping and address details to facilitate response (ICT)** **Mobilise personnel for operational responses including specialist teams (all Heads of Service)** **Ensure that critical services are maintained in compliance with business continuity plans (all Heads of Service)** **Mobilise senior management representation to County Emergency Centre, liaison personnel to Severe Weather Advisory Groups and partner agency emergency centres as required (all Heads of Service)**	**Mobilise appropriate staff representation to County Emergency Centre recovery group to support the Recovery Director and liaison personnel to partner recovery groups as required (all Heads of Service)** **Ensure that key data is maintained to assist debrief, recovery and any subsequent inquiry (ISG and all Heads of Service)** **To bear the cost of recovery for all but the most exceptional flooding events using General Funds (Finance)** **Ensure that key data is maintained, and relevant data is entered into SWIMS to assist debrief, recovery and any subsequent inquiry (all Heads of Service)**

	Ensure Strategy, Economic Development and ICT Major Emergency Plan is maintained (All Heads of Service) **Ensure sufficient staff are trained and support is available to establish a Scientific and Technical Advice Cell.** **Ensure that corporate ICT systems include capacity to label and record emergency response data, including communications and resources mobilised (ISG)** **Ensure that Geographical Information Systems (GIS) are corporately available providing mapping and address details (ISG)** **Ensure Strategic and Corporate Services Emergency Plan is maintained (All Heads of Service)** **Ensure that systems are in place to facilitate and record financial**	**Provide Geographical Information Systems support to corporate response to flooding (ISG)** **Manage a Public Health response to public health incidents and emergencies, including providing scientific and technical advice and intelligence during emergencies** **Ensure that critical KCC premises are maintained during flooding incidents (Property)** **Deploy personnel, internal and external contractor resources and assets to assist the emergency response to flooding (all Heads of Service)** **Ensure that financial resources are available, and spending is logged during emergency response (Finance)** **Work with Leader and Cabinet Members to ensure that they are briefed and supported within their community leadership and advocacy roles (Strategic and Corporate Services)**	

	support of emergency response (Finance) **To maintain General Funds for use in the event of serious flooding or other unforeseen eventualities (Finance)** **Ensure resilience of KCC property portfolio against flood risk (Property and Infrastructure)** **Ensure access to assets and materials for emergencies** **Ensure Contact Point personnel are aware of alerting protocols in the event of a flooding incident (Contact Point / Agilysis)** **To make sure that the public are warned and informed through the media, KCC website and other means of communications of the incident. Liaise with partner agencies to agree messages and broadcast of relevant public information (Press Office)**	**Provide intelligence on staff deployment and work base selection using Kent View software (HR)** **Contact Point personnel relay key flood related information from public and partner agencies to relevant teams and individuals (Contact Point)**	

Figure 9.2 - Partner Agencies: Flood Specific Roles and Responsibilities

Organisation	Risk	Preplanning	Emergency response			Recovery
			Minor flood (Medium consequence)	Major flood (High consequence)	Notes	
District & Borough Council	Tidal, Fluvial, and Surface Water flooding	Up to date vulnerable persons and sites shared database arrangements Pre-determined rest, reception and media centres Multi-agency preplanning re RVPs, transport routes etc Riparian/Coastal Districts to issue directions to and maintain contact details of flood gate owners/land occupiers (Section 30 County of Kent Act 1981)	Activation of Emergency Centre and Strategic Group Advise leader and ward members. Liaison with Parish Councils Representation at Silver Control(s) and Strategic Coordinating Group as necessary Co-operation with emergency services and EA to coordinate the response Flood warning and gate closure	Activation of Emergency Centre and Strategic Group Advise leader and ward members. Liaison with Parish Councils Establish various LA forward controls as necessary Representation at Silver Control(s) and Strategic Coordinating Group as necessary Co-operation with emergency services	Early consideration will need to be given to the following: • Provision of temporary sanitary facilities • Provision of catering. Co-ordination of voluntary organisations • Provide emergency clothing and welfare items	Provision of temporary or longer-term accommodation or rehousing for residents made homeless by the flooding Structural and condition surveying of council properties damaged by the flooding; remedial action to repair such properties

			notification dissemination in conjunction with EA	and EA to co-ordinate the response	• Liaise with Central and Regional Govt	

Organisation	Risk	Preplanning	Emergency response			Recovery
			Minor flood (Medium consequence)	Major flood (High consequence)	Notes	
District & Borough Council		EA, riparian district councils and flood gate owners to ensure closure mechanisms function properly National Flood Defences Database (NFCDD) is maintained by EA Pre-arranged communication strategy – what should members of the public do/where should they go? Updated information on Council website	Where appropriate Riparian/Coastal Districts to ensure Tidal flood gates and sluices are closed in accordance with closure notifications (Section 30 County of Kent Act 1981) Liaison with utility and transport companies especially water company to ensure provision of clean drinking water to residents Provision and staffing of rest/reception	Flood warning and gate closure notification dissemination, warning and informing the public in conjunction with EA Riparian/Coastal Districts to ensure Thames Tidal flood gates are closed in accordance with closure notifications (Section 30 County of Kent Act 1981) Activation of information helpline for public	• Arrange for Military Aid *Local authority would be able to seek mutual aid from other local authorities to help fulfil these functions.* Directorate Business Continuity Management plans may require invocation as many staff will have been diverted to other	Invoking council's business recovery plan if council premises are affected Consultation with health authorities on hygiene and environmental health issues in affected areas Assisting residents in removal of damaged furniture and household goods

		Pre-arranged information help line and trained staff	**centres and associated services**	**In conjunction with other responders provide information to the public**	**duties to respond to the incident**	**Removal of mud/debris from council owned land**
District & Borough Councils/		**Pre-arranged help line for staff – (should they come in to work or not – is it safe?)** **Review of council properties at risk** **Incorporate this risk into the Business Continuity planning process** **Advise on development proposals, flood risk assessments and maintain flood management structures**	**Flood mitigation measures (e.g. sandbags, where appropriate). It should be noted that removal and disposal of sandbags is the responsibility of the agency which deploys them.** **Advice on clearance of blocked water courses and mitigation measures**	**Activation of business continuity plans as appropriate** **Liaison with utility and transport companies, ensure provision of clean drinking water to residents** **In conjunction with Police, provision of information Centre and media centre** **Co-ordinate response from faith and voluntary groups** **Provision and staffing off rest/reception centres and associated services**		**Ensure that key data is maintained, and relevant data is entered into SWIMS to assist debrief, recovery and any subsequent inquiry**

Organisation	Risk	Preplanning	Emergency response			Recovery
			Minor flood (Medium consequence)	Major flood (High consequence)	Notes	
				Flood mitigation measures (e.g. sandbags), advice on clearance of blocked watercourses and mitigating measures. ***It should be noted that not all local authorities provide sandbags, (each council should be contact for further information).*** **Where resources allow assisting EA in repairing river and coastal defences (between high tides) Provision of emergency lighting/generators**	It should be noted that removal and disposal of sandbags is the responsibility of the agency which deploys them.	

Organisation	Risk	Preplanning	Emergency response			Recovery
			Minor flood (Medium consequence)	Major flood (High consequence)	Notes	
Environment Agency	Tidal, Fluvial and Surface Water flooding Published in the local risk assessment guidance	Prepare and maintain Kent Local Flood Warning Plan Advise on development proposals Update flood risk maps Support Kent Resilience Forum (KRF) Flood risk assessments; Maintain watercourse capacity Maintain flood management structures	Issue warnings Monitor catchment Operate defences Support LAs and emergency services	[as for minor flood]		Support LAs and community as resources allow Repair any damaged defences Ensure that key data is kept, and relevant data is entered into SWIMS to assist debrief, recovery and any subsequent inquiry

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Kent Police	**Tidal, Fluvial and Surface Water flooding** **Published in the local risk assessment guidance**	**Statutory responsibility under the Civil Contingencies Act 2004 to:** • **Prepare and maintain emergency plans** • **maintain business continuity plans** • **engage with KRF Severe Weather Group Partners particularly around risk assessment, planning and public warning and informing** • **training and awareness** • **the testing and exercising of emergency plans**	**Save and prevent loss, or further loss, of life in conjunction with the other emergency services and any other relevant organisation Consideration of health and safety and ensure the safety of personnel deployed at the incident** **Co-ordinate the overall response** **In so far as saving of life permits, secure, preserve and protect the scene**	**As for minor flood (scale-able response)**	**The establishment of the Strategic Co-ordination Group and function for providing command and control through levels of Gold, Silver and Bronze.**	**Recovery is inbuilt to the response phase of the incident as part of the Strategic Co-ordination Group. The appropriate 'handover' to the responsible LA will be supported as appropriate** **Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry**

Organisation	Risk	Preplanning	Emergency response			Recovery
			Minor flood (Medium consequence)	Major flood (High consequence)	Notes	
Kent Police		Identifying, with Cat 1 and 2 partners, areas of critical infrastructure at risk Mobilisation planning within the Police National Mobilisation Plan (internal and external resources) Engagement with Kent Resilience Forum (KRF) Communications Group on the forming of communication strategy to warn and inform the public	Investigate the incident, obtaining and securing all available evidence in conjunction with other investigative bodies where applicable Recover the deceased in a dignified manner, which ensures the integrity of their identification Without undue delay, assist the Coroner to identify victims and inform the next of kin as soon as possible			.

Kent Police			**Reassure survivors and their families and assist in establishing appropriate support systems** **Establish an effective and appropriate family liaison strategy** **Ensure an appropriate response to the media, which is open, factual, accurate and seeks to reassure those directly involved and the public in general** **Provision of warnings, advice and information to the public**			

Organisation	Risk	Preplanning	Emergency response			Recovery
			Minor flood (Medium consequence)	Major flood (High consequence)	Notes	
Kent Police			**Strive to minimise the impact on the whole community, working with all relevant agencies to return to normality as soon as possible.**			
Kent Fire & Rescue Service	**Tidal, Fluvial and Surface Water flooding**	**Standard operational response to a special service** **Maintain business continuity plans** **KFRS Premises at risk to flooding identified**	**Liaise with other agencies and prioritise response and resources** **Provide assistance with pumping water**	**Follow major incident response procedures** **Assisting with evacuation in the event of wide-scale flooding**		**Assist with other agencies to minimise impact on community**

Kent Fire & Rescue Service		**Mutual aid agreements between bordering F&RS in place** **National Mutual Aid Protocol in place** **KFRS holds copies of EA Flood Maps** **Participation in flood exercises with other agencies** **Arrangements for pre-mobilising resources in place** **Recall to duty for officers in place**		**Attend SCG and provide liaison officers to other Control rooms as appropriate i.e. Environment Agency** **Activate National Mutual Aid Agreement for additional resources** **Activate Station BC Plans where KFRS premises are at risk to flooding**		

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South East Coast Ambulance Service (SECAmb)	**Tidal, Fluvial and Surface Water flooding** **Published in the local risk assessment guidance**	**Met. Office Weather Warning system in place** **Major Incident Plan** **Contingency Plan for Extreme Weather** **Business Continuity Plans** **Emergency Preparedness Status Board (includes flooding) in place across SECAmb.** **SECAmb premises at risk of flooding identified** **Health on Call system in place**	**Attendance as required upon assessment**	**Attendance as required upon assessment**		**Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry**
Strategic Highways Contractors	**Low**	**Reviewing procedures with Highways England.**	**Activate Contingency Plan**	**Activate Contingency Plan**		

NHS		**Ensure staff training is carried out** **Ensure Emergency Plans are up to date, and exercise tested** **Distribute flood warnings**	**Provide support for vulnerable people who are known to the NHS** **Business Continuity of NHS services** **Provide support to Rest Centres**	**Provide support for vulnerable people known to the NHS in their own homes** **Business Continuity of the NHS** **Provide Support to Rest Centres and Evacuation Points** **Provide Support in the event of evacuation of vulnerable persons** **Ensure representation at Multi Agency Command & Control** **Public Health Advice in conjunction with the Health Protection Agency.**		**Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry**

Port of London Authority		**Sharing of Flood Response Plans** **Internal briefings & awareness for possible resource provision**	**None**	**Issue appropriate warnings to river users** **Deploy afloat resources and other assets as appropriate** **Impose exclusion zones or river closures where necessary** **Supply detailed local tidal & hydrographic information on request**	**Navigation Authority for tidal Thames**	**Promote restoration of navigation and shipping activity**
National Grid **Gas and electricity distribution/ transmission**	**Low pressure gas distribution network** **Electrical transmission systems.**	**Identify plant and assets in predicted flood zone e.g. substations, cable tunnels, joint bays, regulators – medium to low pressure** **High pressure gas installations COMAH sites – storage** **Vulnerable Persons Database – use system to pull off all addresses in a predicted area by post code**	**Set up Bronze Command at site. Work with blue lights to isolate supplies and make safe** **Wait for water to recede** **Re-establish supplies**	**As previous with additional Silver and Gold level** **Command within company** **Reconfiguration of supplies where possible** **Possible lock-out of regulators to maintain pressures in gas mains.**		**Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry**

National Grid. Gas and electricity distribution/ transmission.		**Contact local authorities use agreements for mutual aid.**		**Invoke mutual aid and resource plans** **Prepare for recovery**		
Southern Gas Networks	**Gas distribution systems operating at high, intermediate, medium and low pressure**	**Receive detailed flood assessment information for all at-risk MAJOR sites (supplying >50,000 consumers) from EA / SEPA. Review annually** **Receive 48 hours warning from EA / SEPA for MAJOR sites**	**Instigate E/3 procedures for incident response** **Set up Bronze Command / Site Main Controller at site. Work with Category 1 Responders to isolate supplies if required. Make safe**	**As previous with additional Silver and Gold level Command within company** **Possible reconfiguration of supplies where possible**		**Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry**

Southern Gas Networks		**Identify other plant and assets in predicted flood zone using EA flood data and Flood Outlook Statements** **Consider all offtakes from the national transmission system (including odorization and gas quality equipment), pressure reduction stations, other gas governing equipment, high- and low-pressure storage installations (including top and lower tier COMAH sites)** **Review sectorisation plans for isolation of specific areas.** **Locate sectorisation valves and confirm operation**	**Identify location of siphon tankers, water pumps and other equipment. Prepare resource plans and mobilise as necessary** **Extract and copy asset records and plans for on-site use identifying siphons, low points etc.** **Wait for water to recede** **Re-establish supplies**	**Possible lock-out of regulators to maintain pressures in gas mains** **Invoke mutual aid and resource plans** **Prepare for recovery**		

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Southern Gas Networks		**Identify consumers at risk from 'Vulnerable Persons Database' – extract all relevant addresses in the predicted flood risk area** **Contact local authorities, use agreements for mutual aid**				

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EDF Energy Networks	**Tidal, Fluvial and Surface Water flooding** **Published in the local risk assessment guidance**	**EDF Energy Networks Flood Plan** **Environment Agency indicative flood plains mapped into Company GIS system**	**Monitor EDF Energy Networks substations, plant and equipment** **Protect substations by temporary works if practical** **Disconnect electricity supplies if the public are at risk or if substations or plant and equipment cannot be protected from inundation**	**Monitor EDF Energy Networks substations and plant and equipment** **Protect substations by temporary works if practical** **Disconnect electricity supplies if the public are at risk or if substations or plant and equipment cannot be protected from inundation**		**Restore electricity supplies** **Ensure that key data is maintained, and relevant data entered into SWIMS to assist debrief, recovery and any subsequent inquiry**

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9.3 Operational Response Activities

9.3.1 Response – Supplementary Information

9.3.1.1 Voluntary Sector

Emergency Preparedness, the Civil Contingencies Act Guidance, refers to the generic support that the Voluntary Sector can provide. The nature, range and scale of services offered by the Voluntary Sector may alter depending upon the context of the emergency situation but would be provided in both emergency response and recovery related activities. They will be activated under normal existing activation protocols within Kent County Council Emergency Planning Group and will be directed by the relevant activating organisation but work to their own organisational structure. Organisations have access to mutual aid on a cross-border basis. In a flooding incident the Voluntary Sector can provide support to both responders and those affected by the incident.

9.3.1.2 Mutual Aid

KCC have a Mutual Aid arrangement with all local authorities in Kent and Essex. Mutual Aid may be mobilised through Kent County Council.

9.3.1.3 Military Aid

Military Aid may be mobilised through Kent County Council Emergency Planning Group.

9.3.1.4 Public Health

Floodwater Public Health Risks

The following section deals with the subsequent public health risks arising from floodwater inundation:

- Chemical Contamination
- Sewage/ Wastewater Contamination
- Electrical/ Fire Hazards

Chemical Contamination

Flooding can lead to disruption of water purification and sewage disposal systems, inundation of waste disposal sites, and contamination from chemicals stored in commercial, industrial, agricultural and domestic settings. This can be hazardous to human health and the wider environment. Contact with flood water should therefore be avoided, and where unavoidable; protective clothing should be worn. While different chemicals cause different health effects, the signs and symptoms most frequently associated with chemical poisoning are headaches, skin rashes, dizziness, nausea, excitability, weakness, and fatigue.

Sewage/ Wastewater Contamination

Flooding can cause the disruption of water purification and sewage and other wastewater disposal systems. A key risk arising from contamination of floodwater with sewage is risk to human and animal health from harmful microbes. Water-borne infections associated with flood events include Gastroenteritis, Escherichia Coli (E. Coli), Botulism, Salmonella, Cryptosporidiosis, Hepatitis and Tetanus.

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It may be assumed that any floodwater affecting property and land could contain sewage. Contact with flood water should therefore be avoided and where unavoidable protective clothing should be worn.

Contamination of the aquatic environment with sewage and other organic pollutants, including milk and other foodstuffs, may lead to de-oxygenation through microbial blooms and requisite adverse impacts upon aquatic wildlife.

Electrical / Fire Hazards

Areas affected by floodwater inundation may contain electrical or fire hazards connected with power lines, sub-stations and other electrical infra-structure. The following precautions should be taken where electricity infra-structure is affected by floodwater:

- Never enter flooded areas containing electrical equipment unless you are certain that the power supply is off.
- If water has been present anywhere near electrical circuits and electrical equipment, turn off the power at the mains.
- Don't assume that any part of a flooded electrical installation or appliance is safe, do not turn on their power supply.

More guidance can be found in the KRF Media & Communications Plan Document and from the following Environment Agency link:

www.environment-agency.gov.uk/homeandleisure/floods

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9.3.1.5 Kent Fire and Rescue Services Water Safety Aid Memoir

Hazards	Risks	Control Measures
Water		**Pre-planning!** Equipment, training, procedures, command arrangements and site familiarisation
Current, flow, under-tow, whirlpools, eddies- hydraulic features + force of water	Entrapment, drowning	**KEEP OUT!** Correct PPE= Lifejackets/PFDs, defensive swimming, early rescue- downstream throw lines, never work alone, never put feet down in flowing water if swept away.
Depth of water/ mud	Entrapment, drowning	**KEEP OUT!** Probe ground, correct PPE=Lifejackets
Water temperature	Cold water shock causing drowning, hypothermia	**KEEP OUT!** Early rescue, never work alone, PPE=Life- jackets/boots/waders/dry suit + thermal suit etc
Water clarity	Entrapment, drowning	**KEEP OUT!** Probe ground ahead
Pollution	Infection/health	**KEEP OUT!** PPE=boots/waders/dry suit (barrier protection), hand and face washing, discipline (no smoking, eating, drinking in risk area)

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Debris	Impact injuries	**KEEP OUT!** Upstream spotters, agreed warning signals-whistles

Hazards	Risks	Control Measures
Weather/ Environment / Specialised Operations		Pre-planning! Equipment, training, procedures, command arrangements and site familiarisation
Weather	Fatigue/ hypothermia or hyperthermia	Relief crews, welfare, rest & recuperation (R&R) arrangements
Riverside/ shoreline conditions-cluttered/ slippery/ silt traps, onlookers	Slipping, tripping and falling, silt traps and additional casualties	Enforced 3 metre risk zone, lighting, safety brief, minimum level of PPE (Lifejackets, boots, gloves etc.), never work alone, site familiarisation
Inadequate lighting	Disorientation, getting lost	Personal torches, scene lighting, personal issue light sticks, tight command & control over personnel
Background noise	Warnings not heard, failure of communication	Whistles and hand signals.
Overhead power lines	Electrocution	Risk assess, safety brief
Specialised operations	Fatigue of specialised personnel/unsafe personnel in risk area	Relief crews, adequate resources, R&R, 3 metre risk zone
Work equipment Falling into water	Cessation of work/delays/impact injuries	Adequate resources, safety observers, safety brief

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Surface vessel movements	Impact/unguarded props	Safety brief, command and control, safety observers (upstream and downstream spotters-throw line operators)

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9.3.1.6 Welfare of Livestock and Other Animals

Kent Fire and Rescue Service have a dedicated animal rescue unit based at Faversham Fire Station. The unit has specially trained personnel and dedicated equipment such as a crane and cradle with lifting capacity to move trapped livestock.

The KCC Duty Emergency Planning Officer will liaise with the RSPCA and DEFRA on the welfare of livestock and other animals that may require rescue or feeding on site.

The Kent Resilience Forum has published an Animal Evacuation and Shelter Plan which can be found from the following link:

https://www.kent.gov.uk/__data/assets/pdf_file/0003/47919/Kent-Resilience-Forum-KRF-Kent-andMedway-animal-evacuation-and-shelter-plan.pdf

https://collaborate.resilience.gov.uk/RDService/documents/PR-16%20Kent%20and%20Medway%20Animal%20Evacuation%20and%20Shelter%20Plan%20V0.7.pdf?id=7a720edf-e6a3-4e75-a3df-5631c67188fb

The RSPCA also offer advice on preparedness and looking after pets in an emergency; this can be found from the following RSPCA link:

http://www.rspca.org.uk/in-action/issuesindepth/floods

9.3.1.7 Water Rescue

In addition to its wider statutory duties, Kent Fire and Rescue Services provides strategic leadership for water rescue and pumping operations and acts as specialist operations adviser during the flood response stage.

Kent Fire and Rescue Services use High Volume Pumps (HVPs), which are 150mm in diameter and can pump water up to 3km in distance, assuming there is a suitable discharge point.

9.3.1.8 Guidance for Working Near to Flood Water

The following is offered as a supplement to normal practice, it is not necessarily exhaustive, and individuals must make their own risk assessments on the situation facing them.

Dangers:

- Shallow ponded water can cover ditches, manholes, access to hatches to basements etc. Covers to manholes and access hatches are frequently lifted off by the power of the water, leaving a deep hole into which the unsuspecting can fall or drive into;
- Flowing water can exert strong, lateral forces and will typically build up on the upper stream side to a height half as high again as the flowing depth;
- Flood water may be contaminated. There may be overflows from Sewage Treatment Plants, or the water may have been contaminated with chemicals from industrial or agricultural premises; and

- Water will conduct electricity. If the power has not been turned off there is a possibility of electric shock. One indication of the presence of live electricity flood water is the sense of vibration. If you experience this, you should withdraw.

Considerations:

- Pre-existing organisations rules and qualifications needed;
- Having the necessary equipment to enter water;
- Other alternatives to entering water and what purpose would be served;
- Whether the visit could wait till the flood water recedes;
- Depth of the water, whether the tide is rising, speed of flow and pull of the water;
- Whether you should inform someone of your actions or be accompanied;
- Proceeding with caution, to avoid ditches, manholes and access hatches as well as electricity; and
- Avoiding driving into flood water without a suitable vehicle (and proceed with caution, ensuring the vehicle is not submerged and minimise bow waves flooding properties or submerging other vehicles).

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10. Vulnerable People & Communities

10.1. Identification

Identifying, planning for and providing for the needs of vulnerable groups involves a large number of partners and compiling a large amount of changing information. For this reason, it is unrealistic to expect a central list of potentially vulnerable individuals to be maintained. Rather the approach is to maintain a list of partners and contact telephone numbers that can be used to gather relevant information in the event of an emergency.

Records of vulnerable people are held and kept up to date by KCC Social Care, Health & Wellbeing, Education & Young People's Services, NHS and some other utilities companies and organisations, each organisation will hold records of its own clients. During a flood incident this information will be supplied to the SCG (Strategic Coordinating Group) and other partner organisations as required.

We are currently awaiting further guidance from the Humanitarian Welfare Group of the Local Resilience Forum regarding the classification of group of vulnerable people types.

Due to the nature of the changing situation during a flooding event the status of any persons' vulnerability can change at any time, this is a fact to be aware of in all situations.

Those who may be considered potentially vulnerable include: -

- Children
- Older People
- Mobility Impaired
- Mental/cognitive impaired
- Sensory Impaired
- Individuals supported by Health or local authorities
- Temporarily or permanently ill
- Individuals cared for by relatives
- Homeless
- Pregnant women
- Minority language speakers
- Tourists
- Travelling community
- Static and holiday caravan parks

Please see Kent Resilience Forum Identifying Vulnerable People in an Emergency Plan: https://collaborate.resilience.gov.uk/RDService/documents/PR-19%20KRF%20Identifying%20Vulnerable%20People%20in%20an%20Emergency%20Plan.pdf?id=6b5a532c-dbb9-4e7c-9564-cb1293bf1349

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10.2. Background, Analysis and Horizon Scanning

The County Council's recent recognition of the UK Environment and Climate Emergency has helped highlight the increasing risk and severity of flooding resulting from global heating. It poses a significant health risk to the population in flood prone areas and may lead to increased deaths, injuries and mental health issues, as well as exacerbating rural isolation issues producing direct and indirect implications for the health and social care sectors. (Climate South East, 2012; HPA, 2012; CCC, 2017).

Vulnerability to flooding includes more than just the physical risk; political, social and economic factors constrain the ability of the population to respond and their ability to adapt. These factors can have implications on people's health and wellbeing, and therefore extends to the wider health and social care sectors (England & Knox, 2016).

Within Kent, such socially vulnerable communities are often located in or near areas of high flood risk, including low-lying coastal areas. Kent & Medway are some of the most at-risk local authorities in the UK in respect of surface water flooding, as are many low-lying coastal areas, which are at risk of fluvial & coastal flooding. Nationally, two of Kent's districts (Swale and Folkestone & Hythe) are in the top 10 most flood vulnerable districts in the UK, this issue is compounded in areas where the population is generally older and have lower incomes as well as in flood-risk areas with many social care facilities such as care homes and GP surgeries, which may negatively impact social care provision during the response and recovery phases of a flood event, see figures 9.3, 9.4 and 9.5 (Climate Just, 2019).

Severe inland flooding threatens several urban settlements across Kent, such as in West Kingsdown, Wrotham, Maidstone, Ashford and Canterbury, along with some more isolated rural hamlets near Maidstone, Tonbridge and Tunbridge Wells. This is because many settlements were historically built alongside rivers and other watercourses, these places now have significant amounts of impermeable hard surfaces which inhibit natural infiltration of water.

Analysis has indicated that flood disadvantage is greater from surface water flooding than from fluvial & coastal flooding in most areas, and that the areas of highest social & flood vulnerability are concentrated around Kent's coast. Data analysis also suggests that climate change will not increase the geographic area of Kent that is disadvantaged from flooding but will increase the severity where it is already present, particularly in areas such as Romney Marsh and the Isle of Sheppey.

Social vulnerability to the impacts of flooding involves a combination of factors including:

- **Susceptibility to flooding** – how likely someone is to experience a loss of wellbeing due to a flood;
- **Ability to prepare** – personal actions someone can take to reduce the harm suffered if a flood occurs;
- **Ability to respond** – why some people may act more effectively during a flood event;
- **Ability to recover** – how much someone can aid their own recovery from a flood; and
- **Community support** – the availability and quality of emergency and healthcare systems (Sayers *et al*, 2017).

For example, anecdotal evidence form past flood events has highlighted that; 'some sections of the older population [...] were reportedly bewildered and frightened by people banging on their front doors to alert them to imminent flooding'; families with young children were more vulnerable, as children became distressed, or because of 'adults being unable to take necessary action with youngsters in tow'; and disabilities were also

‘said to impede effective response, deaf people were [at] risk of not receiving telephone warnings’. Those with greater wealth are able to protect themselves, which has important implications when discussing the impacts of flooding on communities and for identifying vulnerable geographic hotspots (Defra/Environment Agency, 2005).

Other factors such as social isolation, language barriers and cultural background may also make people more vulnerable and less able to cope in an emergency (England & Knox, 2016; Defra, 2014). Those who are less able to adapt are more likely to rely on services provided by local authorities, the health and social care sector, and health services, especially in the case of an illnesses exacerbated by the incident.

Gypsy, Traveller and itinerant agricultural worker communities on the Weald and in other low-lying areas are geographically disproportionately vulnerable to flooding. Caravans and amenity blocks are often uninsured and flooding frequently results in irreparable damages, making the caravan a ‘total loss’. Such problems can be exacerbated because such communities are often on the margins of society, separated from mainstream communities and subsequent relief services. In some areas of Kent, there are other communities which may be more affected by flooding due to language barriers or as they are new to the area or to the country. These residents may not have any experience of flooding and therefore not know how to prepare or respond appropriately.

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Figure 10.3 - Kent and Medway Flood Vulnerability Map

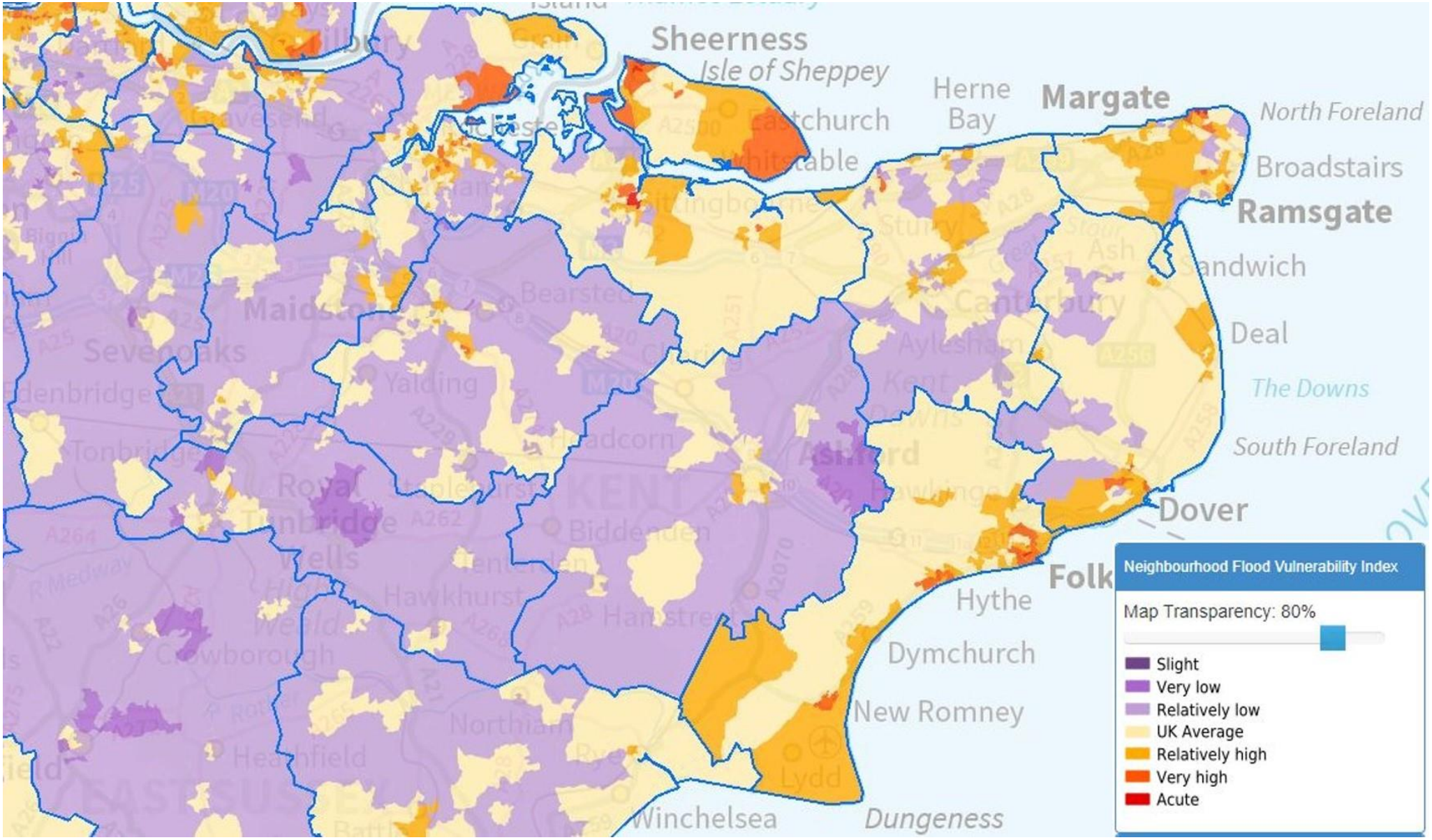


Figure 10.4 - Kent and Medway Surface Water Flood Disadvantage Map

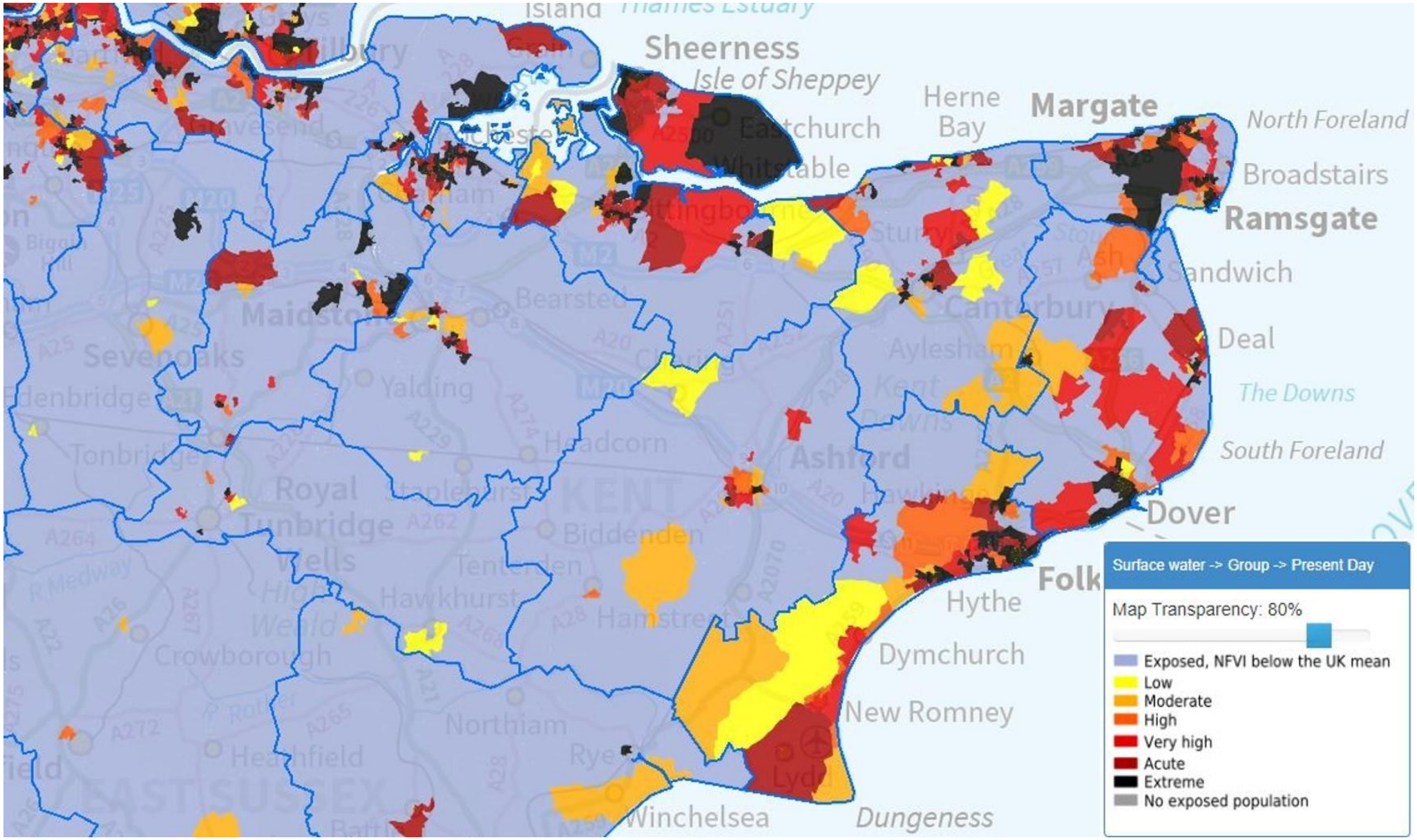
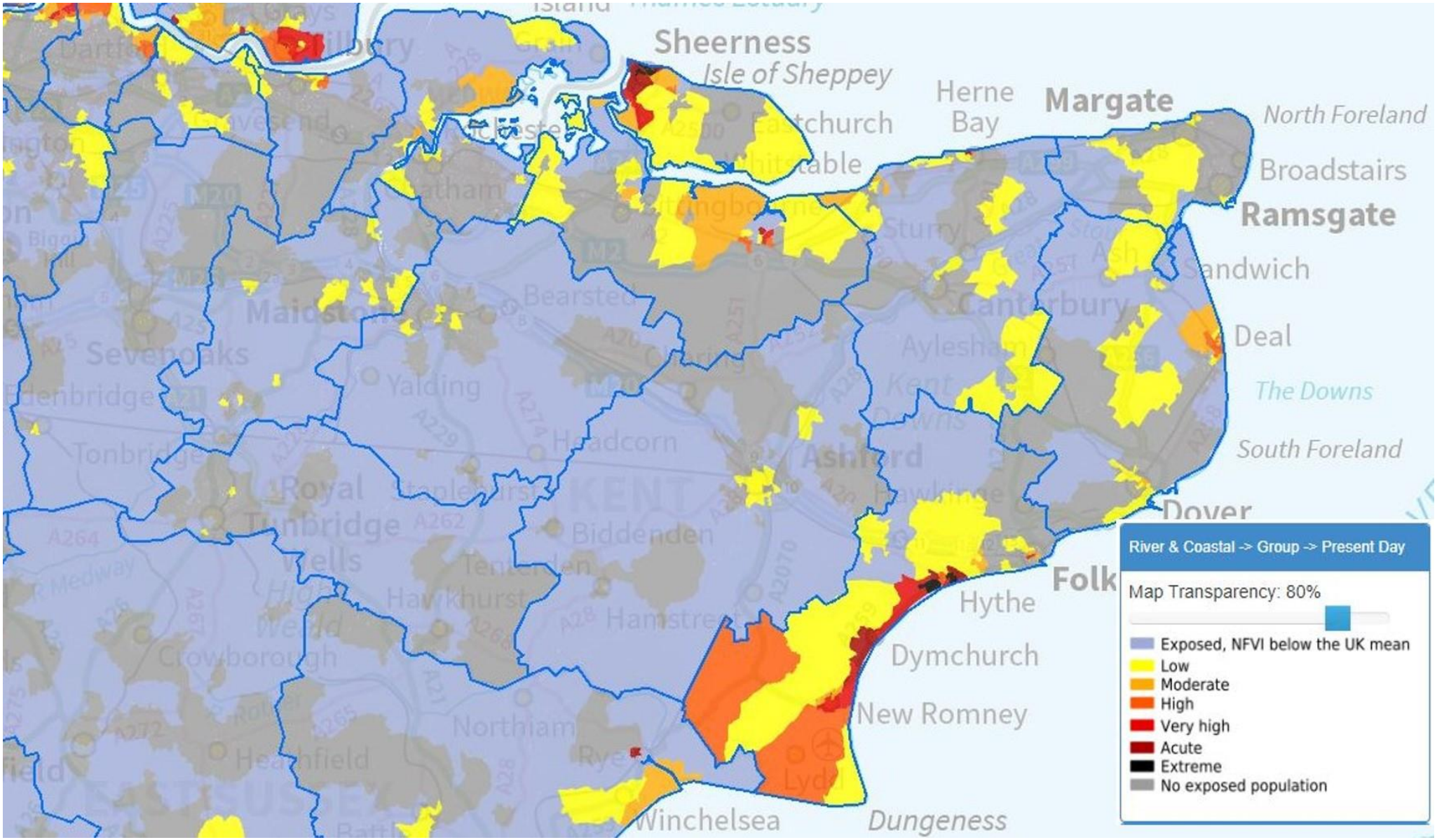


Figure 10.5 - Kent and Medway Fluvial and Coastal Flood Disadvantage Map



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11. Key Infrastructure

Information regarding key infrastructure can sometimes be sensitive information, this information can be obtained from the utility provider or the Police for use by the multi-agency SCG (Strategic Coordinating Group) – which will set overall policy for the response to a major flooding event.

Locations for key infrastructure within flood vulnerable areas are listed within District Local Multi-Agency Flood Plans, Pan Kent and Medway Flood Plan and identified on the GIS system.

12. Evacuation and Shelter

- Statutory legislation informs roles and responsibilities in relation to evacuation, shelter and homelessness. The National Assistance Act 1948 places duties upon county councils to provide services for vulnerable individuals, including children under 16, people with a disability, frail elderly and refugees. In addition, Chapter 52, paragraph 189, Part VII of the Housing Act 1996 imposes a statutory duty upon district and unitary councils to give a priority need for accommodation to “a person who is homeless or threatened with homelessness as a result of an emergency such as flood, fire or other disaster”. Significantly, the Children Act 2004 informs all caring services for children under 16. It must further be remembered that legislation and regulation covering day-to-day operation of residential and public premises also applies to survivor reception and rest centres - including health and safety, food hygiene and licensing.

- Non statutory Evacuation and Shelter Guidance has also been produced by the Civil Contingencies Secretariat of the Cabinet Office. This guidance states at paragraph 1.5. "The Purpose of Evacuation and Shelter" that: "The purpose of evacuation is to move people, and where appropriate other living creatures, away from an actual or potential danger to a safer place. For this to happen safely there need to be plans not just for alerting people and moving them, but also plans to shelter and support them through to their eventual return and recovery. "The need to provide humanitarian and other assistance, particularly to those with special requirements, requires careful consideration and planning. The diagram below shows the stages of evacuation and includes "dispersal - a form of evacuation in which people are simply directed to move away from a particular location without the need for temporary accommodation. The activity of warning and informing the public should also run throughout the process."

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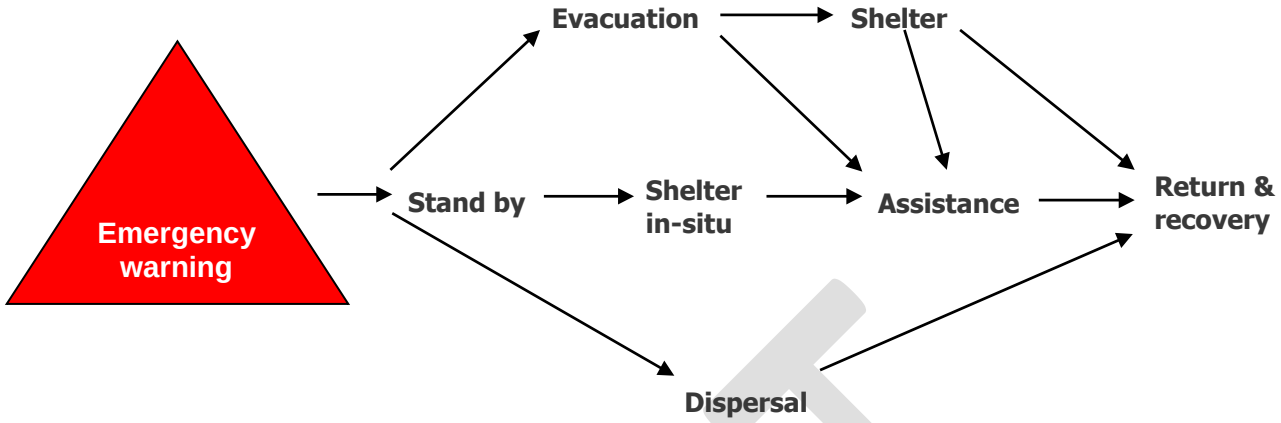
Figure 12.1 - Evacuation and Shelter Methodology



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13. Rescue

- Nobody currently has a statutory duty for rescue during a flood emergency.

- Information regarding the equipment available within Kent County Council administrative area is detailed in **Appendix B.**

- Information regarding equipment available within Kent can be found in Appendix B of the Pan Kent Flood Plan.

14. Recovery

- Kent County Council is likely to lead the Recovery phase of a major flooding event affecting the administrative county of Kent and maintains a detailed KCC Recovery Plan (a public version of this plan can be found on the Emergency Planning page of Kent.gov and the full plan can be found on the KCC page of Resilience Direct). Further, the Kent Resilience Team maintains the Pan Kent Emergency Recovery Framework, on behalf of the Kent Resilience Forum, which will inform recovery and clean-up interventions by relevant agencies following a major flooding event.

- Recommendation 83 of the Pitt Review states that "Local authorities should continue to make arrangements to bear the cost of recovery for all but the most exceptional emergencies". KCC maintains General Funds for such unforeseeable eventualities. It is vital that excellent records are maintained for response and associated expenditure. Please see The Bellwin Scheme of Emergency Financial Assistance to Local Authorities guidance notes on Gov.uk

- In line with the KRF Severe Weather Framework, if there are significant impacts from flooding, the Kent Resilience Team, on behalf of the Kent Resilience Forum, will log an event of the Severe Weather Impacts Monitoring System (SWIMS). The SWIMS system should be used by all members of the KRF (including specific services within KRF member organisations) to record how they are affected by severe weather events. This will help to inform future resilience planning and form part of the evidence for risk analysis undertaken by the Risk Assessment Group (RAG). More information on SWIMS can be found www.kent.gov.uk/SWIMS

- A model recovery agenda for a flooding event can be found at **Appendix E** of this plan.

15. Training and Exercising

- The Civil Contingencies Act 2004 Regulations require Kent County Council as a “Category 1 Responder” to include provision for training and exercises in their emergency plans.

- The corporate nature of the council’s emergency response requires that all personnel should have an understanding of emergency planning and business continuity principles. Regular training and

exercise events will raise staff awareness of potential risks and provide an understanding and confidence in the council and their partners' emergency response procedures.

15.1 Training

Emergency planning and business continuity training events are invaluable tools to raise awareness, pass on best practice and instil confidence in emergency response plans and procedures. Major emergency response can be very different from day-to-day activity in terms of management principles, pressures upon the organisation (and individual members of staff) and levels of public and media interest. It is therefore vital that all staff with a potential role in the emergency response have an understanding of emergency planning and business continuity principles. A rolling training program will be needed to account for staff turn-over, and also to ensure all staff are regularly refreshed and practiced in emergency response.

15.2 Exercising

Exercises perform a distinct training role and enhance emergency preparedness. Exercises have three main purposes: to validate plans; to develop staff competencies and provide practice in carrying out roles in emergency plans. It is important that personnel taking part in exercises should be trained beforehand. Participants should have an awareness of the council's emergency response and that of their key partners their own role within it, before they are subject to the stresses of an exercise.

There are three main exercise types comprising: seminar, table-top and live exercises.

Figure 15.3 - Training and Exercising Programme

Organiser	Title of training / exercise	Type	Date
Ashford Borough Council	Exercise Nutmeg – Local Multi-agency Flood Plan validation	Table-top	3rd February 2010
Kent Resilience Forum	Exercise Decem flooding exercise	Table-top	25th March 2010
KCC Emergency Planning / Tunbridge Wells Borough Council	Exercise Frey - Local Multi-agency Flood Plan validation	Live / Table-top	26th March 2010
KCC Emergency Planning / Shepway District Council	Exercise Wade – Local Multi-agency Flood Plan validation	Live / Table-top	15th June 2010
KCC Emergency Planning / Dartford and Gravesham Borough Council	Exercise Welund	Live / Table-top	7th October 2010
KCC Emergency Planning / Dover District Council	Exercise Eastre	Live / Table-top	14th February 2011
KCC Emergency Planning / KF&RS / Sevenoaks DC	Exercise Baldr	Live / Table-top	16th February 2011

KCC Emergency Planning / Swale Borough Council	Exercise Loki	Live / Table-top	18th February 2011

Defra / EA / Kent Resilience Forum	Exercise Watermark	Live	10th March 2011
KCC Emergency Planning / EA / Shepway District Council	Shepway District LMAFP validation exercise	Table-top	28th March 2011
KCC Emergency Planning / EA / Tonbridge and Malling Borough Council	Exercise Sigrun	Training exercise	30th January 2012
KCC Emergency Planning / EA / Maidstone Borough Council	Exercise Skuld	Training exercise	14th March 2012
KCC Emergency Planning / EA / Shepway District Council	Exercise Valkyrie	Training exercise	4th April 2012
KCC Emergency Planning / EA / Shepway District Council	Exercise Friia	Training exercise	26th April 2012
KCC Emergency Planning / EA / Canterbury City Council	Exercise Idun	Training exercise	9th May 2012
KCC Emergency Planning / EA / Ashford Borough Council	Exercise Ran	Training exercise	17th May 2012
KCC Emergency Planning / EA / Dartford Borough Council / Gravesham Borough Council	Exercise Sunna	Training exercise	22nd May 2012
KCC Emergency Planning / EA / Swale Borough Council	Exercise Skadi	Training exercise	23rd May 2012
KCC Emergency Planning / EA / Thanet District Council	Exercise Kara	Training exercise	30th May 2012
KCC EP / EA / Sevenoaks District Council	Exercise Atla	Training exercise	6th June 2012
KCC Emergency Planning / EA / Swale Borough Council	Exercise Sol	Training exercise	8th June 2012
KCC / EA	Kent Flood Summit	Conference	26th June 2012
KCC Emergency Planning / EA / Defra	East Coast Flooding Exercise	Table-top exercise	April 2013

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KCC Resilience and Emergencies Unit	KCC Flood Response Plan Validation Training Exercise	County Emergency Centre	October 2014
Defra / EA / Kent Resilience Forum	East Coast flooding exercise	Multi-agency exercise	February 2015
Kent Resilience Forum	Exercise Ragnarok (Coastal flooding)	Multi-agency exercise	March 2015
KCC	Exercise Thor (Surface Water Flooding)	County Emergency Centre	X3 December 2015
KCC	Exercise Eastre (Surface Water Flooding)	Training exercise	(x12) April 2016 – March 2017
Kent Resilience Forum	Exercise Surge (Coastal Flooding)	Multi- agency Exercise	September 2016
Kent Resilience Forum	Exercise Surge Recovery Exercise	Multi- agency Exercise	November 2017
KCC	Exercise Tethys (Reservoir Inundation)	Table-top	November 2017
KCC / Kent Resilience Forum	Met Office Emergency Responders	Training	28th September 2018
KCC	Exercise Persephone (Flood Plan Validation)	Table-top	13th September 2019

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Appendix A - Resources [Assets]

Resource	Who / Where	Contact Number
Sandbags	**KCC Approx. 10k filled bags at Highways Depots in Kent.** ***Some District and Borough Councils may hold stocks of sandbags, contact the council concerned for more information. It should be noted that removal and disposal of sandbags is the responsibility of the agency which deploys them.***	
Boats	**Boats – Non tidal** • **2 x 4 metre rigid inflatable craft (powered), capable of carrying a crew of 3, and rescuing up to 5 people. These boats are based at Larkfield and Whitstable Fire Stations (1 at each).** • **2 x 3.8 metre fully inflatable craft, (non-powered) capable of carrying a crew of three and rescuing up to 5 people. These boats are based at Strood and Sheppey Fire Stations (1 at each).** **Boats – Tidal** • **1 x 8.5 metre (tidal) rigid inflatable craft (powered), capable of carrying a crew of 2, and rescuing up to 16 people. This boat is based at Sheppey Fire Station.** • **Kent Police: 2 inflatable crafts and an aluminium flood boat on wheels; 2 crew all trained to advanced power boat/rescue boat** • **Environment Agency: 2 aquapeche (1 large 1 small), 2 Dory's, 2 Avon inflatable. All these craft are powered and although the EA have no trained personnel at present these resources could be made available for use by trained personnel from other organisations.** • **Port of London Police: 1 x 6.5 metre delta rigid inflatable boat, with road going trailer, fitted with 150bhp outboard engine. (10 crew trained to RYA power boat level 2) 10 Crew all trained to RYA level 2.**	

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Pumps	• **KFRS: 86 front line appliances capable of pumping in flooding situations.** • **KFRS: 1 High Volume Pump (HVP) capable of pumping between 7-8000 litres per minute. This is located at Whitstable Fire Station. National assets may also be available.** • **KFRS: 2 water management units which have 1.8km of hose each, for pumping water. These can be used alone and/or in conjunction with the HVP. These units are based at Tonbridge and Faversham Fire Stations.**	
Transport	**Kent County Council / Kent Resilience Team can procure coaches and other transport. Assets.** ***Some District and Borough Councils may have access to transport, contact the council concerned for more information.***	
Plant and Vehicles	**Kent Highways and Transportation can procure a range of plant and other assets.** ***Some District and Borough Councils may have access to plant and vehicles, contact the council concerned for more information.***	
Temporary Defences	**Some temporary defence is held by the Environment Agency in Kent. Additional national assets may also be available.**	
Catering	**KCC School Meals Contractors / Social Care catering contractors School Kitchens.**	
Waste	**Districts / KCC Waste Management (and their contractors) will lead on collection and disposal of waste**	
Specialist Advice on Structures	**KCC Kent Highways and Transportation District / Borough Council Building Control**	
Civil Air support	**Via Kent Resilience Team**	
Voluntary Sector Involvement	**Various Organisations County wide – mobilised through KCC Resilience and Emergencies and/or Kent Resilience Team**	

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Military Support	**Assets and personnel: Military Aid to the Civil Community mobilised via KCC Resilience and Emergencies and/or Kent Resilience Team**	
Personal Protective Equipment (PPE), Bedding and Other Resources	**KFRS: 45 life jackets, 45 pairs of waders and other ancillary PPE as a non-mobile special. These are based at Maidstone, Canterbury and Medway Fire Stations** **KFRS: 10 x 5 metre air track paths capable of being towed by a rescue boat, these have a capacity of rescuing 10 members of the public, these are based at Strood, Sheppey, Whitstable and Larkfield Fire Stations** **Some councils hold supplies of bedding and other supplies on behalf of KCC Emergency Planning Group**	
Rescue and Feeding of Livestock and other Animals	**KFRS: Animal Rescue Unit based at Faversham Fire Station. RSPCA and DEFRA resources.**	
KCC Emergency Contact Directory	**Refer to this**	

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Appendix B - Business Continuity Management

Under the Civil Contingencies Act 2004, Kent County Council, as a Category 1 Responder, have a duty to put in place Business Continuity Management arrangements.

Business Continuity Management (BCM) provides a framework for building in resilience to an organisation and delivering a capability for an effective response to events that might threaten its business operations.

Kent County Council Directorate Business Continuity Plans include the following documents (an overview of Business Continuity Management in Kent can be found at Section 9 of the KCC Major Emergency Plan):

- Business Continuity Management Policy;
- Business Continuity Programme Management;
- Business Impact Analysis (BIA);
- Plan Scope;
- Activation Plan;
- Response Plan or Action Plan;
- Alternative Response Strategies; and
- Recovery Requirements for critical services.

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Appendix C - Health and Safety

It is crucial that managers and staff prioritise health and safety when mobilised as part of an emergency response and do not place themselves or colleagues in potentially dangerous situations. Indeed, the Health and Safety at Work Act 1974 applies to all elements of the local authority response to a major incident and covers:

- safety of staff and contractors;
- safe systems of work;
- safe equipment;
- manual handling; and
- electricity at work.

Managers should ensure that a risk assessment, in compliance with current Health and Safety Executive guidance (Five Steps to Risk Assessment), is undertaken for the various elements of the Council's emergency response and that findings and actions are recorded and acted upon. Expert advice from the Council's Professional Health and Safety Officer should be sought as a matter of urgency. Health and Safety Executive Risk Assessment Guidance is held by all KCC Health and Safety Officers.

At an Operational level responding personnel should considered risks and undertake dynamic risk assessments. Potential hazards arising from major incidents could include:

- slips, trips, falls;
- debris on roads and footways and severe weather implications on all travel modes;
- extremes of temperature arising from weather emergencies;
- floodwaters and concealed risks;
- risk from fumes and noxious substances;
- explosion risk and / or unstable structures;
- acts of violence, working or travelling alone; and
- injury from traffic.

Access to safety equipment

A range of professional officers routinely carry generic protective equipment on day-to-day business including hard hats, steel toe cap boots, high visibility clothing, throw-lines, rigid and self-inflating lifejackets.

Stocks of water safety equipment, comprising throwlines, rigid and self-inflating life-jackets, are held at District Council offices for issue to personnel working on or close to water or mud. Lone working is discouraged when working close to water and mud and all personnel likely to be involved in the operational response to flooding or aquatic pollution incidents should have attended Kent County Council / Kent Fire and Rescue water safety awareness training session.

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Appendix D - Risk Assessments

Kent Resilience Forum – Individual Risk Assessment (IRA)

Hazard / Threat Category	Kent Risk Ref	LRMG Risk Number(s)
SEVERE WEATHER **Local fluvial flooding**	**17**	**HL19** **3.10**
Date of Revision	Next review date	
2015		
Overview of hazard or threat:		
'The flooding event would have a sub-regional impact and is a real threat to lives. Localised economic damage and need between 6- and 18-months recovery before business as usual conditions are restored. The depth and velocity of water flows will vary. Significant mutual aid would be deployed from neighbouring counties, but the response effort could be contained within a region. Assumes: See H21 - Many of the assumptions are the same for a significant local fluvial flood as they would be for a major regional flood. However, the impact may be specific to one area rather than several sites. Consequence management will be achievable within a regional level response capability.'		
Key historical evidence (last 5 years or of particular note):		

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- October - November 2000 - Many communities throughout Kent affected by the severe rainfall which fell on areas of Kent during the winter and spring of 2000/2001
- December 2002 / January 2003 – Over 100mm of rain fell over Southern Region resulting in flooding to around 126 properties in the Kent area.
- Summer 2007 – Exceptionally heavy rain in June and July 2007 resulted in fluvial and surface water flooding. The worst affected areas were Thames Valley, Gloucestershire, Humberside and South Yorkshire.
- Winter 2013-14 Between 17 December 2013 and 17 January 2014 more than 320mm of rain fell across the upper reaches of the Medway. The ground was saturated, and rivers were high when a further 65 - 70 mm of rain fell during the severe weather on 23 and 24 December, leading to flooding in many areas. The flows in the Upper Medway were the highest ever recorded resulting in more than 700 flooded homes and businesses being flooded throughout the River Medway catchment. The worst affected locations included Tonbridge, Hildenborough and Yalding in the River Medway catchment.

Likelihood	
Hazard	Likelihood
SEVERE WEATHER - Local fluvial flooding	**Medium High (4)**
Impact:	
Summary:	
Hazard	Impact
SEVERE WEATHER - Local fluvial flooding	**Moderate (3)**
Details:	

Impact associated with risk

Primary:

- Drowning of people, pets and livestock
- Major damage to property and surrounding land
- Closure, or washing away, of roads, bridges, railway lines
- Loss of (and possible damage to) telephone, electricity, gas and water supplies
- Pollution/health risks from sewerage systems, chemical stores, fuel storage tank
- Evacuation and temporary/long-term accommodation needs

Secondary

- Need for recovery strategy in aftermath of major flood
- Disruption of economic life and major costs of rebuilding infrastructure
- Public need for information, advice, benefits/emergency payments
- Insurance implications, including help for the uninsured
- Safety assessments/possible demolition of damaged buildings and structures
- Shortage/overstretch of key resources (equipment and personnel) and agencies
- Overstretch of normal communication links, including mobile phones.

Overall assessment:			
Category:			
SEVERE WEATHER			
Likelihood	Impact		Risk Rating
Medium High (4)	Overall	3	**High**
	Fatalities	1	
	Casualties	1	
	Economic	3	
	Social Disruption	3	
	Psychological	3	
Controls in place			

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Kent Resilience Forum – Individual Risk Assessment (IRA)

Hazard / Threat Category	Kent Risk Ref	LRMG Risk Number(s)
SEVERE WEATHER **Local / urban flooding (fluvial or surface run-off)**	**18**	**HL18** **3.9**
Date of Revision	Next review date	
2015		
Overview of hazard or threat:		
'The flooding event would have a regional impact, possibly translating into loss of lives, localised economic damage and need between 6- and 18-months recovery before business as usual conditions are restored. *The depth and velocity of water flows will vary.* *Significant mutual aid would be deployed from neighbouring regions, although other regions are also likely to be at risk or impacted at the same time.* *Assumes:* *See H21 (Many of the assumptions are the same for a major regional fluvial flood as they would be for a major national incident.* *Consequence management will not be achievable with in a regional response capability.'*		
Key historical evidence (last 5 years or of particular note):		

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- October - November 2000 - Many communities throughout Kent affected by the severe rainfall which fell on areas of Kent during the winter and spring of 2000/2001
- December 2002 / January 2003 – Over 100mm of rain fell over Southern Region resulting in flooding to around 126 properties in the Kent area.
- Summer 2007 – Exceptionally heavy rain in June and July 2007 resulted in fluvial and surface water flooding. The worst affected areas were Thames Valley, Gloucestershire, Humberside and South Yorkshire.
- Winter 2013-14 - Between 17 December 2013 and 17 January 2014 more than 320mm of rain fell across the upper reaches of the Medway catchment, the ground was saturated and rivers were high when a further 65 - 70 mm of rain fell during the severe weather on 23 and 24 December, leading to flooding in many areas.
- With these amounts of rainfall, flooding from all sources, surface water, groundwater, drainage systems and river systems is inevitable.

Likelihood	
Hazard	Likelihood
SEVERE WEATHER - Local / urban flooding (fluvial or surface run-off)	**Medium (3)**
Impact:	
Summary:	
Hazard	Impact
SEVERE WEATHER - Local / urban flooding (fluvial or surface run-off	**Moderate (3)**
Details:	
Impact associated with risk	
Primary:	

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- Drowning of people, pets and livestock
- Major damage to property and surrounding land
- Closure, or washing away, of roads, bridges, railway lines
- Loss of (and possible damage to) telephone, electricity, gas and water supplies
- Pollution/health risks from sewerage systems, chemical stores, fuel storage tanks
- Evacuation and temporary/long-term accommodation needs
- Rescue of people
- Loss of key services due to key office in flood zone • Rescue using boats

Secondary

- Need for recovery strategy in aftermath of major flood
- Disruption of economic life and major costs of rebuilding infrastructure
- Public need for information, advice, benefits/emergency payments
- Insurance implications, including help for the uninsured
- Safety assessments/possible demolition of damaged buildings and structures
- Shortage/overstretch of key resources (equipment and personnel) and agencies
- Overstretch of normal communication links, including mobile phones.

Overall assessment:

Category:

SEVERE WEATHER

Likelihood	Impact		Risk Rating
Medium (3)	Overall	3	**High**
	Fatalities	1	
	Casualties	2	
	Economic	3	
	Social Disruption	4	
	Psychological	4	

Controls in place

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Kent Resilience Forum – Individual Risk Assessment (IRA)

Hazard / Threat Category	Kent Risk Ref	LRMG Risk Number(s)
SEVERE WEATHER **Flooding: Major coastal and tidal flooding affecting more than two UK regions** **(This is the national picture to provide context for local risk assessment)**	**24**	**H16** **3.5**
Date of Revision	Next review date	
2015		

Overview of hazard or threat:

Assumes:

- Up to 4 days of advanced severe weather alerts from the Met Office
- Severe Flood Warnings issued up to 24 hours in advance by the Environment Agency
- Storm tide forecasting service shows risk of over-topping (up to 8hrs lead time).
- Rescue can only be by boat, helicopter or high-clearance vehicles.
- Emergency services affected if located in the flood zone.
- Evacuation warnings given to emergency services (as little as 1 hour)
- Multiple failure (breaches) of flood defence systems and significant overtopping.
- Damage or failure at: several sites of telecommunications, electrical sub-stations, water and sewage treatment works, road bridges and rail embankments, rendering these essential services inoperable for up to 14 days.
- Closure of key and essential transport routes for up to 5 days leading to national disruption to commuters and supplies of goods and services.
- There are hospitals, schools, shops and industrial/ commercial premises in the flooded area (& possibly rest centres).
- 'Properties' includes occupied mobile homes and caravans' sites in low-lying coastal zones (summer tourists).

Key historical evidence (last 5 years or of particular note):

- January 1953 - Severe flooding caused by a massive surge tide devastated North and North East coastal areas of Kent, having taken the lives of 300 people in East Anglia and then continued onto Holland and took a further 1,800 lives.
- December 2013 - The storm that hit the UK, on Thursday 5th and Friday 6th December 2013 resulted in the most serious tidal surge in over 60 years.
- Record sea levels were recorded in a number of locations. In some place's levels were higher than the destructive floods of 1953. 58 properties (42 residential, 16 commercial) were flooded during the tidal surge in the Kent and South London Area.
- At Dover the tide was the highest seen since 1905 and flooding was experienced in Strood, Conyer, Faversham and Sandwich.
-

Likelihood

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Hazard	Likelihood
SEVERE WEATHER Flooding: Major coastal and tidal flooding affecting more than two UK regions	**Medium (3)**

Impact:

Summary:

Hazard	Impact
SEVERE WEATHER Flooding: Major coastal and tidal flooding affecting more than two UK regions	**Moderate (3)**

Details:

Impact associated with risk

Primary:

- Drowning of people, pets and livestock
- Major damage to property and surrounding land
- Closure, or washing away, of roads, bridges, railway lines
- Loss of (and possible damage to) telephone, electricity, gas and water supplies

Secondary

- Pollution/health risks from sewerage systems, chemical stores, fuel storage tanks
- Evacuation and temporary / long-term accommodation needs
- Disruption of economic life and major costs of rebuilding infrastructure

Overall assessment:

Category:

SEVERE WEATHER

Likelihood	Impact		Risk Rating
	Overall	3	**High**
	Fatalities	2	
	Casualties	3	
	Economic	3	
	Social Disruption	3	
	Psychological	4	

Controls in place

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Appendix E - Kent County Council Flooding Event Model Debrief Agenda

Incident:

Date of Debrief:

Chair:

Secretary:

Present:

1. Introductions and apologies (Chair / All)

2. Background (Chair)

3. Effectiveness of alerting and mobilisation (by Team)

4. Command and control
   - what went well (by Team)
   - what went badly (by Team)

5. Recovery
   - what went well (by Team)
   - what went badly (by Team)

6. Recovery
   - what went well (by Team)
   - what went badly (by Team)

7. Did any best practice emerge during response and/or recovery (Chair / All)?

8. Are changes required to KCC Flood Response Emergency Plan (Chair / All)

9. Implications for future training and exercising (Chair / All)

10. Run through and refinement of recommendations arising from Debrief (Chair/All)

11. Outline next steps and close meeting (Chair)

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Appendix F - Extended Floodline Service

Extended Floodline Service: Background

July 2018

What is Floodline?

Floodline is a 24/7 telephone service providing up to date flood warning information and answering general flood related enquiries on behalf of the Environment Agency (EA), Natural Resources Wales (NRW) and the Scottish Environment Protection Agency (SEPA).

When calling Floodline, customers are given six options. From here, the majority of callers tend to use two main routes:

Floodline
0345 988 1188

- Option 1 - to listen to recorded information on the current flood warnings and alerts in force
- Options 3 and 4 - to the call centre, to set up or amend a flood warning registration, find out about their long term flood risk or to get general flood related advice and information (e.g. how to prepare for flooding).

Options 2 and 6 give pre-recorded advice on what to do before, during and after a flood, as well where to go to find road and travel information. Option 5 provides access to the Welsh language service.

The majority of calls are handled by a dedicated team of agents who only deal with Floodline calls. They are supported by a wider pool of agents who are fully trained in taking Floodline calls and also flood event trained agents, who are trained to answer the most common flood event enquiries such as how to prepare for flooding, how to find out the latest situation and directing reports of flooding.

The Floodline call centre experiences varying call volumes handling between 10,000 - 80,000 calls per year (plus an additional 4 times this number accessing the recording situation information), and a peak recorded number of 9,000 calls in one day.

Customer satisfaction scores are consistently extremely high and it is this dedication to continued excellent customer service which makes EFS important to us.

"I just wanted to say the adviser was brilliant - knowledgeable, patient, listened to me and explained things to me. Wonderful, wonderful, wonderful" (June 2017).

"It is very reassuring to have somebody personal at the end of the line, extremely important when people are stressed and in quite a lot of worry about flooding and I feel much more secure that I've got that back up. Thank you" (Oct 2017)

customer service line	incident hotline	floodline
03708 506 506	0800 80 70 60	03459 88 11 88

www.gov.uk/environment-agency

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What can the Floodline call agents do for callers?

The call agents can provide the following information to callers:

- Confirm and explain the long term flood risk at the location of the caller's property or a property/location they are interested in
- Confirm which flood warnings and alerts are currently in force which may affect the caller, and provide the latest available information on the situation
- Provide advice on where the caller can obtain further information online about flood warnings in force
- Register a caller to receive flood warnings (by telephone, text and email) or make amendments to existing customer's accounts.
- Provide advice on how callers should prepare for flooding and what actions they should take during and after a flood
- Provide general advice on surface water flooding (e.g. who is responsible and how the surface water maps are produced), and other sources of flooding
- Pass reports of flooding from rivers or the sea to our Incident Hotline so that these can be logged and passed to the relevant local Area team if further action is required
- Pass reports of blockages in rivers which may result in or exacerbate flooding to our Incident Hotline so that action can be taken (where possible)
- Arrange for further information to be provided to the caller by the relevant Area office (e.g. to obtain a report for home insurance or regarding a planning application)
- Provide advice on who the caller needs to speak to if they are unsure of the responsibilities of responding organisations

Callers should not be advised to call Floodline simply if your organisation is unable to help them any further. They should only be told to call Floodline if they require any of the information listed above that falls under the EA/NRW's remit.

Why do we need EFS?

Feedback from previous flood events tells us that many people are passed from one organisation to the other when they are trying to obtain information. The public often do not know the different responsibilities of organisations who respond to flooding, and as Floodline is often the most visible number, they are asked a lot of questions for which they do not have the answers.

What the Floodline call agents cannot do for callers

Members of the public should not be advised to contact Floodline for the following:

- To arrange for water to be pumped out of flooded homes and businesses
- To report flooding when the source is known to be from surface water, the sewer system, a burst water main or any other source except rivers or the sea
- To arrange for blockages in drains, non-main rivers and other structures not maintained by the EA/NRW to be cleared
- To arrange for assistance with evacuations to rest centres

What we would like the call agents to be able to do for callers through EFS

The aim of EFS is to improve the experience for callers whose query is outside Floodline's remit, and who we would otherwise have to redirect - specifically those who we may advise to contact their Local Council. Through EFS, we would like to be able to provide the answers to common and frequently asked questions regarding those things that may fall under the Local Council remit while educating them in who to contact in the future, such as:

- Sandbags or property level protection
- Drains, culverts, sewers or water mains**
- Surface water flooding, flooded properties or flooded roads
- Evacuation, rest centres, helping vulnerable people or longer term assistance
- Recovery following flooding
- Contacting the council or community assistance

These are the questions most frequently asked where we have to ask the caller to contact their council or other third party. **Signposting to third party organisations can be added to EFS, where it is locally specific, and provides only publically available details - for example the name and number of the local water company.

How does the service work?

The Floodline agents have an existing knowledgebase of frequently asked questions provided by the EA, NRW and SEPA.

EFS uses a series of topics for Local Councils to add local information to supplement the general information already available to the Floodline agents. This is then added into the knowledge base of information used by the agents to handle calls.

When a customer calls the Floodline call centre, they are asked to provide a postcode so that agent can provide location specific flood related information. It will also tell them who their Local Council is and whether they have provided information via EFS.

The agent can then use the EFS section to provide the information as required. If the information is not available or the caller requires further help, the call can be transferred to the local council. If a transfer is not possible the agent can email you on behalf of the caller. Transfers or emails can only take place if the local council has allowed us to do so by providing contact details and opening times.

For further information on the Topics that Local Councils can add via EFS, please read the document '**Knowledgebase Content - guidance on what information to provide for EFS**'.

What are the benefits of EFS?

- Enables the public to obtain locally specific information alongside general advice in the same call
- Saves callers time and reduces possible frustration and anxiety
- Helps educate callers as to where to obtain this information in the future
- Free for Local Councils to join
- No training or log in details needed

How to join EFS

Local Councils, including County Councils have two options to join the service. Using the template provided, you can choose to complete the FAQs section only, or you can additionally complete the Transfers section with contact details (telephone and email) for the Floodline agents to use to transfer callers. The agents cannot see the contact details you supply so these details will not be given to the public (unless you also include them in the answers to your FAQs).

In two-tier areas, information for County Councils and District Council can either be collated under the county council, or separately. However, councils must liaise with each other to avoid significant duplication or contradicting pieces of information. The Floodline agents are trained on the different roles of single and two-tier councils but there should be a clear distinction in your FAQ content. Transfer details must be associated to the relevant individual council.

How much of your time will EFS take up?

To join the EFS you will need to do the following:

- Read the background information and guidance materials provided.
- Write the FAQs for your council using complete the template provided (with or without contact details for transfers). Review the Terms of Service included on the template.
- Send your information to the local EA/NRW rep who will pass it to the National Flood Risk Services team, NFRS, (fwisteam@environment-agency.gov.uk) for checking and uploading.
- Incorporate EFS into your incident management arrangements - should the need arise, you can request urgent information to be briefed out to the Floodline agents as a temporary bulletin (eg major evacuations required) via the template provided.
- Review your FAQs when requested (every 12 months), or whenever changes are required.

Need further help?

If you have any further questions about the purpose of EFS and how it works, please contact your Environment Agency/NRW Area Primary User, or email fwisteam@environment-agency.gov.uk

Kent County Council Flood Response Plan

Issue 7 (November 2019)

Plan owner: Director of Environment, Planning & Enforcement