

OFFICIAL

Multi-Agency Flood Plan for Waltham Forest

Version 2.0 (draft)

December 2021

Developed by the
Waltham Forest Borough Resilience Forum

Document Control

This Multi-Agency Flood Plan (MAFP) is prepared, maintained and updated by the Borough Resilience Forum (BRF).

The intended audience of this plan is to all Category 1 and Category 2 Responders under the Civil Contingencies Act 2004 and key voluntary response organisations.

This plan will be updated on an annual basis. However new risk assessment, lessons identified from incidents or exercises, restructuring of organisations or changes in key personnel should also prompt updates to the plan. Therefore all responders must advise the BRF of any changes in circumstances that may materially affect the plan in any way.

Any updates and modifications of this plan will be approved by all members of the BRF:

- London Fire Brigade
- Metropolitan Police Service
- NHS Waltham Forest
- Local Authority
- Environment Agency
- London Ambulance Service

Notification will be given by the council's Civil Protection Service.

This document has been compiled in consultation with all members of the BRF.

Amendment details

All changes will be tracked and marked by the council's Civil Protection Service.

Date	Details of amendment	Approved by	Signature
05.2014	Lessons from Ex Poseidon, BRF report	P. Rossouw	
08.2015	Inclusion of Appendix L – Highams Park Lake – Emergency Procedures	P. Rossouw	
07.2017	Updates to tables, text and inputs from EA	P. Rossouw	
09.2021	New National and London Guidance	P. Rossouw	

Training and Exercising

It is essential to train responding officers in their roles and responsibilities before they need to use the plan during an exercise or an actual event. Training should take place at appropriate intervals (at least every 3 years) to maintain awareness and to inform responding officers of any amendments.

Exercising the plan and responding officers will identify areas for improvement and ensure that staff are able to deal with a flooding incident, should one occur. Exercises aim to validate the plans, train staff and test procedures.

Such exercises may be internal, or tied into other multi-agency exercises. They should confirm the roles and responsibilities of responding departments/ agencies, as well as the adequacy of communications, resources and equipment.

It is recommended that exercising this plan at operational and strategic levels is undertaken whenever there is a major revision, or at least every three years.

Organiser	LBWF Borough Resilience Forum	Exercise Title	TBC
Date	TBC	Type	Table-top exercise
Relevant lessons / link			

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PLAN ACTIVATION

Activation

- Local Response Levels
 - Figure 4: Triggers and Local Response Levels
 - Preparation Actions (Level 1) – Section 1.6
 - Response Actions (Level 2 & 3) – Section 1.6

Command, Control & Co-ordination

- Multi-Agency Response (Section 2.2)
- Default Gold Strategy
- Local Borough Strategic Co-ordinating Group (Gold)
 - Meeting Agenda (Appendix G)
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 - Meeting Agenda (Appendix H)
- Communication

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- Figure 5: Generic Flood Actions per Agency
- Appendix F: LESLP Guidelines

MAFP PART ONE: CONTEXT

1.1 Purpose and Scope

This plan covers the requirement for a multi-agency response to a flood incident within the London Borough of Waltham Forest. This plan does not have regard for actions to be taken during any other type of emergency. This plan will not include details of emergency contact numbers or activation arrangements which responding organisations already maintain. Each organisation will maintain their own resources list. The plan is designed for use in which a multi-agency Strategic Co-ordinating Group (SCG) is formed. The plan should be read in conjunction with the London Strategic Flood Response Framework.

The London Borough of Waltham Forest is potentially vulnerable to various types of flooding:

- Fluvial. The River Lee, the Ching Brook and the Dagenham Brook all pass through the borough, creating considerable risk of fluvial flooding at a number of locations.
- Reservoir. There are a number of non-impounding reservoirs linked to the River Lee system. Some of these are banked structures in which the water surface level is above the surrounding area. As a result, there is a risk, albeit very low, of a reservoir bank failure leading to severe local flooding.
- Surface Water. Waltham Forest is also vulnerable to surface water flooding.
- Private Lake. The Highams Park Lake due to its water levels.

Due to these risks, a Multi-Agency Flood Plan (MAFP) is needed.

Sources of Flood risk not Covered by this Plan

- Foul Sewage NOT covered by this Plan because the impact is likely to be local:
 - Resulting from blockage or surcharging of the sewerage network leading to overflow through manholes etc: The responsibility for response lies with the relevant utility company. However, flood water contaminated by foul water sewage may require additional actions by responders.
- Water Main Burst NOT covered by this Plan because the impact is likely to be local:
 - Responsibility lies with the relevant utility company, although visible impacts will be similar to a surface water flooding event.

This plan covers a borough based response; however floods will not have regard for political and administrative boundaries. As such this plan must be shared and liaison arrangements made with other neighbouring areas.

1.2 Aim and Objectives

The aim of this MAFP is to provide a flexible framework for a coordinated multi-agency response to mitigate the impact of a large-scale flood event within the London Borough of Waltham Forest.

The multi-agency tactical response objectives are:

- Outline the triggers for activation of the Plan
- Establishment of multi-agency command and control structures
- Identify the Roles and Responsibilities of responding agencies
- Provide advice and information to communities at risk of flooding

- Communicate during a flooding incident to warn and inform the public of current and imminent risk
- Establish clear lines of communication between responding partner agencies to ensure messages to the public are consistent and accurate
- Minimise the dangers to the public, including evacuation if appropriate
- Minimise the risks to the responders
- Mitigate the effects of flooding within communities, including protecting key infrastructure
- Identify and consider the needs of vulnerable groups
- Protect the environment as much as possible
- Facilitate the recovery phase following an incident
- Outline training and exercising schedules for participating agencies/ partners

1.3 Ownership & Authorisation

This plan is owned by the Borough Resilience Forum. The plan is authorised and agreed by the Borough Resilience Forum following consultation with all responding agencies. All changes will be tracked and marked by the council’s Civil Protection Service.

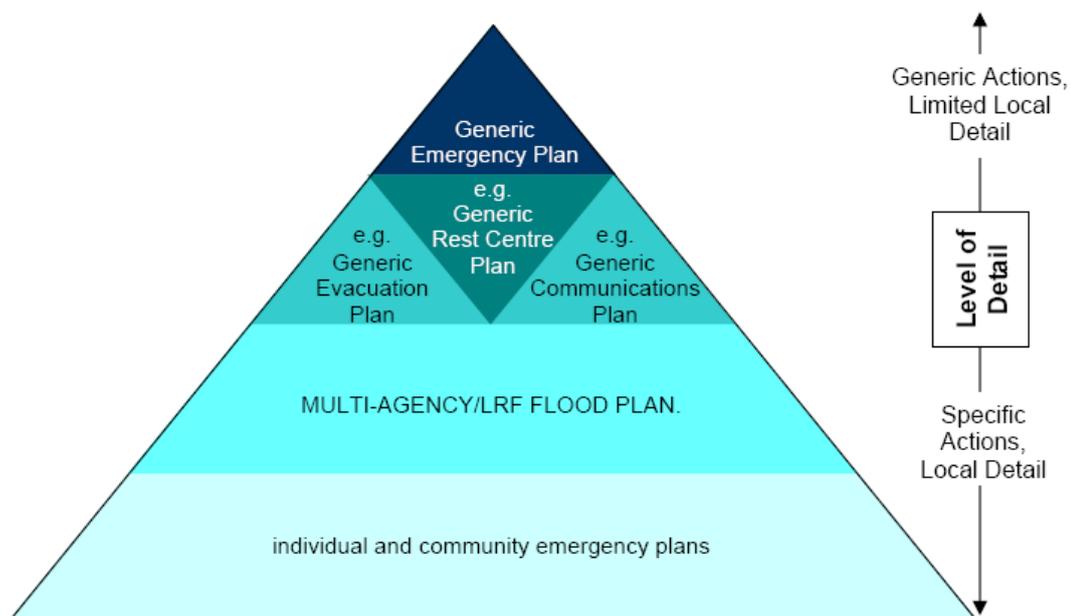
1.4 Audience

This document is intended for tactical level decision makers within Waltham Forest – it is not a public facing document. However, should this document need to be shared, the appendices will be excluded.

1.5 Related Plans

There are a number of different plans and protocols relevant in responding to local flooding within Waltham Forest. It is vital that it is understood how these plans fit with this Multi-Agency Flood Plan - see figure 1 below. Rather than duplicate any of their content within this plan, areas will be clearly signposted.

Figure 1: Interdependent Plans

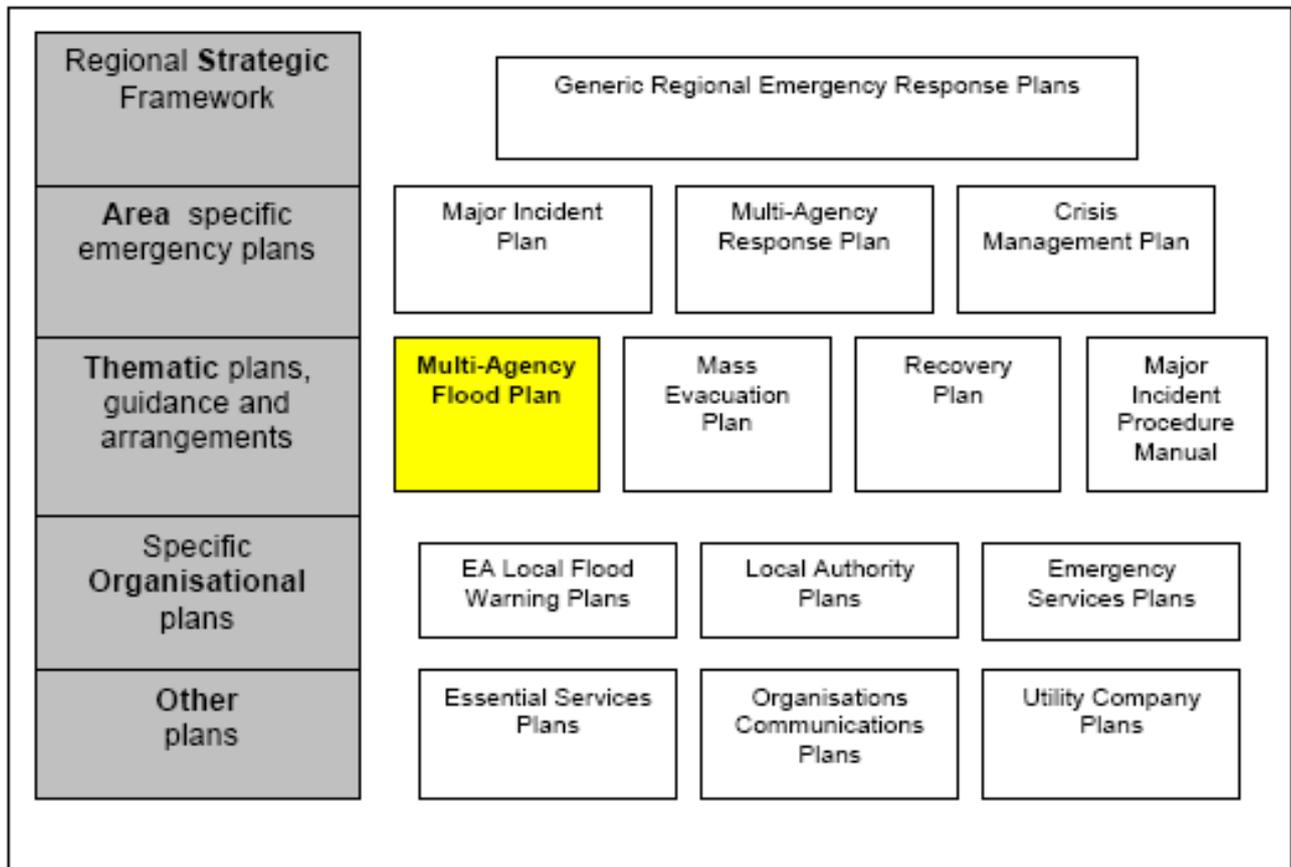


Plans and protocols that are related and interdependent to this Multi-Agency Flood Plan are listed below figure 2, and figure 3 shows how these plans can be fitted together.

Figure 2: Related and Interdependent Plans

Title	Owned By
Corporate/ Individual Business Continuity Plans	All
Corporate Emergency Management Plan	All
Resilient Communications (Failure) Plan	All
Corporate Emergency Communication Plan	All
LESLP Emergency Procedures Manual	LESLP Panel
London Regional Command and Control Protocol	LRPB
London Flood Response Strategic Plan	LRPB
Emergency Response and Recovery Guidance	Cabinet Office
Rest Centre/ Community Assistance Centre (CAC) Plan	LA
Recovery Plan	LA
Surface Water Management Plan	LA
Vulnerable Persons Plan	LA
*For information concerning these plans contact the owning organisation or look in the bibliography for a link to the source material.	

Figure 3 - Fitting Emergency Plans Together



1.6 Triggers and Activation

There are several thresholds and triggers that can be used to assess the need to escalate a situation and activate this plan. Activating the plan will instigate a coordinated multi-agency response.

There are two stages of activation:

- Preparation (level 1)
- Response (level 2 & 3)

Preparation (Level 1) should be activated when any of the following occur:

- London is coloured amber or red (medium or high risk) on the Flood Guidance Statement
- The Met Office have issued a medium or high impact Weather Warning or Alert (includes storms, wind, snow, rain, etc) for the London area, followed by a message from the Met Office Advisor (Civil Protection Service), confirming the likelihood of the disruption
- The Environment Agency issues a Flood Alert for a river in Waltham Forest
- Problems have been identified with a reservoir upstream or within Waltham Forest but has not yet failed or started to fail
- Reports in the media are talking about potential flooding in London

Response (Level 2 & 3) should be activated when any of the following occur:

- The Environment Agency issues a Flood Warning or Severe Flood Warning for a river in Waltham Forest
- The Met Office issues an Amber or Red Weather Warning for the London area
- Any organisation becomes aware of disruption to transport in Waltham Forest due to flooding
- Any organisation receives reports of properties flooding internally
- Instruction to escalate our response from the London Resilience Forum (usually in response to a pan London incident) – top down activation
- A reservoir either boarding on or within Waltham Forest is failing

Refer to figure 4 below for information concerning the thresholds for the different local response levels (0-4).

Figure 4 – Triggers and Local Response Levels

Local Response Level	Trigger	Actual or forecast Impact	Response Action
Level 0 Low Flood Risk	Green flood guidance statement. Represent normal operating arrangements. Yellow Flood Guidance Statement – slightly heightened forecast flood risk but no need to take any pre-cautionary actions	No local issues or warnings relating to flooding impacting on any organisation.	<ul style="list-style-type: none"> ▪ Business as usual ▪ Council: start putting out messages for Yellow warnings asking people to register for flood alerts etc

Local Response Level	Trigger	Actual or forecast Impact	Response Action
Level 1 Moderate flood risk - Preparation	EA issued Flood Alert, Amber or Red flood guidance statement, or Met Office severe weather warning in force that may result in flooding and/or reports of minor flooding	Investigate local impacts as a result of information received. Low impact flooding of gardens, external areas around residential properties, public footpaths and residential roads. Likely to be flooding to low-lying areas of land. No internal property flooding expected.	<ul style="list-style-type: none"> ▪ Met Office to issue weather warnings ▪ Council to disseminate these warnings internally and share these with residents/businesses as appropriate, along with any additional information that may be required ▪ All local responders to have a heightened awareness of flood risk ▪ Self-evacuations possible
Level 2 Substantial flood risk - Response	EA issued Flood Warning and/or, reports of property flooding, and/or media interest	<u>As level 1, plus:</u> High impact flooding to homes and businesses. All roads, residential property flooding as well as infrastructure affected. Evacuations may be required. Likely to be property flooding, including homes and businesses.	<ul style="list-style-type: none"> ▪ Council and LFB to do visual checks of known problem areas, checks to confirm receipt of information by key personnel along with additional information. ▪ Council to continue communication with the public and affected population. ▪ Council/ Police/ LFB initiate communications with other organisations if required (multi-agency). ▪ Council to consider opening BECC and informs London Resilience Team (LRT). Rest Centers may be required. ▪ Council/ Police/ LFB clarify with EA/ Met Office what further rainfall/ flooding is expected. ▪ Council/ Police/ LFB instigate local major incident plan. ▪ Council/ LFB investigate any reports of flooding.
Level 3 Severe flood risk - High Level Response	EA issued Severe Flood Warning and/or reports of widespread flooding, and/or media interest	<u>As level 2, plus:</u> Very high impact flooding which may result in danger to life and widespread property flooding.	<u>As level 2, plus:</u> <ul style="list-style-type: none"> ▪ When flooding takes place that requires implementation of special arrangements then

Local Response Level	Trigger	Actual or forecast Impact	Response Action
			<p>organisations <u>will activate the Multi-Agency Flood Plan (MAFP)</u> supported by their generic emergency plans during this response phase. (Figure 5/ Appendix F)</p> <ul style="list-style-type: none"> ▪ Multi-agency communication of any problems affecting service delivery. ▪ Maintain communication with the public and affected population if necessary.
<p>Level 4 Recovery (Flood Alert/Flood Warning/Severe Flood Warning no longer in force)</p>	<p>“Flood Alert/ Flood Warning/ Severe Flood Warning no longer in force” message received and/or No warnings of severe weather in force that may result in flooding</p>	<p><u>Flood water receding</u></p>	<ul style="list-style-type: none"> ▪ Contact any members of staff placed on standby due to previous information and confirm they can stand-down(depending on their response role – ongoing support). ▪ If flooding occurred move to the ‘Recovery’ phase, see section 2.5 for organisations responsibilities during the ‘Recovery’ phase. For further information see the Recovery plan. ▪ LLFA (council) to investigate flooding incident and produce report.

When members of the public or employees report flooding incidents, communications will be undertaken internally, and to external partners where identified. A visual inspection of the problem will take place, if necessary the multi-agency flood plan will be activated.

Response Action: Further Details Supporting Figure 4

Preparation (Level 1)

- The Council and Thames Water (including private landowners) ensure their ongoing maintenance of the drainage systems, in order to minimise the impact of surface water flooding.
- Consider arrangements for preparing staff to deal with a potential incident. This may involve placing key staff on standby or assessing staffing levels and availability for the next 3 days.

- Ensure that your organisation's Business Continuity Plan is in place in order to sustain the critical business activities during a potential flooding event.
- Prepare for potential media interest. Allocate a media spokesperson and confirm your organisation's key messages. Consider issuing proactive press releases to highlight that we're ready to respond and give advice to the public on how to prepare for flooding.
- Check your organisation's local coordination centre / incident room is fully prepared to be opened if necessary.
- Check stocks of equipment and supplies both for your own needs and that which is provided to the public.
- Enquire about the status of your partners who you would normally rely on for mutual aid so you know in advance whether you can rely on them or not.

There may be a period of inactivity from when any/ all of the above items have been actioned to when flooding occurs and activation of stage 2 is necessary. This could range from hours to days, depending on the detail and confidence of the weather/flood forecasts. There will be occasions when stage 1 is activated and preparations for an escalating situation are made, but activation of stage 2 is not required.

By activating stage 1 though at the given triggers, escalation to stage 2 can be made much quicker and smoother, enabling responders to stay ahead of the incident, instead of trying to catch up.

Response (Level 2 & 3)

- Organisations should activate their own generic emergency response plans and/or BCM plans to prepare for or deal with transport and staff disruption and an increase in calls from the general public. Additional staff will be required to work on the incident response if other core activities are to be maintained.
- LB Waltham Forest should convene a tactical level multi-agency meeting or teleconference so the situation and status of each responder can be assessed, to give an overall picture for the borough.
- Organisations should open their control centres / incident rooms where appropriate to provide co-ordination for your organisation and a central point of contact.
- Single points of contact for each organisation should be circulated to ensure effective communication.
- By opening the Borough Emergency Control Centre (BECC), notification of the incident will be sent to London Resilience Team and London Fire Brigade Emergency Planning.
- The BECC may be required to open or submit situation reports to the Local Authority Co-ordination Centre at the request of the Local Authority Gold, if flooding incidents are already occurring in other boroughs, even if the situation in Waltham Forest is currently under control.
- Consider the need for a local borough strategic (Gold) co-ordination group to be established at the outset. Virtual meetings may be more appropriate, as regional/ national responders may need several hours notice to attend a meeting in person. Travel times are likely to be longer than normal due to transport disruption caused by flooding.

- Organisations should check the situation of all their key sites and infrastructure that is known to be in flood risk areas. Any site that is near locations currently experiencing flooding should be brought to the attention of the local borough tactical (Silver) group. Critical sites that are known to be in flood risk areas should also be highlighted so plans can be made to protect them if necessary.
- Local borough strategic/ tactical (Gold/ Silver) meetings should be planned for the next 2 days and details circulated to partners.
- Media messages need to be agreed and circulated on a regular basis. A flooding situation can change rapidly.
- The Environment Agency will try, when possible, to consult with the multi-agency borough Gold group before issuing a Severe Flood Warning. This will allow all responders to prepare for increased media and public interest.

All organisations should keep a log of all details of any reports of flooding and pass them to the Environment Agency on a regular basis (where practicably possible). These can be observations from staff who are travelling around or from calls from the public. The Environment Agency will collate these details and circulate summaries at regular intervals.

Figure 5 - Flooding Responsibilities and Actions

Who	Flooding Responsibilities & Actions A full list of responsibilities during an emergency can be found in Appendix F.
Metropolitan Police Service	<ul style="list-style-type: none"> • Level 0–1: <ul style="list-style-type: none"> ○ As stated in figure 4
	<ul style="list-style-type: none"> • Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Saving of life; ○ Evacuation / invacuation; ○ Cordoning; ○ Traffic control and diversion; ○ Warning and informing; ○ Security of scene / properties.
	<ul style="list-style-type: none"> • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Recovery cell built into command and control protocols.
London Fire Brigade	<ul style="list-style-type: none"> • Level 0–1: <ul style="list-style-type: none"> ○ As stated in section figure 4
	<ul style="list-style-type: none"> • Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Saving of life – search and rescue; ○ Warning and informing the public ○ Assistance with pumping water; ○ Priority to flooding involving a risk to life, fire or explosion; calls from hospitals, residential care homes for the elderly, public utilities and food storage depots; ○ Environmental issues.
	<ul style="list-style-type: none"> • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Assist other agencies to minimise the impact on the community.
London Ambulance Service	<ul style="list-style-type: none"> • Level 0–1: <ul style="list-style-type: none"> ○ As stated in figure 4
	<ul style="list-style-type: none"> • Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Saving of life; treatment, stabilisation and care; ○ Transportation of medical personnel and patients; ○ Support evacuation of vulnerable persons (where possible depending on operational constraints); ○ Hospital evacuation, provision of senior officer to liaise with consultants regarding transport for critically ill patients.
	<ul style="list-style-type: none"> • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ N/A

Who	Flooding Responsibilities & Actions A full list of responsibilities during an emergency can be found in Appendix F.
London Borough of Waltham Forest	<ul style="list-style-type: none"> • Level 0–1: <ul style="list-style-type: none"> ○ As stated in figure 4 • Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Warning and informing the public; ○ Activation of information help-line for the public; ○ Provision of temporary sanitary facilities; ○ Liaison with utility and transport companies especially water company to ensure provision of clean drinking water to residents; ○ Provision of anti-flooding measures and workforce to construct and maintain mitigating measures – within the capability of the Council's Flooding Preparedness Plan; ○ Transport of evacuees to rest centres; ○ Provision and staffing of rest/reception centres and associated services; ○ Providing signage for road closures; ○ Maintaining traffic flows (in conjunction with police) especially for emergency services and repair effort; ○ Assisting EA in repairing river defences; ○ Provision of emergency lighting / generators (if available); ○ If applicable, provision of temporary mortuary and / or activation of mass fatalities plan. • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Coordination of recovery; ○ Provision of temporary longer-term accommodation for residents made homeless by the flooding; ○ Assisting residents in removal of damaged furniture and household goods; ○ Education of pupils affected by school closures; ○ Provision of counselling and other advice to affected / upset residents.
Environment Agency	<ul style="list-style-type: none"> • Level 1 – 3 (Preparation & Response): <ul style="list-style-type: none"> ○ Issue flood alerts and warnings. ○ Lead public body for protecting and improving the environment. ○ Operate and maintain flood defences. ○ Collect incident information including flooded property data • Recovery (Level 4): <ul style="list-style-type: none"> ○ Support LA's and community as resources allow; ○ Downgrade / remove flood alerts ○ Repair any damaged defences.

Who	Flooding Responsibilities & Actions A full list of responsibilities during an emergency can be found in Appendix F.
NHS England/ CCG	<ul style="list-style-type: none"> • Level 0-1: <ul style="list-style-type: none"> ○ Liaise with United Kingdom Health Security Agency (UKHSA) ○ Maintain clinical services across the borough • Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Warning and informing the public ○ Link with Local Authority with regard for identifying vulnerable people ○ Link with LAS with regard to potential primary care evacuation ○ Brief incident controls and general public on health risks associated with the flooding incident ○ Liaise with other agencies • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Once flooding has receded obtain statistics of human cost to inform borough wide plans
NELFT	<ul style="list-style-type: none"> ▪ Preparation phase (Level 0-1) <ul style="list-style-type: none"> ○ Maintain liaison with Borough Resilience Forum (BRF) partners ○ Continue with business as usual ○ Internally raise awareness of flooding risks and actions ▪ Response phase (Levels 2 & 3) <ul style="list-style-type: none"> ○ Liaise with BRF partners ○ Link with BRF partners to identify 'high risk' service users ○ Link with health system partners to provide coordinated health response ○ Support local response as required ○ Maintain critical services across the borough ▪ Recovery phase (Level 4) <ul style="list-style-type: none"> ○ Support on-going health monitoring of displaced and affected service users
National Grid	<ul style="list-style-type: none"> • Level 0-3: <ul style="list-style-type: none"> ○ Maintain supplies to customers. ○ Work with the emergency services to isolate supplies. ○ Possible lock out of regulators to maintain pressure in gas mains. ○ Possible reconfiguration of supplies where possible. • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Re-establish supplies.

Who	Flooding Responsibilities & Actions A full list of responsibilities during an emergency can be found in Appendix F.
British Telecom	<ul style="list-style-type: none"> • Level 0-3: <ul style="list-style-type: none"> ○ Maintain supplies to customers. ○ Co-operation with emergency services and EA. ○ Provision of anti-flooding measures (e.g. sandbags) – own properties.
	<ul style="list-style-type: none"> • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Test contamination within own buildings; ○ Carry out remedial works and dry out buildings.
British Transport Police	<ul style="list-style-type: none"> • Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Assist with the evacuation of premises if necessary; ○ Assisting to secure premises to prevent damage and or theft.
	<ul style="list-style-type: none"> • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Will work with the railway industry to assist in the implementation of recovery plans.
Transport for London	<ul style="list-style-type: none"> • Level 0-3: <ul style="list-style-type: none"> ○ Flood Management for London Underground. ○ Co-ordinate with emergency services.
	<ul style="list-style-type: none"> • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Restoration of services to affected areas.
Barts Health NHS Trust	<ul style="list-style-type: none"> ▪ Level 0-1: <ul style="list-style-type: none"> ○ Maintain liaison with BRF partners ○ Continue with BAU ○ Internally raise awareness of flooding risks and actions
	<ul style="list-style-type: none"> ▪ Response phase (Level 2 & 3): <ul style="list-style-type: none"> ○ Liaise with BRF partners ○ Support local response for acute patients. ○ Maintain clinical services across the Barts Health sites located within the borough.
	<ul style="list-style-type: none"> ▪ Recovery phase (Level 4) <ul style="list-style-type: none"> ○ Support on-going health monitoring of patients, which will reflect the scope of the impact. Patients may have been relocated (to other acute sites) and/ or displaced within the borough – possibly limiting the capacity of admitting residents to hospital.

Who	Flooding Responsibilities & Actions A full list of responsibilities during an emergency can be found in Appendix F.
Thames Water	<ul style="list-style-type: none"> • Level 0-3: <ul style="list-style-type: none"> ○ Maintain supplies to customers. ○ Work with the Council/ EA/ LFB to support with removal of flood water. Water and sewerage companies are responsible for managing the risks of flooding from water mains, foul and combined sewer systems. Dependent upon operational constraints we have a number of resources which may be able to pump out flooded properties ○ Possible reconfiguration of supplies if necessary. Thames Water will endeavour to maintain a piped supply to all customers, in the event of a water disruption they will undertake activities on the network to deliver this piped supply. Should Thames Water be unable to maintain a piped supply, then they will look to provide alternative water, which may be via static tanks or as bottled water • Recovery phase (Level 4): <ul style="list-style-type: none"> ○ Support with clear up (depending on responsibilities). As Thames Water are not liable for the flooding, they are not obliged to provide clean-ups. Customers need to speak to their insurance companies for support with the further recovery from the floods. If Thames Water do provide a clean-up (as a good will gesture) the clean-up will include a basic litter pick of solid items, washing down of hard standing areas, disinfecting of hard standing areas, and pump out of basements, where necessary.

MAFP PART TWO: STRATEGIC - BRF WIDE INFORMATION

2.1 Flood Risk and Impacts

Sources. Sources and types of flood risk include:

- Fluvial flooding (rivers)
- Tidal flooding
- Flash flooding (rapid response catchments)
- Surface water flooding/pluvial flooding (excessive run-off)
- Groundwater flooding (high water table)
- Sewer flooding (sewerage, rising mains and pumping stations)
- Reservoir flooding/dam inundation
- Canal flooding.

The command and control structure described in this plan will be used regardless of the type of flooding experienced.

Risk. The following table shows the risk rating for each of the three catchment areas within the borough. A detailed flood risk assessment for each area can be found in Appendix D.

Figure 6 – Flood risk rating by source

Flooding (Appendix C)	Final Risk Rating
Fluvial Flooding (large scale, wide area, regional (L21)) <ul style="list-style-type: none"> • The Ching Brook including Highams Park – Figure 10 • The Lower River Lee at Hackney and Walthamstow - Figure 12 • The Lower River Lee at Enfield - Figure 5 	Very High
Costal/ Tidal Flooding (HL19)	High
Ground Water Flooding (L19)	Ver High
Surface Water Flooding (H22) – Figure 13	Very High
Flooding from other sources (L19)	High
Major reservoir dam failure/ collapse (H44) – Figure 14	Very High

Flooding within the borough has the potential to not only affect the local residents but also present a regional incident because of the major transport routes and hubs that could be affected.

Historical analysis. Waltham Forest has experienced serious flooding incidents in the past, most notably in 1928 and 1947. There remains a significant risk of flooding in the borough from two sources: fluvial and surface water. The London Community Risk Register assesses the risk of fluvial or surface run-off flooding as a ‘Very High’ risk and forms the top two risks identified for London. The local risk assessment process has determined that there is a medium risk from a breach to one of the reservoirs affecting the borough, the likelihood of a breach occurring is low but the potential impacts are catastrophic for the local and regional area.

The Surface Water Management Plan (SWMP) carried out an intermediate assessment of the surface water risk within the borough. Analysis of the information collected and the modelling undertaken for the SWMP has indicated that a total of 26,400 residential properties and 3,600 non-residential properties could be at risk of surface water flooding (to a depth greater than 0.03m) during a rainfall event with a 1% chance of occurring.

An overview map, showing the risk of flooding across Waltham Forest can be found in Appendix B however, to provide meaningful responses, and for ease of reference, Waltham Forest has been broken down into three different character areas. These areas are based on the Environment Agency flood warning areas. The three character areas are the River Lee north of Ferry Lane, the River Lee south of Ferry Lane and the Ching Brook including Highams Park. The extent of these three Flood Warning Areas can be seen in Appendix C.

Appendix C contains the detailed information on each of the three character areas along with the appropriate mapping. Each area has been given a risk rating (figure 6) to help identify key vulnerable communities.

Location and extent.

Fluvial flooding. The risk of fluvial flooding in the borough derives from two river systems. The River Lee, one of the major tributaries to the Thames, follows the length of the borough's western boundary, while one of the Lee's tributaries (the Ching Brook) bisects the borough from north-east to west. The Dagenham Brook, in the south of the borough provides an additional source of risk by diverting water from the Lee River Flood Relief Channel through three highly urbanised wards.

There are several densely populated areas of the borough located close to these watercourses. The Environment Agency estimates that approximately 269 properties within the borough have a 1:20 (5%) risk of fluvial flooding, while 1,209 a 1:100 (1%) chance and 4,877 a 1:1000 (0.1%) chance of flooding.

Flash flooding. 'Rapid response catchments' are rivers or streams that react rapidly to extreme rainfall, resulting in flooding that poses a significant risk to life. The force of the water has the ability to destroy buildings and bridges, carry vehicles away and sweep people off their feet.

This type of flooding is only expected after very extreme weather. Rivers and streams in these catchments have the ability to flood in any given year, but the chance of them flooding in such a severe way is exceptional.

Flooding from a rapid response catchment is referred to as 'flash flooding'. This is not to be confused with 'surface water flooding'. These types of flooding can be caused by intensive rainfall but flash flooding is a type of fluvial flooding, surface water flooding is not.

Surface water flooding. This type of flooding can occur anywhere in Waltham Forest as a result of rainwater accumulating faster than it can drain away. Flatter and low lying places are more vulnerable, particularly those located close to watercourses. The cause can be either a blocked gully/ drain or very high intensity rainfall of the type most usually associated with thunderstorms. Neither are easy to predict so flooding may occur with little warning.

Surface water flooding, when unaccompanied by fluvial or tidal flooding, is not likely to trigger a major incident unless widespread occurrence causes significant traffic disruption or strains the response capability. The drain London project has delivered a Surface Water Management plan that aims to mitigate and manage some of the causes of surface water flooding within the borough.

Mapping produced for the Surface Water Management Plan has been included (Appendix B) to show the likely extent of flooding caused by a rainfall event with a 0.5% chance of occurring in any given year. The mapping shown within Appendix B is suitable to identify broad areas which are more likely to be vulnerable to surface water flooding.

Groundwater flooding. Groundwater flooding occurs when a rise in groundwater level is sufficient for the water table to intersect the land surface and inundate low lying areas.

This tends to occur after much longer periods of sustained rainfall. Higher rainfall means more water will infiltrate the ground, thus causing the water table to rise above normal levels. When properties suffer from groundwater flooding there is very little that can be done to prevent the water rising. It also takes longer to disperse because groundwater dissipates more slowly than surface water.

Sewer flooding. Flooding can occur when sewers are overloaded by heavy rainfall. Failure of a sewer system (due to a pipe collapse, build-up of fat/debris or failure of a pumping station) can also cause flooding.

Where flooding occurs from foul sewers the floodwater will be contaminated with sewage. This has health implications both for the public and emergency responders. In some cases, contaminated floodwater can flow back through foul sewers causing flooding inside properties. Water companies are responsible for the foul sewerage system. They are also responsible for any surface water systems they have adopted. They do not have responsibility for watercourses, other land drainage systems or privately owned sewerage systems.

Reservoirs. There are eleven reservoirs subject to the Reservoirs Act 1975 (updated by the Flood and Water Management Act 2010) that have the potential to cause an impact on the borough. Nine of the reservoirs are located within the borough with the other two located within the London Borough of Enfield:

- Banbury (TP3236BD) – LBWF (Thames Water)
- East Warwick (KP3732BZ) – LBWF (Thames Water)
- Highams Park Lake (KP3136BT) – LBWF (City of London)
- High Maynard (CP3232BR) – LBWF (Thames Water)
- Lockwood (EP3732BG) – LBWF (Thames Water)
- Walthamstow No.4 (SP3736BU) - LBWF (Thames Water)
- Walthamstow No.5(PP3936BX) - LBWF (Thames Water)
- West Warwick (PP3136BN) - LBWF (Thames Water)
- Woodford Forest (BP3136BP) - LBWF (Thames Water)
- King George V (NP3632BN) – LB Enfield (Thames Water)
- William Girling (XP3738BN) – LB Enfield (Thames Water)

The largest reservoir holds [REDACTED] of water whilst the smallest holds [REDACTED]. All of the calculations and models for the flood inundation mapping assumes that the reservoir is at its maximum capacity. All properties within one kilometre of the reservoirs are at risk of flooding, depending on the breach locations well as properties along the course of the River Ching (from Highams Park to the River Lea).

The likelihood of an incident occurring in the next five years has been calculated to be 'Low' due to a number of factors that mitigate this hazard. Reservoir and dam structures comply with a rigorous regime of assessment and monitoring to identify structural weakness.

The impact from a resulting breach would be high due to the number of properties that are likely to be affected, the infrastructure disrupted and the hazardous conditions that could be expected following a breach.

Three of the inundation maps have been included in Appendix B to show the potential impact of a breach at one of the reservoirs. King George V has been selected because it sits above all of the other reservoirs along the western boundary of the borough. This represents the worst case scenario for these reservoirs and covers all of the other reservoirs along the western boundary. Highams Park and Woodford Forest have also been included because they are located elsewhere in the borough and will affect a different population.

Canal flooding. Flooding on the canal network occurs very rarely. Day to day the Canal and River Trust manage the canal network and other navigable waterways but is not responsible for banks or structures unless it owns them.

During a flood there are a number of canal structures which are operated and regularly monitored by the Environment Agency (EA), including: Meadow Lane Lock, Tinkers Leen and Torksey Lock. Although the Canal and River Trust has no responsibility for flooding, they work closely with the EA / BRF / Thames Water during an incident to provide technical information where necessary.

Flooding of property. Flooding can impinge on properties in a variety of ways. The definitions below may help to distinguish between these effects:

- 'Flooded' properties are those in which floodwater has entered the main interior of the home/business. This includes flooding of garages attached (internal door) to properties, basements or sub-floors.
- 'Affected' properties are those which have had their exterior damaged by floodwater. Sheds, garages (not attached to premises), outbuildings, gardens and walls are included in this category.
- 'Impacted' properties are those where floodwater has caused no actual damage to the interior or exterior but has had other consequences for the owner (e.g. difficulty in access/egress due to the highway being flooded).

People (incl, vulnerable) and properties.

Vulnerable People. The LB Waltham Forest's Families Directorate are the lead Department for Waltham Forest welfare issues including the maintenance of a data base of vulnerable persons.

There are a number of agencies that retain information on potentially vulnerable persons including: Housing and partner organisations: Health; CCG, GP's, Pharmacists, Acute Hospitals, Mental Health Trusts; Independent Health Organisations; Utilities companies and the Voluntary Sector.

The Families Directorate will be responsible, as the lead department, to work in partnership with CCG, Housing and other stakeholders in the event of the MAFP being activated for the identification of vulnerable persons within the flood risk area. If it is necessary to share information with other responders, in relation to the welfare of any individuals on the vulnerable person's data base, then this should be authorised.

For the purpose of the MAFP, the definition of "vulnerable people" stated below has been deliberately kept broad in order to allow any lay person to appreciate the risks/ response involved. It will further serve to as a prompt for further considerations.

The guidance *Emergency Preparedness* states that it is not easy to define in advance and for planning purposes who are the vulnerable people to whom special consideration should be given in plans. Those who are vulnerable will vary depending on the nature of the emergency. It then states that for planning purposes there are broadly three categories that should be considered:

- Those who, for whatever reason, have mobility difficulties, including people with physical disabilities or a medical condition;
- Those with mental health difficulties;
- And others who are dependent, such as unaccompanied children or where parents/ carer require additional support.

A decision would need to be made by the local borough tactical (Silver) co-ordination group whether to broaden and clarify this further as;

- Those who have mobility limitations or are supporting someone with mobility limitations (Disabled, the ill & parents nursing infants);
- Those that have limited ability to comprehend a risk / hazard or cannot understand a situation because of language issues;
- Those passively at risk;
- Those displaced in unfamiliar surrounds without friends and family or support nearby.

Organisations and businesses that support vulnerable persons should have suitable evacuation plans in place for their location and maintain business continuity plans. Buildings housing vulnerable persons in close proximity to flood zones have been included in Appendix I.

There are no specific evacuation plans associated with the evacuation of vulnerable persons. The generic evacuation procedure takes account of vulnerable persons and the specific requirements that might need to be implemented, see Evacuation and Sheltering section (page 29) for further details.

The Vulnerable Persons Plan (LA lead) details which organisations hold key information and how to bring the information together to allow quick identification of all those at risk during a flooding incident. The plan also sets out the process for sharing key information to identify vulnerable persons during an emergency.

Appendix J includes a log sheet of all vulnerable facilities and vulnerable key infrastructure sites that are at risk from flooding in the incident of a Thames breach/ Overtopping flood.

Key infrastructure. Appendices I and J identify the key infrastructure at risk within the area, including Category 1 responder's buildings and facilities for vulnerable groups (such as schools and care homes).

The list does not contain information covering individual homes where vulnerable residents reside. It further does not cover Critical National Infrastructure due to the sensitivity and restricted nature of the information.

Further information on key infrastructure for vulnerable persons can be found in the Vulnerable Persons Plan.

There is one COMAH site (Coppermills) within the borough. It is included because of the potential regional impact caused by a disruption to its normal operation.

The risk of flooding to key infrastructure is included in the flood risk matrix Appendix D and includes the consequences of these structures flooding.

No hierarchy of importance is implied in the maps, it is important that the responding organisations assess each flooding incident and determine the priority of response resources.

2.2 Multi-Agency Response

Activation, Roles and Responsibilities

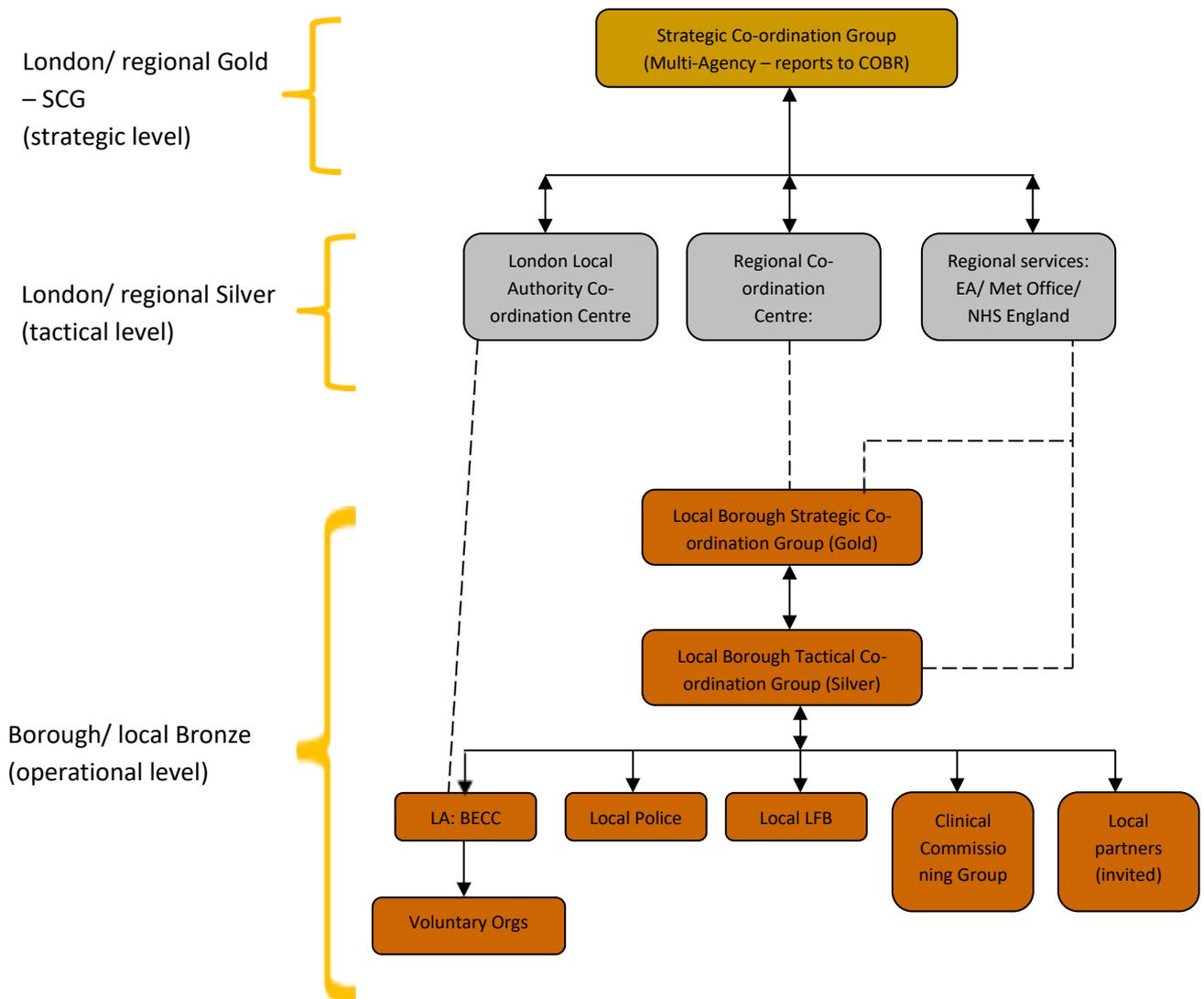
Category 1 Responders. Any Category 1 responder can activate the plan if they are being impacted by a flooding incident. The notification of the other Category 1 responders will then follow the normal communication procedures for dealing with emergencies.

All organisations will follow the actions as listed in figure 4. These responsibilities are listed in Appendix F of this plan for quick reference. In addition to the above generic roles, figure 5 identifies the responsibilities and actions to be taken during the specific response levels of a flooding event. Internal and external communication will be undertaken as necessary, while actions and plan activation will be required on confirmation of an imminent or on-going flooding emergency.

The London Emergency Services Liaison Panel (LESLP) command and control procedures will be followed by all organisations responding to the flooding incident.

Organisations will utilise their generic emergency plans along with any specific plans required to meet the demands of the flood incident including the opening of any required control centres (figure 2).

Figure 7: MAFP Command and Control for London-wide Incident



Organisations will maintain their own resources and skills list within their generic plans.

Local Borough Strategic Co-ordinating Group (Gold)

When the decision to activate the flood plan is taken representatives from the following organisations should be contacted to attend (or via telephone/ Teams) the above strategic (Gold) meeting:

- Metropolitan Police (Chair)
- London Fire Brigade
- London Borough of Waltham Forest
- Any other invited partner
 - EA
 - Met Office
 - United Kingdom Health Security Agency (UKHSA)
 - Barts Health NHS Trust
 - Etc

It is important to note that the local borough tactical (Silver) co-ordinating group may have activated and started responding (MAFP procedures) to the incident in advance of the first local borough strategic (Gold) meeting.

In the event of a tactical response taking place before the initial strategic meeting being able to take place, the following default strategic objectives will apply, namely:

- saving and protecting human life;
- relieving suffering;
- containing the emergency;
- providing the public and businesses with warnings, advice and information;
- protecting the health and safety of responding personnel.

The Agenda for the local borough strategic (Gold) co-ordinating group can be found in Appendix G.

Local Borough Tactical Co-ordinating Group (Silver)

When the decision to activate the flood plan is taken, representatives from the following organisations should be contacted to attend (or via telephone/ Teams) the above tactical (Silver) meetings:

- Metropolitan Police (Chair)
- London Fire Brigade
- London Ambulance Service
- London Borough of Waltham Forest
- Other specialist advisors e.g.:
 - NHS England/ local CCG
 - Barts Health NHS Trust (Whipps Cross Hospital)
 - EA
 - Thames Water etc.

The Metropolitan Police Service will chair the above local borough tactical (Silver) meeting during the response phase of the emergency. The Council will chair these meetings during the recovery phase of the emergency.

The Agenda for the tactical co-ordinating group can be found in Appendix G.

The strategic aim of the response will be decided by the local borough strategic (Gold) co-ordinating group. Resources during the response will be directed by the tactical (Silver) group, paying regard to the strategic aims set out.

Escalation of Response

A major incident will be declared if the incident requires implementation of special arrangements by one or more of the Category 1 responders and will generally include the involvement, either directly or indirectly, of large numbers of people. For example:

- Rescue and transportation of a large number of casualties
- Large-scale combined resources of Police, LFB and LAS
- Mobilisation and organisation of the emergency services and support services

Response to a flooding incident will require a multi-agency approach with the inclusion of all Category 1 and 2 responders as required. Liaison will in the first instance take place at a Silver meeting which will operate as stated above.

A larger incident may involve the activation of London Command and Control structure to aid cross-border support.

This escalation of an incident would lead to several other organisations and groups becoming involved in the incident including: London Strategic Co-ordinating Group (SCG), London Resilience Team (LRT) and the London Local Authority Co-ordinating Centre (LLACC). All organisations would be expected to report into the Gold command structure as detailed in London Command and Control Protocol.

The flood risk matrix (Appendix D) sets out areas at risk of flooding and key infrastructure within these areas, this may influence a decision to escalate the response to flooding if it poses a risk to these structures.

Voluntary Groups. Provision of diverse range of operational and support skills and services to statutory responders including:

- first aid, support to ambulance services; supporting hospital personnel
- searching for survivors and rescue
- refreshments and emergency feeding
- transportation and medical services, e.g. diagnosis and administration of drugs
- psycho-social support (comforting, befriending, listening, help-lines)
- support lines, support networks, advice, counselling, spiritual support and group therapy
- equipment (communications e.g. radios, medical aid equipment e.g. mobility aids,
- bedding, clothing and hygiene packs e.g. washing kits

The Community. The following are to be considered:

- provision of resources, expertise and knowledge to support the response agencies
- promotion of self-help within communities in response and recovery
- provision of support to local vulnerable people who may need physical assistance or reassurance
- advise the different cultural or language needs of its members
- provision of conduit for communication of information to the local community
- participation in the recovery phase to provide informed input into emergency preparedness work and community resilience initiatives

Co-ordinating & Deploying Spontaneous Volunteers. The Local Authority should consider the circumstances under which they are willing to utilise spontaneous volunteers and accept their support in a particular emergency. It will therefore:

- develop a co-ordinated approach with a single point of contact;

- inform people how they can volunteer;
- develop a framework for registering and briefing volunteers;
- 'deploy' volunteers for the approved tasks that are appropriate for them to complete;
- expect all volunteers to be competent in their offer of assistance;
- develop a registration process to select suitable volunteers to conduct each task;
- establish whether any tasks require specialist skills or training. For such tasks, decide whether it is possible to verify volunteers skills, qualifications or experience;
- develop procedures for briefing/debriefing volunteers to highlight on-going risks and receive feedback from volunteers;
- ensure that volunteers have the correct PPE at the start of each shift
- consider volunteers who can leverage local knowledge and resources, including:
 - knowledge of the location that could help responders who are unfamiliar with the area;
 - knowledge of the location of vulnerable people; and
 - social networks (for example, recognised clubs and societies) that can be used to "deploy" trustworthy volunteers.

Business Continuity Management. The multi-agency response to major flooding will undoubtedly put pressure on the resources and capacity of all those agencies involved. Individual agencies need to have arrangements in place, to as far as possible enable staff/ resources to be provided to support the response and recovery, but to also ensure that critical "day-to-day" services can still be maintained. All Category 1 Responders have Business Continuity Management Plans and arrangements in place which should be used to address this issue.

British Red Cross. When considering utilising the voluntary sector, its recommend putting some on standby earlier, pending local authority's assessment of the situation.

- Responsibilities. British Red Cross volunteers in emergency centres are there as an additional support mechanism alongside the local authority and are not able to assume responsibility for an emergency centre.
- Role/ Offer. The BRC Emergency Response service offer consists of:
 - Emotional support to displaced residents
 - Provision of basic practical items such as blankets, water, torches etc
 - Add capacity to LA emergency centre staff
 - Signposting

Wider British Red Cross support/expertise that can be offered:

- Medical equipment loan (e.g.) wheelchairs and commodes, as available
- Support Line – assist with setting up, and/or providing volunteer support line operatives
- Refugee Support services / Interpreting Service - possible help with communication and translations

Radio Amateur Network. RAYNET will provide where possible with their own equipment, a radio communications network.

Royal National Lifeboat Institution. The RNLI will respond to requests for assistance with the Search and Rescue aspects of inland flooding where there is potential risk to life and when an appropriate authority makes a request to the RNLI Headquarters Operations Room, which is manned continuously, on [REDACTED].

Providing such assets can be made available without degrading the primary function of the RNLI which is to provide a lifeboat service around the coasts of the UK and the Republic of Ireland.

The RNLI DI or nominated deputy reserves the right to withdraw RNLI teams and equipment once the risk to life has passed.

Mutual Aid

For trigger and local response levels see figure 4. Cross border cooperation must follow normal emergency procedures. Please see the mutual aid agreements that exist between agencies and the structure to coordinate this, such as the London Local Authority Coordination Centre (LLACC) structure.

During a flooding incident, organisations from the local area could be faced by similar problems and be unable to offer the normal level of support and assistance.

Military Aid

The SCG may request military assistance under the arrangements for “Military Aid to the Civil Authorities” (MACA). This should only be done when the SCG assesses the civil resources available locally are inadequate to save life and/or alleviate distress.

The Armed Forces possess a diverse range of skills and specialist equipment, but the availability of these resources cannot be guaranteed. It is essential the SCG and TCG do not formulate plans on assumptions of military assistance. Any requests for assistance should focus on the specific capability required. The military response will be determined by the availability of resources and the military commander’s judgement.

It is often impossible to predict with any accuracy the cost of Armed Forces support. No matter how valid a request for assistance may appear, Defence funds are granted for Defence purposes and the Ministry of Defence must seek reimbursement for any costs incurred. In exceptional circumstances costs may be waived. This decision would normally be taken by Government.

Evacuation and Sheltering

Evacuation. The early evacuation of areas prone to flooding will be a preferred course of action because rescuing and supporting people trapped within flood zones is extremely resource intensive. Evacuation is by no means an easy option and may not be the safest option for the majority of those potentially at risk. It may be safer to advise people to seek refuge in the upper storeys of a building rather than run the risk of being overcome by the flood waters. Evacuation should not be attempted once flood waters have arrived, unless directed and controlled by the emergency services.

The decision to evacuate an area affected by flooding will be the responsibility of the local borough tactical (Silver) co-ordinating group (TCG). It will require the implementation of evacuation procedures by the Police with support from other responding agencies.

Police will follow their standard procedures for evacuation, including any loudhailer announcements that might be required. Evacuation premises check records and pre-scripted announcements are not held within this plan - this information is held by the organisations responsible for evacuation. It should be borne in mind that the Police do not have any powers to force people to evacuate in any emergency (other than terrorism threat), and for flooding incidents in particular, residents may prefer to move upstairs, if they are able to, rather

than leave their homes. Residents who do decide to stay in their home may be vulnerable/ become vulnerable and where possible this should be recorded as they may require additional support.

Sheltering people is the responsibility of the Local Authority. There are plans in place to provide limited emergency shelter to persons displaced from their homes - please refer to the Local Authority Community Assistance Plan for information on Emergency Rest Centres.

With flooding events it should be anticipated that a large number of dwellings evacuated may not be fit for human habitation for a significant period of time. Support for these communities will go on into the recovery phase of the emergency.

Evacuation Routes. It is difficult to pre-determine safe evacuation routes in a flooding incident, as it could depend on a number of factors. All available information must be shared with the TCG/ SCG from all partners, including Bronze personnel at the scene, to be used to decide appropriate evacuation routes. This information will be relayed as necessary to responding agencies and also to residents/ businesses as part of the evacuation process.

Evacuation Transport. If transport, specialist (e.g. wheelchair accessible) or otherwise, is required for evacuation it will be the responsibility of local authorities to arrange this. Local authorities may do this via its transport contractors, depending on availability and capacity. In some cases access by 'normal' vehicles may not be possible, so Local Authorities may need to liaise with multi-agency partners e.g. Fire & Rescue Service, to request appropriate support e.g. boats.

Rest Centres. In a major flooding emergency it may be necessary to establish Rest Centres to provide temporary accommodation for evacuated residents and / or motorists/ rail passengers who may be stranded due to flooded road and rail networks.

Local Authorities have tried and tested arrangements in place to work in partnership to activate and operate Rest Centres and look after the welfare of evacuees. Whilst Rest Centres are ideal for initial temporary accommodation for those affected by flooding, they are not always suitable for overnight accommodation. Wherever possible, and without putting them at greater risk, it is preferable for evacuees to stay with relatives and friends, or their insurance company may arrange for them to stay in a hotel/ B&B. If evacuees don't have any alternative and a Rest Centre is not suitable for them, the local authority will make arrangements for alternative overnight accommodation.

Rest Centre Locations. A number of "pre-designated" Rest Centres have been identified across the borough for which specific plans have been developed. The decision to activate which Rest Centre site(s) will be taken by council, depending on access and resources required.

It is recognised that during a sudden onset emergency the public may be evacuated to any site deemed necessary by the Emergency Services i.e. church hall, school, pub. In such cases, Local Authorities would as far as possible provide support to evacuees at the site.

Security. If numerous residential/ business properties have been evacuated in a particular area, and may be empty for some time, it may be necessary for security issues to be considered by the TCG, and arrangements made for security provision i.e. visible.

Health and Safety

Health and safety considerations and information for responders are held by each of the responding agencies. The detailed considerations are not in this plan; responders needing more information should speak to their own health and safety team.

Health and safety information for the public can be found in the Environment Agency leaflets: [Get help during a flood - GOV.UK \(www.gov.uk\)](http://www.gov.uk)

Sustaining the Response

It is expected that organisations will ensure that any resources deployed can be sustained over a protracted period through their internal business continuity plans and generic major incident plans; examples included reallocating resources from non-critical services or implementing shift working. However, it is recognised that some incidents may go beyond what can be reasonably expected, in this event assistance will be sought from partner agencies under mutual aid and shared welfare facilities etc will be activated.

Examples may include accommodating staff from outside the area, provision of feeding stations at operational areas etc these will generally be coordinated by the Local Authority.

2.3 Response Equipment/ Resources

It is stressed that although the LFB will have overall command of the incident, sector etc. each organisation will retain command of their own assets.

In order to assess the capability of an organisation to be deployed during flood related emergencies, each organisation agree to operate and declare their assets and number of trained personnel they would expect to be available in advance and in accordance with the current DEFRA.

There is no specific formula for the prioritisation and allocation of resources during an emergency as each flooding incident is different and resource availability may differ over time. However, there are key infrastructure locations which would be prioritised first during any response to a flood.

2.4 Communication and Information Exchange

Communication Plan

Communication between the responding organisations and with the public will be vital in helping the response to any major flooding event. Contact details for internal staff are held and maintained by each individual organisation.

Contact details for partner agencies, including the location of control centres, are contained within the Multi-Agency Contacts List for Waltham Forest Borough Resilience Forum. This separate document is updated regularly and distributed by the Civil Protection Service, LBWF Council.

All responding organisations will follow the normal communications procedures during emergencies as detailed in each organisation's generic emergency plan.

Local Responders

Internal Escalation Procedures – all organisations. Each organisation will follow their internal communications plans for disseminating information to the relevant personnel on receipt of a flood warning affecting the borough.

Staff Information – all organisations. Employees must be kept up-to-date with the latest information. During an incident staff should be kept informed should any support be required to help maintain essential services. Organisations should use their internal communication plans to inform staff.

- Specific flood related information for staff;
- Alternative working practices implemented.
- Affected routes within the area.
- Redeployment of staff to essential service provision.

Multi-Agency Co-operation. For trigger and local response levels see figure 4. Once trigger levels have been reached organisations own communications plans will be followed. Although the Council's Civil Protection Service will collate and disseminate weather warning to the BRF members, it remains the responsibility of each organisation to monitor weather warnings.

Control centres will be used if deemed necessary to deal with the incident including sharing digital data, information, maps and site observations across all agencies. A Joint Emergency Services Control Centre (JESCC) shall co-ordinate local tactical issues during the response phase of the flooding incident.

Cross border cooperation will also follow normal emergency procedures. Please see the mutual aid agreements that exist between agencies and the structure to coordinate this, such as the London Local Authority Coordination Centre (LLACC) structure.

Public Network Failure. This plan does not take into account a public network failure, but should the public network fail, individual organisations should follow their Communications Failure plans/ LRF telecommunication plan to maintain a co-ordinated multi-agency response.

National Government

In a flooding emergency, the Department for Communities and Local Government (DCLG) Resilience and Emergencies Division (RED) should be notified of any EA Flood Advisory Service teleconferences, or the activation of TCG/SCG as appropriate. Depending on resources and whether flooding is affecting more than one area/ region, RED should provide a 'Government Liaison Officer' to take part in TCG/ SCG and Recovery meetings as appropriate, and act as a direct link to Central Government. If flooding is affecting more than one area, if required the RED team may also arrange for a Response Coordinating Group (ResCG) which would bring together Chairs from affected LRFs.

The Flood Advisory Service has been established by the Environment Agency and Met Office to provide a means of early communication between the Environment Agency, Met Office and category 1 and 2 responders. The Flood Advisory Service will be delivered by teleconference and is a way of sharing information and opinions on what's likely to happen in a potential flood, based upon and prompted by forecasts in the Flood Guidance Statement. These teleconferences will be called by the Environment Agency.

Public

Warning and Informing the Public (key messages & communication mediums). During a major incident, warning and informing the public is led by the Media Cell, if established, or the lead informer. Each organisation will be responsible for keeping their own websites, social media accounts and media statements up to date and consistent with the key messages and information agreed via TCG/ SCG and the lead informer.

The EA's 'Floodline', Flood Warning System and flood information provided on the gov.uk website (link below) will be the predominant method of providing information on areas liable to (or actually) flooding. The EA's live flood warning and river level information can be accessed via the public

through the gov.uk website: [Flood warnings in England - GOV.UK \(check-for-flooding.service.gov.uk\)](https://www.gov.uk/government/organisations/flood-warnings-in-england)

Key Messages. During the response to a flood incident, the following information / key messages should be provided to the public:

- Basic details about the incident / warnings in place / and weather forecasts
- Implications for health and welfare
 - Advice, guidance and reassurance
 - Latest information on response and recovery efforts
 - Information about the practical implications of the emergency (e.g. effect on traffic, power supplies, telephones, water supplies)
 - Information on how the public can help themselves protect their homes and family, including the purchasing flood protection equipment and sandbags
 - Information on support facilities that have been established e.g. helplines, information points in communities
 - Information on any disruption to organisations' services
 - Information on use / availability of sandbags / flood protection equipment in general

Communication Methods. This information should be communicated to the public via a variety of mediums during a flood emergency, including:

- Organisation websites
- Social media networks e.g. Twitter, Facebook
- Local media – both print and broadcast
- Helplines (Council has the provision to set-up a multi-agency helpline if required?)
- Nott's Alert (system ran via the Police)
- Organisations' electronic newsletters/ circulations that are public facing
- Telephone contact with neighbourhood officers / other community reps
- Appropriate organisations' making contact with any vulnerable service users in affected areas
- Door knocking – usually used for residents in immediate danger where evacuation may be necessary. Police will lead on this but other organisations/ neighbourhood officers/ community representatives may be asked to support
- Public information points in affected communities
- Leaflets / publications (flood related leaflets already in existence).

Door Knocking. As can be seen from figure 8, literal door knocking may not be successful due to constraints on time and staff. Therefore, no organisation can guarantee that areas will receive this type of service. There are several ways of reducing the resources required including, knocking on one door per street or prioritising vulnerable persons. All residents within the flood zones are advised to sign up to the Environment Agency's Floodline Warning Service as they will then be informed of any potential threats.

The only time door knocking might be used is during a public network failure. In this event use figure 8 to determine the staffing level required to complete the task within the set timeframe.

Figure 8 - Door knocking requirements

Door Knocking

If:

D = number of doors to knock on
 T = time spent at each door in minutes
 S = number of staff available

$$((D \times T) / (S / 2)) / 60 = \text{hours needed to knock on all doors}$$

EXCLUDING time to collate staff, time to reach area, breaks, time to move between houses/roads etc.

[Note: staff numbers are divided by 2 because of safe working policy – if this is not relevant take this division out]

Example:

D= 14,974 doors T= 7 mins/door S= 239

$$((14,974 \times 7) / (239 / 2)) / 60 =$$

$$((104,818) / (119.5)) / 60 =$$

$$(104,818 / 119) / 60 =$$

[rounded down to 119 because of whole people]
 880.82352 / 60 = 14.68 hours

Audience. People will be affected by flooding in different ways. Organisations will need to distinguish between such groups of people, identify audiences and cater for their demands.

Examples include:

- Those directly affected, in the immediate vicinity or possibly injured
- Those who need to take action to avoid further harm
- Those who may be disrupted by the consequences of the emergency and the recovery process
- Those not directly affected but know or are related to those who might be
- Those not directly affected but who are concerned or interested about wider implications
- The media.

Special arrangements for warning and informing vulnerable people (e.g. those who have a hearing impairment) should be considered.

Minority Language Speakers. It is recognised that the Environment Agency's Flood Warning Service, only provides information in English, and the ability for responding agencies to provide instructions in minority languages in an urgent emergency situation (e.g. evacuation) is unfeasible. It is hoped that in such circumstances, some members of a particular minority language community would be able to understand English and could communicate with other family members, friends and neighbours who may not be able to. With a longer timescale, arrangements could be made to translate information leaflets etc via external translation services.

In addition the Council has access to translation services in the following languages:

- African Caribbean community
- Bengali community
- Chinese community
- Gujarati community
- Migrant community (including Polish speakers)
- Braille / BSL
- etc.

The council's Family Service will be in a position to identify any vulnerable resident who are dependent on their telephone in the event of network failure. This will inform all responders in their communication actions.

Key service providers

As part of each responder's business continuity arrangements, it is crucial that key service providers are communicated with and that communications are maintained throughout the incident. These stakeholders may be individual to the borough while others may be London or National, which may be communicated with on a strategic level as well.

Media

All organisations will implement their major incident corporate communications plans to allow a co-ordinated approach to dealing with the media during a flooding incident. All communications will complement the latest advice given by the specialist organisations as well as any central government/ London message (where applicable).

Social Media. Communicating with all stakeholders is encouraged by using the latest and most popular mediums of social media (Facebook, twitter, web alerts on website, e-newsletter etc). Vital information can be shared and any rumours quickly dealt with. The local borough tactical (Silver) co-ordinating group's communication lead (Police) is to ensure all the partners are collectively monitoring and communicating through the social media.

General Public. Information leaflets can be found on the Environment Agency website: <https://www.gov.uk/prepare-for-a-flood>. The Environment Agency states that anyone who is at risk of flooding is advised to develop a flood plan and make sure everyone is aware of what to do should the need arise to use it.

Individual organisations will implement their warning and informing plans to help distribute relevant support to the community before during and after the flooding incident. Areas at greatest risk should be prioritised to receive key information.

There is no pre-prepared wording or signage, please refer to the communications plans for more information and how to arrange for signage.

Public Helpline. The Environment Agency has a 24hour telephone information service called Floodline (0345 988 1188). Contact details of this service can be found in the Environment Agency website: <https://www.gov.uk/sign-up-for-flood-warnings> .

A borough helpline will be set up for local residents as detailed in the communications plans.

Vulnerable People. Communicating with residents deemed to be vulnerable during a flooding incident will be a priority. The general communication plan details the different methods of communication for this group of individuals.

Schools. All schools will follow their own flood risk assessment and evacuation plans. The schools maintain their own emergency plans containing communication procedures. The council and schools have a clear communication procedure during any emergencies.

Faith/ Minority Groups. Where necessary faith groups and minority groups may be asked to assist with communications to their communities, such as radio stations for Muslim residents. This will enable appropriate religious and ethnic community leaders to communicate warnings and provide information to the community and to ensure customs and beliefs are respected.

For more information please see the communication plan detailing links with faith and minority groups during an emergency.

Warnings

Flood Warning Service. The Environment Agency is responsible for issuing alerts and warnings to the general public, businesses, emergency responders and media relating to tidal and fluvial flooding. The warning codes are issued using their Flood Warning Service (FWS) which can send bulk messages to a mass audience via several formats. The formats are email, SMS text message, and voice message. People and organisations have to register their details on FWS in order to receive the messages.

It is a free service and each individual/organisation can register up to 15 contacts. Messages issued through FWD also update flooding information on the Environment Agency website and the Floodline (0345 988 1188) service. Extended Direct Warnings (EWD) too exists, where customers who use certain mobile networks (BT landlines and mobile providers – EE, 02, Three and Vodafone) and are at a high risk of flooding are automatically registered to receive flood warnings. Once registered, people receive a message directly to their mobile if a flood warning is issued in their area.

More information: <https://www.gov.uk/sign-up-for-flood-warnings>

Figure 9 – Flood Warning Codes

Warning Code	Meaning
 <p>FLOOD ALERT FLOODING IS POSSIBLE. BE PREPARED.</p>	<p>Flooding is possible. Be prepared</p> <p>Impacts:</p> <ul style="list-style-type: none"> • Flooding to low-lying land, including roads and gardens <p>Actions for the public:</p> <ul style="list-style-type: none"> • Prepare a bag that includes medicines and insurance documents <p>Detail included in the Flood Alert will indicate the likelihood of a Flood Warning being issued.</p>
 <p>FLOOD WARNING FLOODING IS EXPECTED. IMMEDIATE ACTION REQUIRED.</p>	<p>Flooding is Expected. Immediate action required</p> <p>Impacts:</p> <ul style="list-style-type: none"> • Property flooding likely • Travel disruption expected <p>Actions for the public:</p> <ul style="list-style-type: none"> • Turn off gas, water and electricity • Move belongings upstairs or to safety • Move family, pets and car to safety

 <p>SEVERE FLOOD WARNING</p>	<p>Severe Flooding. Danger to life</p> <p>Impacts</p> <ul style="list-style-type: none"> • Deep and fast flowing water likely • Potential collapse of structures • Large number of evacuees • Significant travel disruption • Local and national media interest <p>Actions for the public:</p> <ul style="list-style-type: none"> • Call 999 immediately if in danger • Follow advice from emergency services • Keep yourself and your family safe <p>These are only issued in exceptional circumstances and are likely to only be issued once a certain level of flooding has already occurred.</p>
<p>Flood Alert / Flood Warning / Severe Flood Warning, no longer in force</p> <p><i>(No icon)</i></p>	<p>The flood alert / warning / severe flood warning is no longer in force for this area.</p> <p>Used to inform that the situation is improving.</p> <p>Even when a Flood Warning or a Severe Flood Warning is removed it may still mean that there are flooded properties, damaged infrastructure and standing water where flooding has occurred.</p>

Flood Warning Areas in Waltham Forest. Flood Warning Areas (FWA) are areas within flood zones that the Environment Agency issue flood warnings to. Below are the FWAs within Waltham Forest as well as the quick dial codes for floodline. Please note that the FWAs are for fluvial flooding only and do not include surface water flood risk areas. There is currently no flood warning service for surface water flooding events, responders should utilise the Flood Guidance Statements for surface water forecasts.

Figure 10 – FWA areas and codes

FWA Name	FWA Code	Floodline quick dial code
The Lower River Lee at Enfield	062FWF53Enfield	172092
The Lower River Lee at Hackney and Walthamstow	062FWF53Hackney	172093
Ching Brook in the London Borough of Waltham Forest	062FWF53Ching	172908

Flood Guidance Statement. The Flood Forecasting Centre (FFC) is responsible for issuing weather warnings that relate to conditions that could cause flooding. The primary product aimed at emergency responders is the daily Flood Guidance Statement. <http://www.fcc-environment-agency.metoffice.gov.uk/services/>

The joint EA/Met Office Flood Forecasting Centre produces a Flood Guidance Statement (FGS) which provides a daily flood risk assessment for Category 1 and 2 responders to assist with tactical planning decisions.

This assessment of risk is shown by county across England and Wales over five days. It identifies developing situations that could cause flooding and significant disruption to normal life. The FGS assesses the risk for all types of natural flooding – river, coastal, groundwater and surface water flooding.

It presents a collated assessment by the FFC and the local EA flood forecasting teams of the best understanding of risk based on weather forecasts, flood forecasts and catchment conditions on the ground.

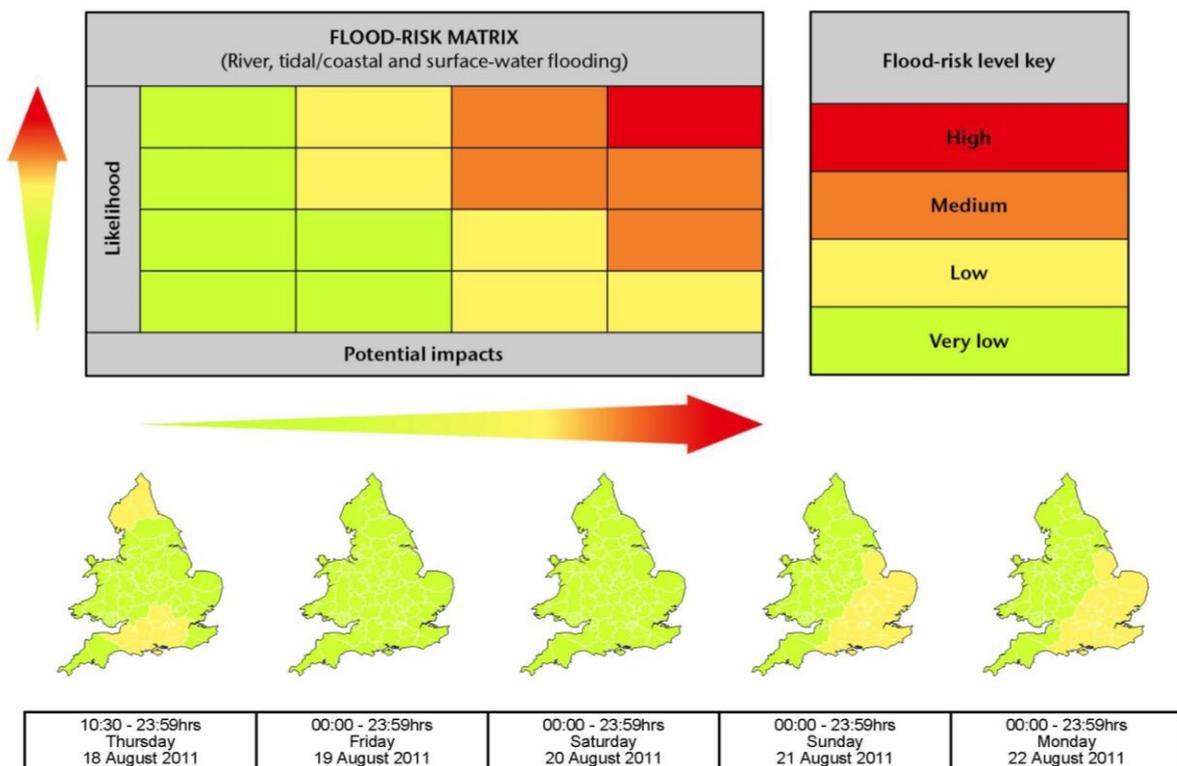
The FGS is issued by the FFC every day at 10:30am. It will also be issued at other times through the day and night, if the situation warrants and/or the flood risk changes.

To assess the level of risk, the FFC takes into account a large number of weather and catchment factors. Assessments are made in different ways for coastal, river, surface water and groundwater. These are then presented on a coloured risk basis. For many reasons the ability to assess flood risk varies across England and Wales.

The following is reviewed for each Flood Guidance Statement:

- The likelihood of an adverse flood event where likelihood bands are described as very low <20%, low 20-40%, medium 40-60%, high 60% or greater.
- Recent weather conditions – is the event shortly after an earlier period of prolonged rain or other high impact weather?
- Area and duration – is it expected to be short and localised or will it affect a large geographical area over several hours?
- Knowledge about the condition of the catchments within the counties – how saturated are the catchments, how high are the rivers and what are the underlying conditions?
- Detailed flood forecast models for the coast, showing surges and large waves, and flood flows for rivers are evaluated.
- Seasonal factors, for example snow cover or leaf fall.
- The combined effect of river flow and high tides – if a river flood is being assessed, does this coincide with high tides, which could cause problems?

Figure 11 – Flood guidance matrix



The FGS risk matrix and key shows the assessment of likelihood against impacts that form the basis of the county map colouring.

Flood Guidance Statements are issued by email to Category 1 and 2 responders. Organisations have to register with the FFC to receive them. A version of the FGS is published for the general public on the Environment Agency website. A map displaying the flood risk forecast can be found on the EA website: [Flood outlook map - Check for flooding - GOV.UK \(check-for-flooding.service.gov.uk\)](http://floodoutlookmap.service.gov.uk)

Flood Guidance Statements will generally be the only warning partners will receive regarding potential surface water flooding. They contain a yellow, amber, red scale to highlight risk to allow partners to take necessary action to prepare in advance of flooding occurring. The FGS risk scale is based on the risk of disruption from all sources of flooding though, not just surface water.

When London is coloured yellow, amber or red on a FGS, the Met Office Public Weather Service Advisor will usually provide an amplification of the likely impacts focussing on London. These amplifications are issued to Category 1 and 2 responders by email.

National Severe Weather Warning Service. The National Severe Weather Warning Service (NSWWS) warns the community by providing warnings of severe or hazardous weather which could cause problems, ranging from widespread disruption of communications to conditions resulting in transport difficulties or threatening lives.

There are two categories:

- **Alerts** which indicate the risk of severe weather over the next 2 to 5 days.
- **Warnings** which indicate the risk of severe weather during the next 24 hours.

Both Alerts and Warnings aim to give an indication of both the **impact** the expected weather might have and the **likelihood** of its occurrence and are assigned a colour state, **GREEN, YELLOW, AMBER** or **RED**. Alerts and Warnings will be issued as necessary for **RAIN, WIND, SNOW, ICE** and **FOG**.

All Alerts and Warnings are available on the Met Office main website (<http://www.metoffice.gov.uk>) and via the passworded *Hazard Manager* responders' website. Copies of Alerts and Warnings which are classified as AMBER or RED will also be sent to registered responders via email and/or fax.

More information: <http://www.metoffice.gov.uk/weather/uk/guide/warnings.html>

2.5 Recovery

The purpose of providing recovery support is to assist the affected community towards management of its own recovery. It is recognised that where a community experiences a significant emergency, there is a need to supplement the personal, family and community structures which have been disrupted.

The recovery phase of a flooding incident must begin as soon as practicably possible and run alongside flood response operations. The local borough strategic (Gold) co-ordinating group will decide when the response phase of the incident has finished and the recovery phase has started. Once this happens the lead organisation will be the Local Authority. From this point on the Council will control the multi-agency response to the incident.

Recovery is more than simply the replacement of what has been destroyed and the rehabilitation of those affected. It is a complex social and developmental process rather than just a remedial process. The manner in which recovery processes are undertaken is critical to their success. Recovery is best achieved when the affected community is able to exercise a high degree of self-determination.

Common issues following flooding include;

- Clean-up and waste disposal
- Repairs to public infrastructure – schools, buildings, roads, bridges
- Restoration of power, communications and water
- Domestic and business insurance needs
- Displaced businesses
- Humanitarian assistance needs including:
 - Homeless/ displaced residents
 - Psychological impacts
- Economic impacts
- Environmental impacts

To help aid residents during the recovery phase a resident's forum will be established to help deal with common issues faced by residents and bring residents together so that they are in a better position to help each other. The forum will help provide support with insurers, builders, personal flood mitigation, schooling and jobs. The forum will also provide information covering expected timeframes for resumption of services, contamination, health hazards and the level of risk they face.

The effective management of the recovery phase by the Local Authority is supported by their Corporate Emergency Management Plan as well as the Recovery Plan.

The Lead Local Flood Authority (LLFA) will complete a report on the flooding response, impact and recovery.

Environmental Impacts and Responsibilities. In a flood event a number of environmental issues may occur, these will range in severity depending on the area affected and the length of time standing flood water remains in the area.

Flood water will become contaminated from a variety of sources which will impact on organisations involved during the response phase of the emergency. The type of contamination may determine

the health response and advice given to responders and members of the public. See the flood risk matrix (Appendix D) for further information.

The majority of environmental impacts will be dealt with during the recovery phase of the emergency. Please refer to the Recovery plan for more detailed information.

Please follow the link for further information on land contamination,
<https://www.gov.uk/government/collections/land-contamination-technical-guidance>

Disposal of animal carcasses. The following is taken from EA Guidance: Animal By-products Regulation (watercourses):

The owner of a carcass has first responsibility for its recovery, removal and safe disposal. Where the owner cannot be established the next responsibility would fall to the landowner, this includes riparian landowners who are responsible for any watercourses running alongside or through their land. If it considers it appropriate for flood defence or pollution prevention and control purposes, the Environment Agency can serve a notice for removal of a carcass. In general the Environment Agency will only arrange to collect and dispose of animal carcasses or fallen livestock in watercourses where a pollution or flood risk is established. The Environment Agency does not have the powers to remove carcasses on purely aesthetic or public nuisance grounds. Such removal would fall to the Local Authority.

Disposal of personal property. Responsibility for disposal of personal property lies with the affected householder/business. It may be that in extreme cases, where insurance companies are unable to provide assistance in the form of skip hire and so forth, that the local authorities will provide support to the local community.

Disposal of silt. Any landowner who finds that their property has been contaminated by silt should be advised to contact their insurance company in the first instance. If they are concerned about health implications as a result of silt, then to contact the Council's Environmental Health.