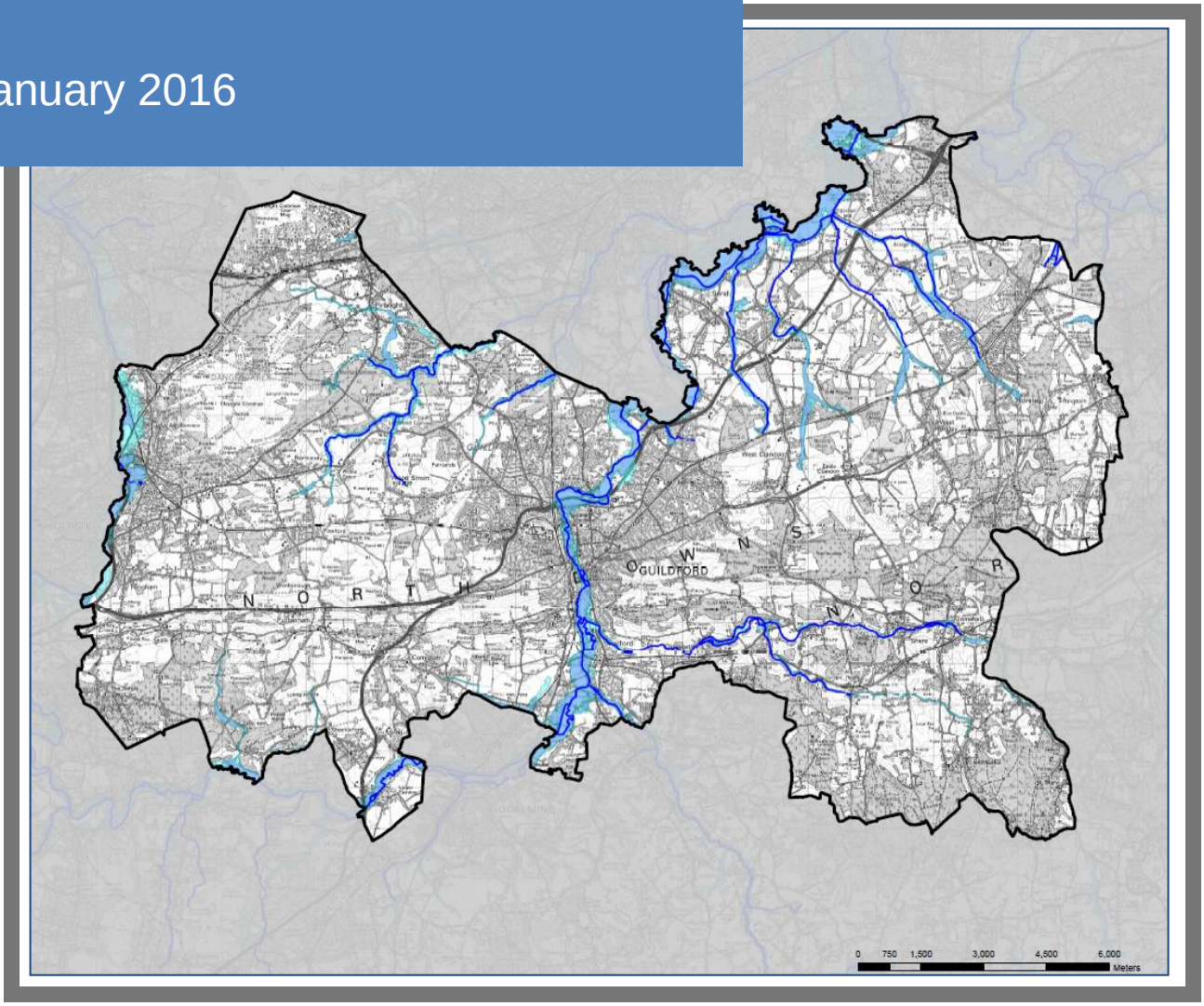
CAPITA

GUILDFORD BOROUGH

Guildford Borough Level 1 Strategic Flood Risk Assessment Summary Report

January 2016



CAPITA

GUILDFORD BOROUGH

What is this document?

This document provides a summary of Guildford Borough Strategic Flood Risk Assessment (SFRA, 2015). The aim of this summary document is to provide an overview of the flood risk from various sources in the borough, along with key legislation, guidance on the Sequential Test and the definition of the Functional Flood Plain. This document also signposts key parts of the report for ease of reference.

The reader will be directed towards further information online and in the main reports using **these boxes**

What is in the SFRA documents?

This SFRA is an update of the SFRA published in 2009 (also produced by Capita Symonds, now Capita Property infrastructure) and reflects the changes in national policy and data updates. This summary document should be read in conjunction with Volume 1, 2 and 3 of the SFRA.

Volume 1 Decision Support Document	Volume 2 Technical Report	Volume 3 Catchment and Flood Risk Maps
Contains information on how to use Guildford Borough SFRA to inform land use planning	**Provides the data and strategy to assess flood risk within Guildford borough**	**Provides a full suite of maps to help support the SFRA**
Introduction	Introduction	Figure 1 – The Study Area
Flooding in Guildford	Catchment Summary	Figure 2 – Topography
Policy Context	Asset and Defence Data	Figure 3 – EA Flood Zones
Guidance on Applying the Sequential Test	Flooding From Rivers	Figure 3B – Flood Zone 3b
Guidance on Applying the Exception Test	Flooding From Surface Water	Figure 4 – Historic Flooding
Using the SFRA in Development Control	Flooding from Sewers	Figure 5A – Fluvial Flood Risk - Depth
SFRA Maintenance and Management	Flooding from Groundwater	Figure 5B – Detailed Fluvial Flood Risk
Flood Risk Management Practices	Flooding from Artificial Sources	Figure 6A – Surface Water Flood Risk - velocity
Drainage of Development Sites	Uncertainties in Flood Risk Assessment	Figure 6B – Surface Water Flood Risk - depth
Policy Considerations	Summary of Flood Risk	Figure 7 – Flood Risk from Sewers
Site Specific Flood Risk Assessment Guidance		Figure 8 – Flood Risk from Groundwater
Emergency Planning		Figure 9 – Flood Risk from Reservoirs
Conclusions and Recommendations		Figure 10 – Flood Risk from the Basingstoke Canal
		Figure 11 – Suitability for Sustainable Drainage Systems

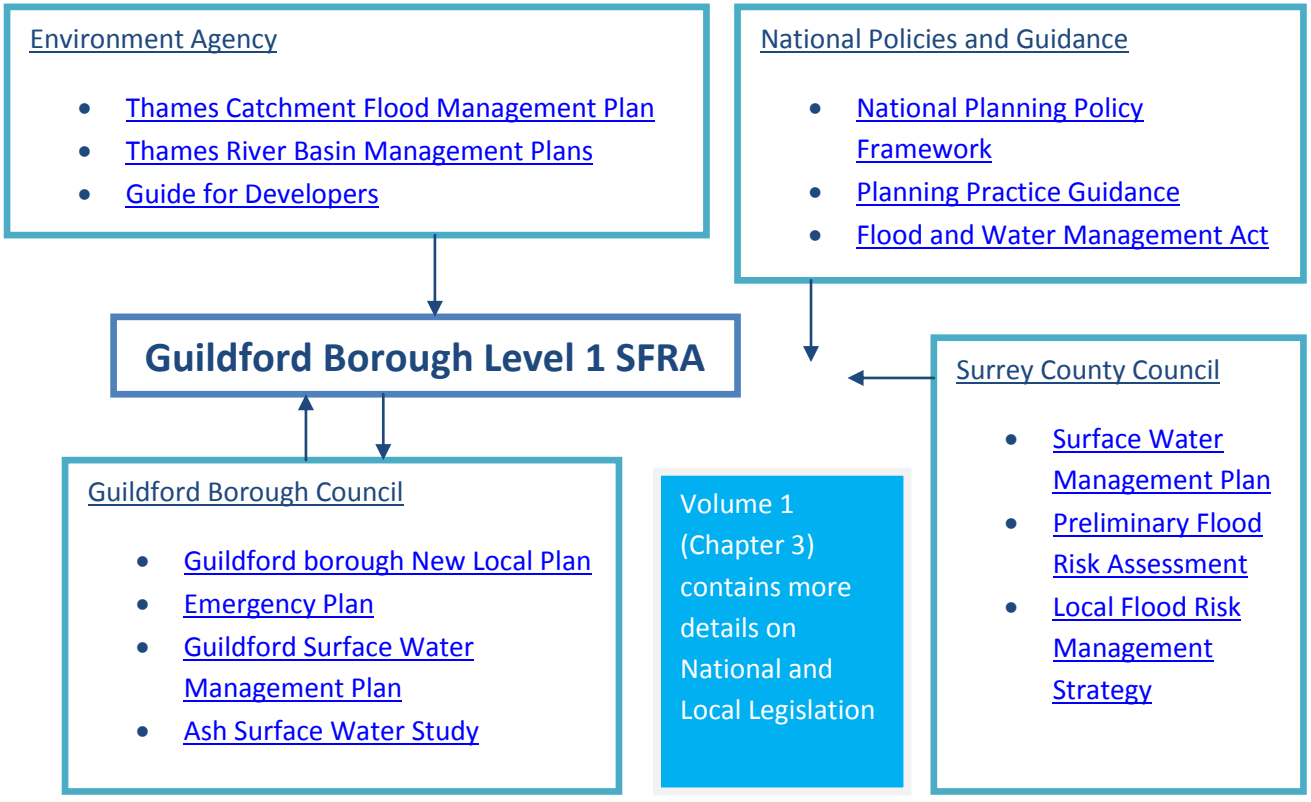
There is a glossary of terms in the SFRA in Volume 1 and 2

Why has the SFRA been updated?

The following section summarises briefly why the SFRA has been updated:-

- Guildford Borough Council (GBC) is preparing a new Local Plan and this SFRA will form a key evidence base to support the vision and approach to development over the plan period.
- The SFRA (2009) was prepared in line with the now superseded Planning Policy Statement 25 – Development and Flood Risk (PPS25) (DCLG, 2006). The National Planning Policy Framework (NPPF) document replaced the suite of Planning Policy Statements, including PPS25, on 27 March 2012.
- The supporting Planning Practice Guidance (PPG), Flood Risk and Coastal Change (2015), has also been released since the last version of the SFRA.
- Since 2009 there have been a number of additional studies carried out and updated modelling outputs; these include:-
    - Updated hydraulic modelling on the River Wey
    - Guileshill Brook modelling as part of a site specific Flood Risk Assessment
    - Updated Flood Map for Surface Water (UFMfSW)
    - Guildford Surface Water Management Plan (SWMP Phases 1-3) and Ash Surface Water Study
    - Risk of flooding from reservoirs
    - Surrey County Council Preliminary Flood Risk Assessment (PFRA)
    - River Thames Catchment Flood Management Plan (CFMP)

What key legislation documents are involved in the SFRA?



Who is responsible for managing Flood Risk within Guildford Borough?

Key Responsibilities of Different Authorities	Environment Agency	Surrey County Council (LLFA*)	Guildford Borough Council	Thames Water	Highways England	Canal Authorities	Riparian Owners
Fluvial flooding from main rivers	✓		✓				✓
Fluvial flooding from ordinary watercourses		✓	✓				✓
Surface water flooding		✓	✓				
Groundwater flooding		✓					
Sewer flooding				✓			
Canal flooding						✓	
Reservoir flooding	✓	✓		✓			
Flooding from burst pipes and drains				✓			
Highways flooding		✓	✓		✓		

*LLFA – Lead Local Flood Authority; Surrey County Council is the Lead Local Flood Authority for Guildford borough.

What is the definition of Flood Zone 3b – The Functional Floodplain?

Flood Zone definitions can be found in Volume 2, Chapter 4, Table 4-1

National Policy Definition of the Functional Floodplain

As defined in PPG, Flood Zone 3b, the Functional Floodplain, is defined as land where water has to flow or be stored in times of flood. PPG states that Local Planning Authorities (LPAs) should identify the definition of Flood Zone 3b within the SFRA, in discussion with the Environment Agency (EA). This land is not separately distinguished from Flood Zone 3a on the Environment Agency Flood Maps for Planning.

Guildford Borough Definition of Functional Floodplain

Further discussion can be found in Volume 1, Chapter 2

As stated in PPG, the identification of the Functional Floodplain should take account of local circumstances and not be defined solely on rigid probability parameters. Therefore, across Guildford borough, the modelled 1 in 20 year return period flood outline has been used to define Flood Zone 3b, the Functional Floodplain. The Environment Agency Flood Zone 3 has been used where this detailed 1 in 20 year outline is unavailable (along some of the smaller tributaries).

Historically, development has taken place within the Functional Flood Plain in Guildford borough, resulting in developed and undeveloped land. Developed land constitutes the footprint of the building. Along the River Wey, through Guildford urban area, the Functional Floodplain has been further subdivided into Flood Zone 3b developed, and Flood Zone 3b undeveloped.

Developing in the Functional Floodplain

There are developed sites within the Functional Flood Plain where redevelopment is likely to continue to be proposed through windfall developments. Following application of the sequential and exception test, a Local Plan policy may consider allowing redevelopment of developed sites in the Functional Flood Plain when flood risk betterment, appropriate mitigation and risk management can be achieved and implemented. In the case of site allocations, redevelopment of developed land within the Functional Flood Plain should only be considered when there are no reasonably available alternatives

at less risk of flooding, and when the sequential and exception test has been passed. There should, however, be no increase in development vulnerability or intensification in use.

What is the flood risk across Guildford Borough?

Source of Flooding	Flood Risk across Guildford Borough	Further Information
Main Rivers and Ordinary Watercourses	The EA Flood Maps for Planning, historic incident databases and the Lower Wey modelling study (2009) were used to evaluate fluvial flood risk across Guildford borough. Fluvial flood risk is concentrated along the River Valleys of the Wey and Blackwater and their tributaries. The areas at risk are constrained to well defined valley topography and there is little difference between the 1% AEP and 0.1% AEP event outlines. It is believed that a 20% increase in river flows as a result of predicted climate change will not radically increase the extent of flooding within the borough. The main areas impacted by fluvial flood risk are Ash and Ash Vale along the Blackwater and Guildford Town Centre. In other areas, the floodplains remain largely undeveloped.	Flood risk from rivers is discussed in more detail in **Volume 2, Chapter 4** Fluvial flood risk maps are shown in **Volume 3, Figure series 3, 4 and 5**.
Surface Water	Historic records of surface water flooding, the Updated Flood Map for Surface Water indicates that the areas most at risk of surface water flooding are predominantly within the fluvial floodplains and more densely built up urban areas, including Guildford Town Centre and Ash. The Guildford SWMP highlights surface water flood risk hotspots, including Flexford, Applegarth, Ashenden Estate, Ripley and Burpham. The Ash Surface Water Study also identifies surface water flooding hotspot, including Ash Lodge Drive, Ash Vale North, Ash Vale South, Ash Station Area (Harpers Road, including Shawfield Raod and Londacre) and Tongham / Oxenden Road.	Surface water flood risk is discussed in more detail in **Volume 2, Chapter 5** Surface water flood risk maps are shown in Volume 3, Figure Series 6
Sewers	A register of reported sewer flood incidents received from Thames Water used to evaluate flood risk from sewers within Guildford borough. The data highlights the number of properties within broad postcode areas that have been exposed to sewer flooding. The majority of the incidents are located in the postcode areas adjacent to the river channels; otherwise the events were sporadic, and no further details are available. External sewer flooding is more prevalent than internal sewer flooding. It is important to highlight that the records do not account for the effect of any capital works or maintenance designed to mitigate or alleviate flooding, and therefore the flood risk from sewers across Guildford borough is likely to change temporally.	Flood risk from sewers is discussed in more detail in **Volume 2, Chapter 6** Flood risk from sewers maps are shown in **Volume 3, Figure series 7**

Groundwater	The British Geological Survey, susceptibility to groundwater flooding GIS layers, were used to evaluate groundwater flood risk across the study area. The underlying Cretaceous Chalk geology running through the central part of the study area and River Wey Valley as well as in the west of the study area and the Blackwater Valley is known to be vulnerable to groundwater flooding. This includes Guildford Town Centre and Ash. A band of Greensand running across the catchment to the south of the chalk may also be a source of groundwater flooding. Groundwater flooding is less likely on the south east and north of the catchment where London and Weald Clays are the dominant bedrock.	Flood risk from groundwater is discussed in more detail in **Volume 2, Chapter 7** Maps showing areas susceptible to groundwater flooding are shown in **Volume 3, Figure series 7**
Artificial Sources	There are very few reported incidents of flooding from the Basingstoke Canal (BC). Where sections of the BC are embanked above surrounding ground levels, surrounding lower lying areas are at risk of flooding should embankment breach, culvert failure or canal reach occur. Due to the low probability of occurrence, flood risk from the BC is considered as very low. The EA Reservoir Inundation Flood Maps have been evaluated for the purposes of this study, which show that south of Guildford Town Centre, along the River Wey, there is flood risk from the upstream Broadwater Lake and Vachery Pond. In the north, there is flood risk from the Sutton Place Lake, Clandon Park and Bolder Mere reservoirs.	Flood risk from Artificial Sources is discussed in more detail in **Volume 2, Chapter 8** Maps showing flood risk from artificial sources are shown in **Volume 3, Figure series 9 and 10**

How should the Sequential Test be applied?

The NPPF states that Local Plans should be supported by an SFRA, and that LPAs should use SFRAs to steer development towards low probability of flooding areas by applying the Sequential Test and where necessary the Exception Test.

The aim of the Sequential Test is to steer new development to areas with the lowest probability of flooding. The Flood Zones remain the starting point for this sequential approach. It is important to note that the NPPF and PPG do not provide Flood Zone definitions for groundwater, sewer, surface water or artificial sources of flooding. However it is imperative that flood risk from all sources is considered when carrying out the Sequential Test.

The Flood Zone outlines are available online and can also be seen in **Volume 3, Figure Series 3 and 3B**

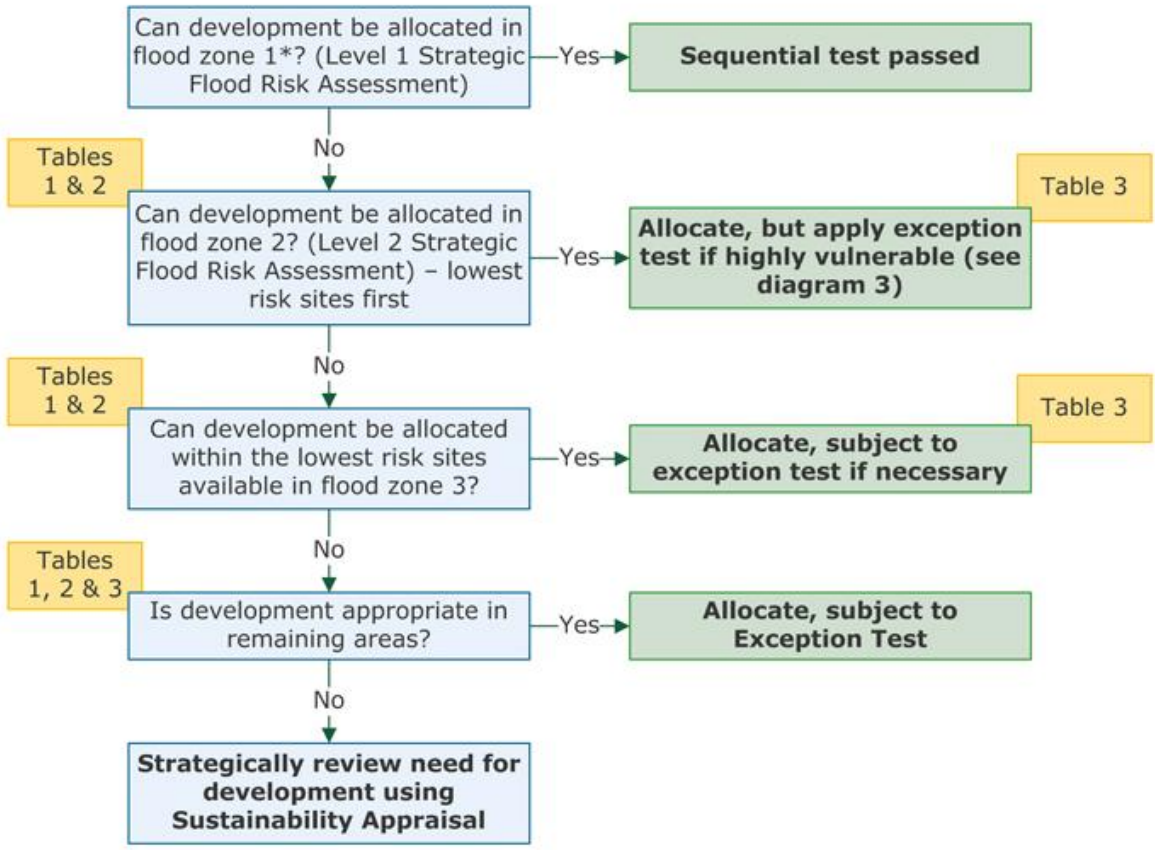
Within each Flood Zone, development should be directed to sites with lower flood risk from all sources, as indicated by the SFRA. A flow chart has been developed to demonstrate how to apply the Sequential Test to site allocations as part of the Local Plan.

Volume 1, Chapter 4 shows the Flood Risk Vulnerability Classifications and Flood Zone 'Compatibilities'

How should the Sequential Test be applied to development management decisions?

A sequential approach should be applied at all stages of planning, including windfall sites, redevelopment opportunities as well as major developments. Further information on applying the Sequential Test for Development Management Decisions is available online.

Sequential Test Guidance for Local Plan site allocations



* Flood Zone 3b has also been divided into a developed and undeveloped flood zone 3b through Guildford urban area, as described in section 2.6 and shown in Figure 2.2 and in Volume 3, Appendix C, and Figure 3B.

When should the Environment Agency be consulted during the development process?

Guidance for planners and developers is accessible through The Development Management Procedure Order 2015 (DMPO) and other associated legislation (such as Environmental Impact Assessment (EIA) Regulations) as well as the Environment Agency's Flood Risk Standing Advice (FRSA). This has been revised in 2015 to reflect current guidance.

The Development Management Procedure Order 2015 (DMPO):

http://www.legislation.gov.uk/uksi/2015/595/pdfs/uksi_20150595_en.pdf

Environmental Impact Assessment Regulations 2011 (EIA):

http://www.legislation.gov.uk/uksi/2011/1824/pdfs/uksi_20111824_en.pdf

Environmental Impact Assessment Regulations 2015 (EIA) (Amendment):

http://www.legislation.gov.uk/uksi/2015/660/pdfs/uksi_20150660_en.pdf

Guidance for Developers: https://www.gov.uk/flood-risk-assessment-for-planning-applications

Guidance for Planners: https://www.gov.uk/flood-risk-assessment-local-planning-authorities

How should developers use the information within this SFRA?

Volume1, Chapter 12 provides further advice for developers

A developer should consider flood risk issues at a site as early as possible. The SFRA can be used to provide an indication of the likely flood risk issues at a site from all sources of flooding. Developers should clarify the allocation status of a site prior to development, and consult with the EA, GBC Development Management and GBC drainage engineers as early as possible.

When is a Flood Risk Assessment required?

A Flood Risk Assessment (FRA) will be required to accompany planning applications for:

- Any major development proposal or development proposal greater than 1 hectare in Flood Zone 1
- Any development proposals in Medium Probability Flood Zone 2
- Any development proposals in High Probability Flood Zone 3

The FRA should identify and assess the risks of all sources of flooding to and from the development, taking account of climate change and demonstrating how risk will be managed. A site specific FRA check list is available online: http://planningguidance.planningportal.gov.uk/blog/guidance/flood-risk-and-coastal-change/site-specific-flood-risk-assessment-checklist/

How should Planners use the information within this SFRA?

Volume1, Chapter 10 outlines the key policy considerations discussed through the SFRA

This summary document should act as a map for planners on how to use the information within the three volumes of the SFRA. Policy planners should use the flood risk information and policy considerations as an evidence base for developing local policies. Development management planners can use the evidence base to consider sequential tests submitted in support of development proposals, to ensure development is located in the most sustainable locations where possible, in areas at the lowest risk of flooding. Information can also be used by emergency planners to identify and develop emergency plans across Guildford borough.

Volume1, Chapter 13 provides further information on Emergency Planning

What policy considerations have been outlined following the SFRA update?

	Policy Considerations
1	Apply the sequential test, and locate development in areas at least risk of flooding.
2	Seek to ensure development proposals do not increase flood risk, and where possible, reduce flood risk on site and elsewhere.
3	If, having passed the flood risk sequential test, development is proposed in areas at risk of flooding, then developers will be required to demonstrate through the exception test that suitable compensatory storage and mitigation can be provided, and that the development will result in an overall reduction of flood risk on site and, where possible elsewhere.
4	Consider the benefits of preparing planning guidance for development proposals in Guildford Town Centre in areas of medium to high flood risk, to encourage design that is resistant and resilient to flooding.
5	Consider the betterment opportunities from potential new park areas in Guildford Town Centre (with regards to the Guildford Town Centre Masterplan).
6	Consider ways to achieve betterment when development is proposed that could affect the River Wey floodplain.
7	Consider seeking detailed flood information when major development is proposed in areas at risk of flooding but where there is currently insufficient information on flood risk available
8	Consider seeking an assessment of groundwater flood risk for development proposals within areas potentially at risk of grounding water flooding. This could be part of a FRA, or a separate document.
9	Consider requirements and restrictions in relation to development impacted by or in proximity to the Basingstoke Canal and reservoirs.
10	Consider potential risk from embankment or structure failure from development in proximity to the River Wey navigation and the use of flood management measures.
11	Consider requirements in relation to surface water flood risk, particularly in relation to identified areas in the Guildford SWMP and Ash Surface Water Study.

How should this SFRA be kept 'Live'?

It is important that the SFRA remains up to date. The key organisations outlined in the data register should be contacted should updates be available. The table below highlights key datasets that are updated regularly.

The data used is shown in the Data Register, Appendix A

Dataset	Owner	Comment
Flood Zones	Environment Agency	Updated quarterly, should new information be made available
Defence information	Environment Agency	Ongoing updates
Historic Flood Incidents	Environment Agency . Water Utilities, GBC, SCC	Ongoing updates
Detailed Modelling	Environment Agency	A new commission has been released for the River Wey. Updates are expected to be available in 2016

Further actions on keeping the SFRA 'live' are outlined below:

Volume 1, Chapter 7 highlights the actions recommended for the implementation of a maintenance and management structure for the SFRA.

- During future iterations the key stakeholders should be contacted to ensure that the most up to date records are included in the SFRA update
- Information on all sources of flooding should continue to be collected, where possible – more resources should be invested in determining the source and pathways of flooding
- When more detailed or updated hydraulic modelling becomes available, these should be included in the SFRA as soon as possible and used to update the document and any relevant definitions
- When more detailed information is carried out by developers and land owners, information should be captured and submitted to GBC as part of the development control process
- GBC should nominate a management group with the responsibility for monitoring, managing and maintaining the SFRA
- GBC should liaise with the EA (West Thames area) or organise an annual meeting to review the SFRA
- Data sets that are updated regularly (as shown in Volume 1, Chapter 7, Table 7-1) should be identified, saved and recorded in an information log

When updating the SFRA reports and figures, the following tasks should be undertaken:

- Document all new technical analysis by rewriting and replacing relevant Chapters of Volume 2
- Amend and replace relevant SFRA maps in Volume 3
- Review and, if required, amend Volume 1, Chapter 1
- Reissue to other stakeholders