

**WOKING AND SURREY HEATH
STRATEGIC FLOOD RISK ASSESSMENT**

**For WOKING BOROUGH COUNCIL and
SURREY HEATH BOROUGH COUNCIL**

MARCH 2007

EXECUTIVE SUMMARY

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1.1 *Background*

The Woking and Surrey Heath Strategic Flood Risk Assessment covers the areas of Woking Borough Council (WBC) and Surrey Heath Borough Council (SHBC) which fall within the Addlestone and Hale Bourne river catchment and has been prepared to support the application of the Sequential Test outlined in Planning Policy Statement 25 and to provide information and advice to WBC and SHBC in relation to land allocations and development control policies.

The SFRA deals primarily with flood risk from the Addlestone Bourne and Hale Bourne catchments but also considers the risk of canal flooding, surface water flooding, and groundwater flooding. The areas within the boundaries of Woking Borough Council and Surrey Heath Borough Council that are not considered in this SFRA are examined in the Woking (River Wey) SFRA, (February 2007) and the Blackwater Valley (Hart and Surrey Heath) SFRA which is currently underway.

The SFRA has made use of “best available information” in relation to fluvial, surface water, groundwater and canal flooding and draws conclusions about the level of flood risk in the Woking and Surrey Heath areas, both now and in the future given the likely impacts of climate change.

The SFRA comprises three separate volumes. The Main Report includes a summary of the catchment background and relevant policies and includes a description of the flood mechanisms within the SFRA area, observations based on the flood risk information within the SFRA and guidance on assessing Actual and Residual risks of flooding through reference to the SFRA maps (Volume 3).

The Technical Report, Volume 2, includes a full description of the data collected for use in the SFRA and a detailed methodology outlining the approach employed to produce the final SFRA information.

The Appendices are contained in Volume 3. Volume 3 contains the full set of SFRA maps detailing Actual and Residual Risk, flood hazard and the impacts of climate change. In addition a GIS layer is provided detailing a “snap shot” of information on other sources of flooding. This information is provided as an electronic GIS layer to allow frequent updating of the information it contains, after even small flood events there is likely to be extra information which could be added.

1.2 *Main Report*

The Main Report, Volume 1, introduces the catchment and provides background information to the SFRA. Importantly it introduces the concepts of the Flood Zones, Actual Risk and Residual Risk.

The **Flood Zones** are areas which would be expected to flood if the presence of flood defences and other man made structures are ignored. The Environment Agency Flood Zones, available on the EA website are a representation of these areas, based on application of a broad, national scale modelling technique. In the Woking and Surrey Heath SFRA these Flood Zones have been updated based on more detailed flood models produced locally by the EA.

In relation to the Flood Zones the SFRA concludes that:

- Generally existing development is at limited risk of flooding within the study area;
- The Flood Zones should be taken into consideration as part of the Woking and Surrey Heath Development Frameworks, and by Development Control, ensuring that vulnerable land uses (including residential and essential infrastructure) are kept outside high risk areas wherever possible; and

- Future development within Flood Zones 2 and 3 should take into consideration the potential to alter the Flood Zones via diversion, obstruction or increasing peak flow rates, thus increasing flood risk.

Actual Risk is the area that is really at risk of flooding, i.e. once the influence of flood defences are added in. In most areas within Woking and Surrey Heath the current areas at Actual Risk of flooding are broadly similar to the Flood Zones due to the general absence of flood defences in the boroughs. In the Woking and Surrey Heath SFRA the Actual Risk has been assessed for the 1 in 100 year event. The Functional Floodplain (approximately equivalent to the 1 in 20 year return period flood plain) has also been assessed and mapped. The impacts of climate change (a 20% increase in fluvial flood flows) has also been considered.

The Woking and Surrey Heath SFRA concludes that flooding within the Study Area is predominantly limited to open space and rural or semi-rural areas. A few developed areas are at high risk from flooding. The currently developed areas at risk are detailed in the SFRA report.

When the impacts of climate change are considered there is an extension of the floodplain in some areas when compared to the baseline as a result of increased flows, however generally flooding mechanisms within the Study Area remain the same. Due to the generally well defined river floodplains which exist on many of the watercourses within the study area, the increase in flows which may result from climate change has only a minimal impact on flood extent in many areas. However the increase in flows resulting from climate change may cause increased flood depths.

In relation to the extent of the potential Functional Floodplain, many of the developed areas at risk in the 1 in 100 year flood event along the Addlestone and Hale Bournes are also at risk during a 1 in 20 year event. However the extent of flooding is generally less during a 1 in 20 year event and flood depths are generally lower.

Residual Risk is considered within the SFRA to be a larger event than that considered in the actual risk assessment and has been taken as the 1 in 1000 year flood event. The residual risk outlines indicate those areas that may not be at risk of flooding in lower return period events but which may be at risk in very exceptional flood events.

The Residual Risk scenario flooding mechanisms and extents for Woking and Surrey Heath are broadly similar to those for Actual Risk, due to the generally well defined floodplain, particularly in the lower catchment. There are a number of exceptions to this which are discussed in the SFRA.

1.3 *Technical Report*

The Technical Report, Volume 2, provides technical details of the methodologies used to produce the information presented in Volumes 1 and 3. It is provided in order that the assumptions behind the SFRA are clear and accessible and in order to facilitate any future update of the SFRA.

1.4 *Appendices*

The Appendices, Volume 3, consist primarily of the supporting maps for the SFRA. The SFRA maps represent the Flood Zones, Actual Risk (including climate change effects and the Functional Floodplain) and are a spatial representation of flood risk in Woking and Surrey Heath. The maps also provide information on the distribution of flood hazards (based on water depth) within the floodplain.

1.5 *Guidance for Planners*

Guidance on the application of the SFRA is given in section 4 of the Main Report. The notes and flow chart provide guidance on the application of information within the SFRA in relation to the application of the Sequential Test to land allocations.

1.6 *Conclusions*

The Woking and Surrey Heath SFRA identifies that there is an underlying requirement for a Flood Risk Management Strategy for the Study Area. The strategy essentially requires consideration of the following five principal Actual Risk management measures:

- Selection of development solutions that complement the least risk options in accordance with Flood Zones, Actual Risk areas and Residual Risk areas;
- Provision of development forms in areas at Actual Risk from fluvial flooding, where such development is permitted, that include appropriate mitigation and management measures;
- Preparation of Flood Risk Assessments for all applications in Zones 2 and 3 that include an appraisal of the strategic considerations;
- Preparation of Flood Management Plan or update of existing plan for incorporation in local Emergency Plan or Major Incident Plan; and
- Identification and implementation of strategic interventions that offer a sustainable means of addressing long-term flood probability and hazard, contributing to a reduction in flood risk.