Bath & North East Somerset Council

Strategic Flood Risk Assessment of Bath & North East Somerset Council

VOLUME III MANAGEMENT GUIDE

FINAL

April 2008

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Issue box

The Bath & North East Somerset (B&NES) Strategic Flood Risk Assessment (SFRA) is a "live" document. The current version is developed using the best information and concepts available at the time.

As new information and concepts become available the document will be updated and so it is the responsibility of the reader to be satisfied that they are using the most up-to-date information and that the SFRA accounts for this information.

All revisions to this summary document are listed in the table below

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Contents

Foreword

Bath & North East Somerset District Council is required to prepare a Strategic Flood Risk Assessment (SFRA) to support the advancement of their Local Development Framework.

The SFRA creates a strategic framework for the consideration of flood risk when making planning decisions. It has been developed with reference to Planning Policy Statement 25 (PPS25): development and flood risk and additional guidance provided by the Environment Agency.

The fundamental concepts that underpin the SFRA are outlined in PPS25. The guidance provided in this document requires local authorities and those responsible for development decisions to demonstrate that they have applied a risk based, sequential approach in preparing development plans and consideration of flooding through the application of a sequential test. Failure to demonstrate that such a test has been undertaken potentially leaves planning decisions and land allocations open to challenge during the planning process.

The underlying objective of the risk based sequential allocation of land is to reduce the exposure of new development to flooding and reduce the reliance on long-term maintenance of built flood defences. Within areas at risk from flooding, it is expected that development proposals will contribute to a reduction of flood risk.

SFRAs are essential to enable a strategic and proactive approach to be applied to flood risk management. The assessment allows us to understand current flood risk on a wide-spatial scale and how this is likely to change in the future.

The main objective of the Bath & North East Somerset SFRA is to provide flood information:

- so that an evidence based and risk based sequential approach can be adopted when making planning decisions, in line with PPS25;
- that is strategic in that it covers a wide spatial area and looks at flood risk today and in the future;
- that supports sustainability appraisals of the local development frameworks; and
- that identifies what further investigations may be required in flood risk assessments for specific development proposals.

The SFRA is presented in a number of documents:

- Non technical summary
- VOLUME I – technical report and flood maps
- VOLUME II – user guide
- VOLUME III – management guide

The SFRA is a live document which is intended to be updated as new information and guidance becomes available. The outcomes and conclusions of the SFRA may not be valid in the event of future changes. It is the responsibility of the user to ensure they are using the best available information.

1. Introduction

Strategic Flood Risk Assessments (SFRAs) provide flood risk information to inform a range of activities, including land use planning, emergency planning, development control and the development of specific flood risk management policy.

The level of detail included in the SFRA depends on the intended use. The Bath & North East Somerset District Council SFRA was developed to inform the district wide Local Development Framework, and thus the scale and detail within the assessment reflects this intended use. A Level 1 (initial assessment) has been undertaken over the whole of the District, with a Level 2 (more detailed assessment) undertaken in key locations. Detailed flood risk assessments will be required on a site specific basis.

This Volume of the Bath & North East Somerset Strategic Flood Risk Assessment is the

Management Guide

The Bath & North East Somerset SFRA has been developed using a range of data from a variety of sources. To ensure that the SFRA is transparent and evidence-based, it is vital that users can easily access the source and certainty of these datasets.

This document describes the data management system and management protocols agreed by Bath & North East Somerset District Council to help users manage existing and new datasets used in the SFRA, update the SFRA reports, and manage the SFRA process so that it remains current and suitable for informing land use planning decisions into the future.

Whilst these systems are in place, there will inevitably be a lag between issue of new data and incorporation into the SFRA. It is thus the responsibility of the user to ensure that the latest information has been incorporated into the SFRA when using it to inform land use planning and other decisions.

2. Data management system

2.1. Introduction

A data management and metadata compilation system was developed to support the SFRA data collection and management process. This system was used during the first stage of the SFRA to support initial data collection and record datasets produced during the development of the SFRA.

GIS data, documents and metadata were supplied on project completion in the form of an Electronic Document Management System. This system was designed to support the long-term efficacy and application of the SFRA datasets and guidance.

Additional datasets that become available should be included in the system to ensure that they are considered during future iterations of the SFRA.

2.2. Data collection

The main datasets used in the Bath & North East Somerset SFRA were derived from:

- The Environment Agency - existing flood studies and hydraulic models such as Catchment Flood Management Plans (CFMP), non flood risk datasets including topographic data (LiDAR and SAR), historic flood incidents, and the National Flood and Coastal Defence Database (NFCDD). Data was issued to Bath & North East Somerset under guidance provided by the Environment Agency pertaining to the provision of data to Local Authorities for SFRAs.

- Bath & North East Somerset District Council - these datasets are held under a variety of licence and copyright agreements and include the Ordnance Survey Service Level Agreement (SLA).

Records of historic flooding incidents and other flood related information was requested from the following organisations:

- Environment Agency
- Wessex Water Services

Variable response was received from the above sources. All datasets received were logged in the SFRA meta-database. It is recommended that during future iterations of the SFRA, the above organisations are contacted to ensure that the most up-to-date records have been received.

2.3. Data processing

A three tier approach was taken to computing flood risk, the three tiers (technical approaches) are;

- Tier 1. New 2-d Flood Modelling
  Outlines, depth and velocity for present day and future scenario, climate change
- Tier 2. New 2-d Flood Mapping
  Outlines, depth and velocity for present day and future scenario, climate change
- Tier 3. Existing Flood Zones
  Outlines only

Volume 1, Appendix A, contains a map (Map M) that represents locations where each tier was applied within Bath & North East Somerset District Authority.

The following data processing was undertaken during the development of the SFRA:

- Datasets were clipped where their extents were larger than the Bath & North East Somerset District boundary. The same should be done for datasets included in the SFRA in the future.
- Topographic datasets (LiDAR and SAR) were processed to produce specific Digital Terrain Models (DTMs). The SAR dataset was supplied in 10km x 10km tiles. The LiDAR dataset was supplied as a series of 2km x 2km and 0.5km x 0.5km tiles. As LIDAR data is more accurate and precise than SAR data, it is always given precedence.
- Datasets were produced during the analyses described in Volume I of the SFRA.
- Maps and figures were produced using map templates developed for the SFRA reports.

2.4. Data ownership

The datasets obtained for use in the SFRA have come from a number of sources under licence agreement. These datasets can not be passed to external sources without permission from the owner.

Data and maps produced during the SFRA are owned by Bath & North East Somerset and can be passed to external parties at their discretion. The Environment Agency owns the Flood Models from which the data and maps have been produced (Capita Symonds have used existing models to derive new data that meet the needs of the SFRA and PPS25). Key datasets are listed in Table 2.1.

Table 2.1 Key datasets

List of Key Data Sets	Ownership	Licence Required	Contact
Flood plain topography – LiDAR, SAR and topographic survey	Environment Agency	Yes	Flood Mapping & Data Environment Agency
Flood Zones (Tier 3)	Environment Agency	Yes*	Flood Mapping & Data Environment Agency
OS Mastermap	Ordnance Survey	Yes	Bath & North East Somerset
OS Raster mapping	Ordnance Survey	Yes	Bath & North East Somerset
Historic flood information	Environment Agency	Yes*	Flood Mapping & Data Environment Agency
Detailed hydraulic models (Tier 1)	Environment Agency / Bath & North East Somerset	Yes	Flood Mapping & Data Environment Agency
Detailed hydraulic models (Tier 2)	Environment Agency / Bath & North East Somerset	Yes	Flood Mapping & Data Environment Agency
SFRA reports and maps	Bath & North East Somerset	No	Bath & North East Somerset
CFMP model files and results	Environment Agency	Yes	Flood Mapping & Data Environment Agency
Local Land and Property Gazetteer	Bath & North East Somerset	Yes	Bath & North East Somerset
Constraint maps – all data used in producing constraint maps has come from Bath & North East Somerset, with the exception of the following;			
National Property Dataset	Environment Agency	Yes	Flood Mapping & Data Environment Agency
Soil & Land Cover (CORINE)	European Environment Agency	Yes	http://www.eea.europa.eu/
*Special Licence (non-commercial). Uses are restricted to the organisations statutory obligations in the Civil Contingencies Act 2004 and section 197 of the Water Resources Act 1991			

2.5. SFRA data management system

The data management strategy developed for the SFRA was designed to account for possible issues with data maintenance, data processing and project outputs. The final deliverables of the SFRA were delivered in two forms:

- Hardcopies of the SFRA reports – the SFRA contents were divided into several volumes and chapters to allow easier update during future iterations.

- A DVD containing the following electronic datasets:

  – Raw GIS data - SFRA flood outlines and additional GIS data layers used to provide the SFRA maps and figures. These were obtained under licence from the Environment Agency. All data was provided in a format compatible with Bath & North East Somerset existing corporate GIS infrastructure which uses MapInfo.

  – The meta-database - this contains details of all datasets and reports used in the SFRA. The meta-database was designed to inform users when metadata items require attention. Automatic warnings inform users when data licences require renewal, and when data updates may be available. In this way the long-term sustainability of the SFRA can be encouraged. This system does not negate the user from manually verifying that the most up-to-date data is incorporated in the SFRA whenever the SFRA is used to inform a land planning decision.

  – Electronic document management system - PDF versions of all maps and reports produced during the SFRA.

  – Customised map templates – a replication of the templates used to produce maps and reports in non-PDF format, allowing modifications to the maps.

  – A schedule of MapInfo workspaces – to be replicated in the Bath & North East Somerset Corporate GIS to empower users to view and query raw and derived data electronically.

3. Management team

3.1. Introduction

To ensure that the SFRA remains 'live' it is important to nominate a Management Group with responsibility for monitoring, managing and maintaining the SFRA, as shown in Figure 3.1.

By following this process of information dissemination and review, the management team can ensure a consistent and up to date supply of strategic flood risk information to all levels of planning process.

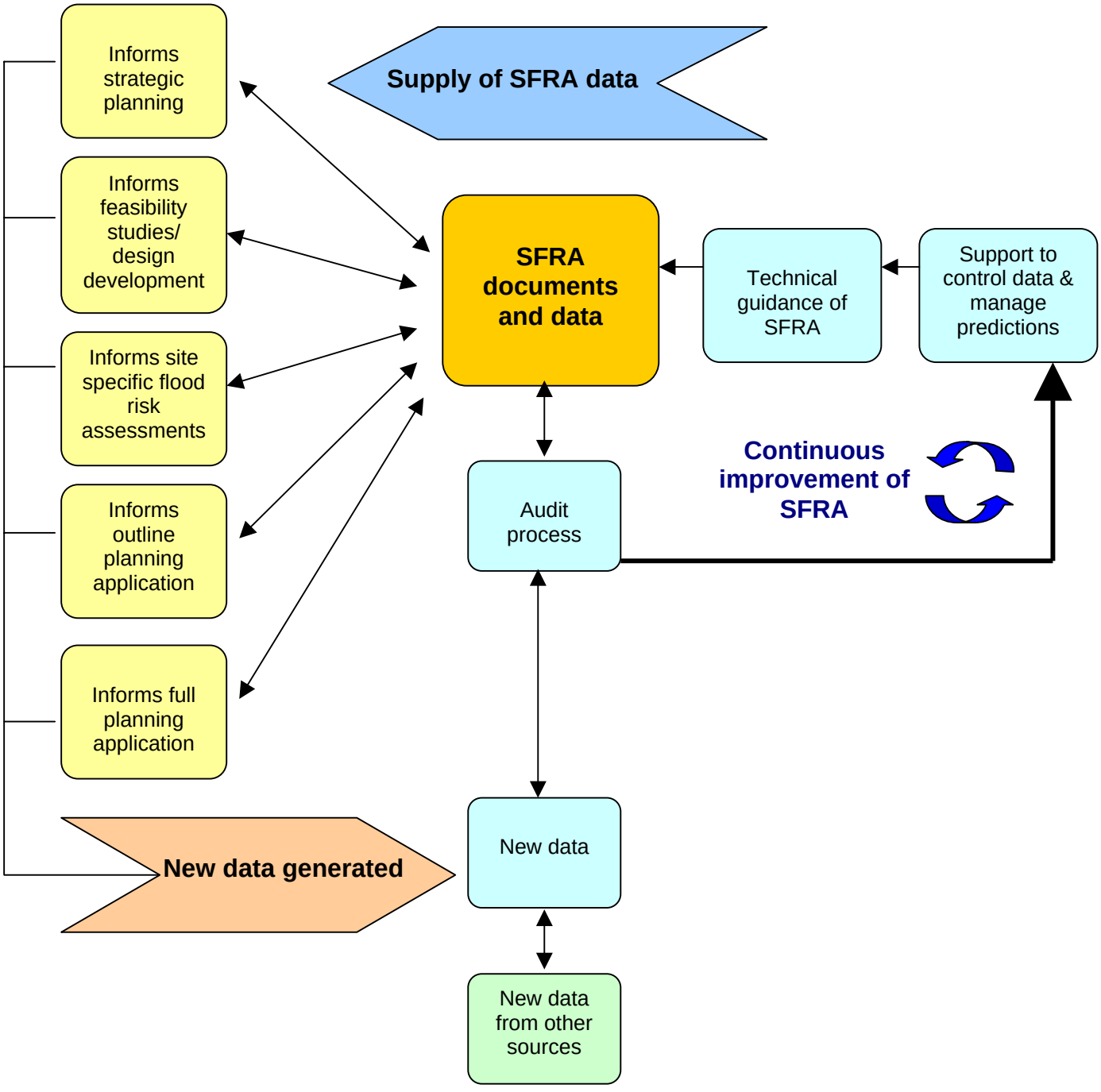

Figure 3.1 Conceptual SFRA management process

3.2. Roles and responsibilities

(1) Bath & North East Somerset SFRA Custodian

Responsibilities:

- Undertake review of SFRA annually and determine whether a formal revision of the SFRA is required, as per Section 4.1.
- Attend Environment Agency run SFRA meeting annually and undertake actions, as per Section 4.1.
- Arrange additional studies where appropriate. Arrange for the data manager to incorporated findings of new projects into SFRA database as per Section 4.2. Arrange for findings of new projects to be incorporated into SFRA documents as per Section 4.3.
- Arrange for issues of SFRA data and findings to external parties where appropriate, as per Section 4.4.

The current Custodian is:

Name	Title	Contact number	Date assigned
	Planning Policy	01225 477548	April 2008

(2) Bath & North East Somerset Data Manager

Responsibilities:

- Identify new datasets relevant to the SFRA when they become available (including checks for datasets known to be regularly updated listed in Table 3.1)
- Manage incoming datasets, particularly the Environment Agency data as defined below (upload new datasets in the system and add supersede flag to old datasets).
- Issue outgoing datasets as per Section 3.5 (with information regarding source and currency of information and appropriate licence arrangement).

The current GIS Leader is:

Name	Title	Contact number	Date assigned
	GIS Manager	01225 394178	April 2008

(3) Environment Agency

Responsibilities

- Providing B&NES with updates to Flood Zone and Flood Risk data
- Quality assuring flood risk maps, data and models from FRAs, updating Flood Zones when appropriate

Name	Title	Contact number	Date assigned
Chris Hayes	Technical Specialist Flood risk mapping & data management	08708 506506	November 2007
National Contact Centre		08708 506506	November 2007

It is suggested that the Environment Agency (Wessex Area) is responsible for convening meetings (at least annually) with all the relevant District Authorities in order to update the Authorities on the type of actions outlined in section 4.1

3.3. Communications plan

It is envisaged that information in the SFRA will be distributed to a number of different internal and external parties. Table 3.1 contains a list of likely communication links and agreed methods of communication for the Bath & North East Somerset SFRA.

Table 3.1 SFRA communications plan

Contact	Information provision	Method of communication	Timetable
1. B&NES departments	SFRA datasets and findings	Use in LDF documents Use in other District documents	To be agreed
2. Public Relations	SFRA datasets and findings	Publicity material	To be agreed
3. The B&NES Custodian	New incoming datasets SFRA datasets and findings	Through any method	As required
4. The B&NES data manager	New incoming datasets SFRA datasets and findings	To B&NES departments via corporate GIS and publicity	To be agreed
5. Council Members	Findings of SFRA study	Briefing of relevant Council Members (dates to be agreed by Custodian)	To be agreed
6. The Environment Agency	Findings of the SFRA Amendments to the SFRA	Annual meeting to be arranged by Environment Agency Contact throughout all stages of the land planning process	As required
7. Emergency planners	SFRA datasets and findings	Use in other district plans (particularly depth / velocity)	As required
8. Regional Planning Body	Findings of the SFRA	Copies of report electronically	As required
9. Developers	Findings of SFRA study Availability of SFRA datasets	Datasets to interested Parties including licences etc. Agreed handover of datasets to the Custodian	As required
10. General public	SFRA findings (and reports)	In electronic format	As required

4. Management and update protocols

4.1. Monitoring the SFRA

It is in Bath & North East Somerset interest that the SFRA remains current and up-to-date. To help facilitate this, it would be useful for the South West Region of the Environment Agency to organise an annual meeting with administrative bodies to review SFRAs within their boundary. It is envisaged that the Custodian (see Section 3.2) will be contacted on an annual basis with details of this meeting.

Prior to this meeting it is recommended that the following maintenance checks be undertaken:

- Review the currency of datasets used in the SFRA.
- Consider whether a formal review of the SFRA is necessary.

Whilst all datasets should be checked for updates and key organisations listed in Section 2.2 should be contacted, Table 4.1 contains a list of datasets that are known to be updated regularly.

Table 4.1 Datasets that are known to be updated regularly

Dataset	Owner	Comment
Flood Zones	Environment Agency	Updated quarterly
Catchment Flood Management Plans	Environment Agency	Updated every five years
National Flood and Coastal Defence Database (NFCDD)	Environment Agency	Ongoing updates
System Asset Management Plans and Strategies	Environment Agency	Likely to be updated every five years
Historic flood incidents	Environment Agency, Water companies, Fire Brigade, Highways Depots	Unknown

4.2. Incorporating new datasets

The data management system described in Section 2 was developed to manage current and existing datasets used in the Bath & North East Somerset SFRA. It is envisaged that this database will be merged into the existing data management system yet maintain its own SFRA entity.

The following tasks should be undertaken when including new datasets in the Bath & North East Somerset SFRA:

- Identify new dataset (as per Section 4.1).
- Log new dataset/information in meta-database.
- Add superseded flag to old dataset.
- Save new data/information in the SFRA section of the Bath & North East Somerset GIS.
- Record new information in log so that next update can review this information.

4.3. Updating SFRA reports and figures

Volume I provides a record of all of the technical analyses used to develop the Bath & North East Somerset SFRA. In recognition that the SFRA will be updated in the future, the report has been structured in chapters according the six sources of flooding investigated. By structuring the report in this way, it is possible to undertake further analyses on a particular source of flooding and only have to supersede the relevant chapter, whilst keeping the remaining chapters unaffected.

In keeping with this principle, the following tasks should be undertaken when updating SFRA reports and figures:

- Undertake further analyses as required after SFRA review (see Section 3.2).
- Record all new datasets in SFRA data management system.
- Document all new technical analyses by rewriting and replacing relevant Volume I chapter/s.
- Amend and replace relevant SFRA Maps.
- Review and if required, amend Chapter 13 of Volume I.
- Reissue to Bath & North East Somerset, Environment Agency and other stakeholders.

4.4. Issuing SFRA information to other parties

A large amount of data has been collected and analysed during the development of the Bath & North East Somerset SFRA. It is likely that other parties will want to access this information when undertaking parallel and/or more detailed studies. The data management system described in Section 2 has been developed to manage current and existing datasets used in the Bath & North East Somerset SFRA. This system can be adapted to manage the outgoing data to external parties.

The following tasks should be undertaken when issuing SFRA datasets to other parties:

- Log data request with Bath & North East Somerset data manager
- External parties should be given the SFRA reports and maps in the first instance. In this way they can be asked to request specific and relevant pieces of information, rather than the entire dataset.
- Locate and compile dataset.
- Identify and issue relevant licence agreement.
- Provide details of the original source and currency of information. Advise that the user should go directly to the source of data to check that the latest information is at hand.
- Request a summary of findings of the study and copies of any additional data generated.
- Log details of outgoing data in Bath & North East Somerset data manager.

5. Glossary and notation

CFMP	Catchment flood management plan
B&NES	Bath & North East Somerset District Council
DTM	Digital terrain model – three dimensional model of the ground surface
GIS	Geographical information system
LiDAR	Light detecting and ranging
Meta-database	Access data-base containing a record of all datasets used in developing the SFRA
MWDF	Minerals and Waste Development Framework
NFCDD	National Flood and Coastal Defence Database – Environment Agency GIS database containing details of important flood defence assets and structures
SAR	Synthetic aperture radar
SFRA	Strategic flood risk assessment