

Strategic flood risk assessments

A GOOD PRACTICE GUIDE



Introduction

Getting the right kind of development in the right places will ensure that today's growth is resilient to tomorrow's climate. This is a key ambition of the [national flood and coastal erosion risk management strategy for England](#) (2020). Land use choices through spatial planning can help to achieve flood and coastal erosion resilience in places as well as wider environmental benefits.

The purpose of this guide

The [National Planning Policy Framework](#) (Department for Levelling Up, Housing and Communities, 2021) requires local planning authorities (LPAs) to produce Strategic Flood Risk Assessments (SFRAs) and use them as evidence to inform [local development plans](#) and policies.



This guide provides practical information and advice for LPAs, and others who support them, on how to scope, produce and use an SFRA to fulfil national policy requirements efficiently and effectively. This can create time and cost savings whilst achieving good outcomes.

This guide supports existing Environment Agency guidance '[how to prepare a strategic flood risk assessment](#)' and government guidance on how to apply the [sequential test](#) and [exception test](#). Evidence shows that existing guidance is applied well to assess flood risks from main rivers, the sea, and ordinary watercourses. Further advice is provided here to ensure that other sources of flooding, from surface water, groundwater, sewers, reservoirs and canals, are also assessed, when scoping, developing and using the SFRA.

The advice has been informed by research undertaken by the Environment Agency (2018-2019) ([FRS18204: Using flood risk information in spatial planning](#)), and in consultation with others who

provide advice on spatial planning. Case studies have been reproduced from existing assessments, plans and policies with the kind permission of the councils referenced. Over time, new SFRAs may provide other examples. These should be shared using existing networks (for example ADEPT and CIWEM) to continue peer to peer learning.

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Who is this guide for?

Local Planning Authority policy officers (and consultants working on their behalf) who:

- ☐ Commission and review SFRAs to inform local planning and development documents, policies and allocations, and to apply the sequential test and, where relevant, the exception test.
- ☐ Prepare strategic plans for the local area, e.g. infrastructure studies, green infrastructure strategies, which need to be informed by flood risk evidence.
- ☐ Need to consider future climate adaptation or relocation requirements.

Local Planning Authority development management officers, who:

- ☐ Assess planning applications using SFRAs to provide guidance and examples to case officers and applicants.
- ☐ Set criteria for future development in areas of flood risk.
- ☐ Prepare Community Infrastructure Levy charging schedules and policies on S106 developer contributions.

Risk management authorities (RMAs)*, who:

- ☐ Provide flood risk data and advice to planning authorities for SFRAs.
- ☐ Develop future flood risk management options and schemes, and bids for funding.
- ☐ Develop other documents for flood risk management (for example Local Flood Risk Management Strategies).
- ☐ * *Organisations with a statutory role in flood and coastal erosion risk management (includes the Environment Agency, lead local flood authorities (unitary and county councils), district councils (who are also coastal management authorities), internal drainage boards, water and sewerage companies, and highways authorities (highways teams in unitary/county councils and Highways England)).*

There are other bodies who may be consulted to provide flood risk information and advice to inform the evidence in an SFRA. This can include the Canal and River Trust, reservoir owners, other infrastructure owners, coastal groups and community flood groups. They may also find this guide helpful when supporting their local planning authority. This guide may also be useful for organisations assembling flood risk information to support the preparation of a Neighbourhood Plan, Neighbourhood Development Order, Local Development Order or Community Right to Build Order.

Outcomes: Using planning policy to ensure today's growth is resilient to tomorrow's climate

National planning policy and guidance in England

In England, the [National Planning Policy Framework \(NPPF\)](#) sets out the government's planning policies and how these should be applied, including managing flood risk and requirements for local planning authorities to produce a Strategic Flood Risk Assessment. The [Planning Practice Guidance on Flood Risk and Coastal Change \(PPG\)](#) advises how to take account of the NPPF policies and address the risks associated with flooding. There is also the [PPG on the Natural Environment](#) which sets out how delivering environmental net gains and enhancements to ecosystem services can alleviate flood risk. The Environment Agency's guidance [How to prepare a Strategic Flood Risk Assessment \(SFRA\)](#) explains what information local planning authorities in England need to include in a SFRA, and how it should be used. This guide (strategic flood risk assessments good practice guide) provides further detailed technical advice and examples of how to apply that guidance. This has been developed to encourage SFRAs to enable good outcomes for flood resilient places.

National planning policy in England seeks to ensure that flood risk is avoided, reduced, managed and mitigated effectively. It strives to deliver a number of outcomes that ensure today's growth is resilient to tomorrow's climate. By using this guide, SFRAs will be produced and used in such a way that will ensure the following outcomes can be achieved.

Outcome 1 – Development is located in areas of lowest risk from all sources accounting for the predicted impacts of climate change

The best way to avoid the risk of flooding to new development is to ensure that it is located in areas at the lowest risk of flooding from all sources (main rivers and 'ordinary' watercourses, the sea, surface water, groundwater, sewers and reservoirs/artificial sources like canals). A development that, for example, has been located away from areas of high river or sea flood risk yet remains vulnerable to a high risk of surface water flooding may not be the most sustainable option. If all sources of flooding are considered when applying the decision-making tests embedded in planning policy, sites at lowest risk of flooding will be allocated for development in preference to those at greater risk.

Outcome 2 – Inappropriate development is avoided in areas that will become unsustainable in the future

The risk of flooding is anticipated to get worse over time due to climate change, either through new areas becoming at risk of flooding for the first time (e.g. areas currently in a lower risk flood zone become defined as a higher risk flood zone), or through the consequences of flooding becoming more severe, e.g. increased depths of floodwater. The desired outcome is long term sustainable decisions on the appropriate location, types and design of development are made, informed by climate change information on all sources of flooding.

Outcome 3 – Land is safeguarded for current and future flood risk management purposes

The desired outcome is for a ‘no regrets’ approach to be employed whereby the value of land that helps to manage flood risk should be recognised and considered when making development decisions. In practice, this means safeguarding land and infrastructure that is needed for current and future flood risk management so that it is protected from development.



This may include land for new and/or improved flood defences (for the purpose of protecting existing communities), land where floodplains may expand in the future, land for flood storage schemes, and land for relocating communities.

Outcome 4 – Cumulative impacts of development and land-use change on flood risk have been identified and addressed

New development and changes to land use can affect the risk of flooding in an area. The desired outcome is that development proposals and decisions assess and address the cumulative impact on the risk of flooding by including measures that avoid future increases to flood risk through incremental development.

Outcome 5 – Opportunities have been taken to reduce existing levels of flood risk

If LPAs and RMAs work collaboratively when producing flood risk evidence base documents, such as the SFRA, opportunities can be identified where future development or redevelopment could reduce the existing causes and impacts of flooding. SFRAs can identify opportunities to reduce flood risks, such as constructing or co-funding new flood defences or improvements to existing defences, strategic sustainable drainage systems (SuDS) or natural flood management techniques such as watercourse restoration or culvert removal. Implementing these opportunities can be driven by supplementary planning documents or flood risk management projects that are evidenced by the SFRA. The desired outcome is that all appropriate opportunities in spatial planning are used to identify and implement measures that reduce the causes and impacts of flooding to existing communities now and in the future. This is in addition to the requirements for new development not increasing flooding under the NPPF.

Outcome 6 – Flood risk evidence base informs plans and policies

The SFRA is part of the evidence base for the local plan. It supports the Strategic Environmental Assessment process and should be used to develop local planning policies. Producing an SFRA for the Local Development Plan should not be seen as an end in itself. It should also inform: any supplementary planning guidance on flood risk management; water cycle strategies; land assessment studies; future development allocations; development management policies; emergency plans; growth and infrastructure plans; green infrastructure plans; planning obligations (including Community Infrastructure Levy, Section 106¹ or Section 278² Agreements, etc.); future relocation planning, and how flood risk management is to be considered when determining planning applications.

The outcome of this is that development is directed to areas of lowest risk of flooding from all sources, development in areas of flood risk can be made safe throughout its lifetime without increasing flood risk elsewhere, and local policies (for flood risk management or development) are consistent with the evidence base.

Outcome 7 – Residual risk of flooding is safely managed



If, having used the sequential and exception tests, development is approved in areas at increased risk of flooding, any remaining 'residual risk' should also be safely managed. This will ensure people will not be exposed to hazardous flooding or other unacceptable risks such as building structural instability caused by flooding. Residual risks include those that result from the failure or overtopping of flood defences, the blockage of drainage systems, failures in flood forecasting or flood warning issue, receipt or response, and failure of active measures such as demountable flood barriers. The desired outcome is that

residual flood risks are first minimised by taking a sequential approach to locating the buildings in areas of the site at lowest risk, raising floor levels and thresholds, managing site levels (where appropriate), raising vulnerable uses to upper floors and that appropriate passive flood resistance and recovery measures have been incorporated.

Proposals for new development should be supported by flood risk emergency plans as described in the ADEPT and Environment Agency guidance document: [Flood risk emergency plans for new development](#). The NPPF requires these plans to form part of the Flood Risk Assessment provided for a new development or and may be stipulated in LPA local guidance or policy.

Achieving wider outcomes

A comprehensive SFRA provides evidence for the local plan. Once that evidence has been produced for this reason it can also underpin many core local government activities, including:

¹ Section 106 of the Town & Country Planning Act 1990

² Section 278 of the Highways Act 1980

- Achieving strategic objectives. Projects, plans and processes informed by an SFRA can build in resilience to flood risk and climate change. These will be more effective and sustainable over the long-term.
- Reducing impacts on service demand and delivery by allowing assets and activities to continue performing as the climate changes.
- Reduced financial costs. Many studies show that adaptation action is generally cheaper, and more effective over time than the costs incurred responding to the impacts over time (although individual actions need careful evaluation). The short-term costs from the impacts of extreme weather events can also be significantly reduced, such as highway and building repairs, temporary accommodation, mental health and social care support. Proactive adaptation is a key part of ensuring LPAs continue providing value for money to the taxpayer.
- Meeting statutory requirements for planning, flood risk management and public health.
- Delivering multiple benefits. SFRAs can identify opportunities to reduce flood risk through measures such as multifunctional sustainable drainage systems or natural flood management techniques that can help to improve biodiversity (net-gain) and provide wider environmental net gain and amenity benefits. Adaptation actions can also deliver wider benefits such as improving health and wellbeing, property values, skills and employment, reducing emissions and storing carbon.

These outcomes can be achieved if the SFRA is appropriately scoped, produced, reviewed and used. The information in the following pages provide advice on how to do this, based on consultation with local planning authorities and others. This supports the existing guidance [‘how to prepare a strategic flood risk assessment’](#).

Scoping, producing and using an SFRA: Rules of thumb

There are some general ‘rules of thumb’ that can be applied to ensure that the SFRA meets planning policy requirements in the most effective and efficient way.

Engage early and widely

Work collaboratively

Be comprehensive

Take a digital approach

Update often

Share it and use it

These approaches can have time and cost savings, better outcomes as evidenced in the Environment Agency research [‘FRS18204: Using flood risk information in spatial planning’](#) (2021). Some local planning authority officers’ experiences include:

“Savings of up to 50% or more were estimated between the cost of a combined SFRA compared with the total cost if all the LPAs produced their own individual SFRA . Officers noted that collaborative working meant costs and roles could be shared between LPAs. For example, with one managing the project, another developing the webpages to host the SFRA outputs and remaining costs being shared appropriately amongst the LPAs.”

“Having previously liaised with the Environment Agency I had contacts from whom I was able to request an example scope and ask for assistance reviewing briefs at commissioning stage.”

“The interactive PDFs (within the SFRA) have been well received. They are much more usable and are being used internally as well as by developers and the public”.

“For some local areas there was a need for a more bespoke approach that provided greater detail than national policy guidance. The local flood risk standing advice developed for our area in collaboration with the Environment Agency provided that consistent and robust planning support.”

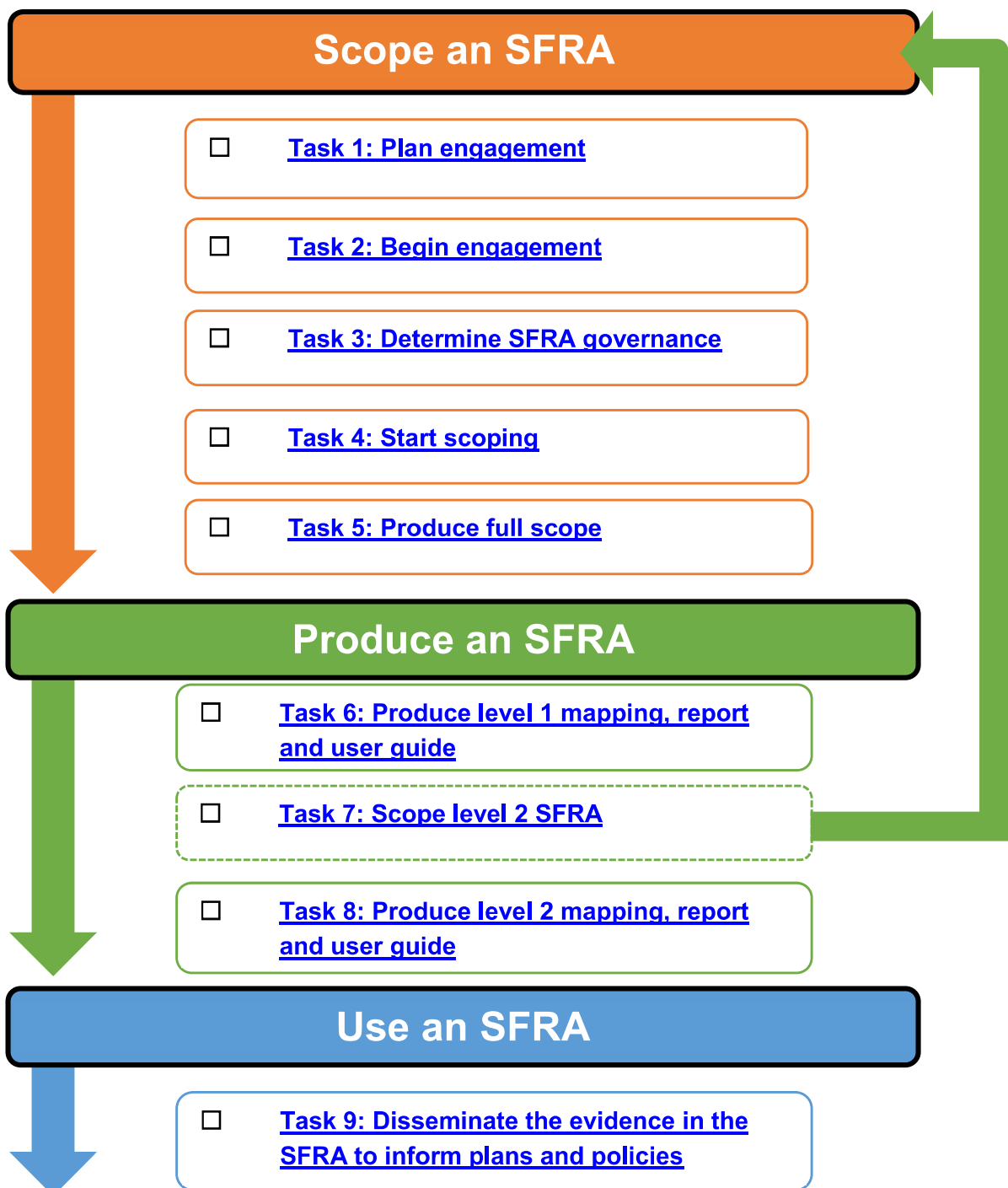
“The SFRA enabled the preparation of better policies in relation to surface water management that were previously not considered by developers.”

“The SFRA provided clear recommendations which were translated into local plan policies.”

“The SFRA feeds into planning for green infrastructure, suitable alternative natural greenspaces, and safeguarded space for flood storage areas.”

Scoping, producing and using an SFRA: Checklist

The guidance for [how to prepare a strategic flood risk assessment](#) describes which level of SFRA to produce. All local planning authorities need to produce a level 1 SFRA to allocate land for development. A level 2 SFRA is needed if development cannot be located outside flood risk areas. The guidance below supplements the guidance with good practice approaches that have been found through research and can be shared to support peer to peer learning. The checklist can help LPAs scope, produce and use SFRAs that create good outcomes for flood risk management. The tasks are described in more detail in the following section.



SCOPING

Scoping an SFRA

The [SFRA Guidance](#) online describes all the requirements of a Level 1 SFRA, and what it should contain. This includes information on how the SFRA helps the LPA, how others will use it, and when to review and update it. It also provides guidance on how to produce an SFRA with other local planning authorities and who to consult when producing the SFRA.

The guidance below supplements the guidance with good practice approaches that have been found through research and can be shared to support peer to peer learning.

Task 1 Plan engagement

1.1 Identify RMAs and others to work with to advise, support and use the SFRA.

Good practice:
[Collaborative working](#)

Outcome:

[Outcome 3: Land is safeguarded for current and future FRM purposes](#)

[Outcome 5: Opportunities have been taken to reduce existing levels of flood risk](#)

[Outcome 6: Flood risk evidence base informs plans and policies](#)

The SFRA should be prepared at the earliest stages of the local plan development so it can influence local policy.

Local planning authorities (LPAs) should work with statutory flood risk management authorities, and other organisations involved in flood risk management when developing the SFRA, even if they are not statutory consultees on the local plan. If the LPA is not an upper tier authority, early consultation with the lead local flood authority (LLFA) is essential to inform wider engagement with other organisations. The following organisations and groups should be engaged early to understand what advice, information and support they can provide to the SFRA scoping and development. These include as a minimum:

- Environment Agency (including planning, flood, reservoir and groundwater teams)
- Lead local flood authority (top tier local authorities)
- Coastal protection authorities
- Internal drainage boards (IDBs)
- Water and sewerage companies
- Canal and Rivers Trust
- Local resilience forum
- Local emergency planning team
- Local emergency services
- Highways England and/or highway authority
- Parish councils
- Regional flood and coastal committees
- Neighbouring LLFAs if appropriate
- Catchment partnerships
- Minerals and Waste services

And where appropriate:

- Land owners
- Reservoir owners
- Coastal groups
- Utilities or statutory undertakers
- Public (local flood risk groups)

Early engagement is key to understanding what resources are available to support the SFRA process. For example, if LLFAs cover several LPAs they may have more limited resource to be able to support multiple SFRAs. The arrangements for LPA collaboration with the LLFA will depend on the local government structure and any specific arrangements to aid this process in two-tier authorities. In areas with [IDBs](#), LPAs should engage early with the IDB to understand any Byelaws and information on the drainage districts.

Key questions to consider:

- What are the key flooding issues in the LPA area (consider all flood sources)?
- Which organisations have statutory roles to advise and manage those issues?
- What are the existing collaboration agreements between these organisations?
- Which other organisations / groups may be able to support the SFRA (with data for example)?
- How can other organisations / groups get involved?
- What strategies and plans will inform the SFRA (e.g. shoreline management plans, local flood risk management strategies, drainage and wastewater management plans)?
- What interventions are already in place to reduce flood risk (either private or government funded schemes)?
- What activities in the SFRA scoping and development can the other organisations support (e.g. provide plans and data to identify where existing levels of flood risk have been or can be reduced, and where land needs to be safeguarded for future)?

1.2 Identify neighbouring LPAs to collaboratively develop the SFRA

Good practice:

[Collaborative working](#)

[Comprehensive scoping of the SFRA](#)

[Considering flood risk at a strategic scale](#)

Outcome:

[Outcome 4: Cumulative impacts of development and land-use change on flood risk are identified and addressed](#)

[Outcome 5: Opportunities have been taken to reduce existing levels of flood risk](#)

[Outcome 6: Flood risk evidence base informs plans and policies](#)

Where possible, LPAs should collaborate with neighbouring LPAs to facilitate effective planning policies developed at a catchment scale. This can provide benefits including better understanding flood risk issues; sharing resources; reduced costs for producing the SFRA; improved opportunities for flood risk management; and better opportunities for establishing a consistent approach to implementing planning policy for achieving flood risk resilience across the area. This is particularly important to establish in two-tier authorities, or where there are national parks, and where sources of flooding transcends LPA boundaries.

Where the LPA is a lower tier authority it should collaborate with the upper tier authority as they will have some planning duties. Upper tier authorities that produce SFRAs for minerals and waste should consult the LPA. National parks who are LPAs and produce the SFRA should collaborate with neighbouring LPAs, especially if they are within the same district.

Consider working with neighbouring authorities, particularly:

- LPAs in two-tier authorities
- LPAs that are national parks
- LPAs with shared flood risk issues
- LPAs that have existing arrangements for collaborative working
- LPAs that cross over single river catchments
- LPAs that are reliant on the flood risk management infrastructure upstream or downstream of the LPA area
- LPAs with settlements that border or cross local authority boundaries

This may be limited where neighbouring LPAs are all at different stages in the Local Plan production, however there may be opportunities to collaborate over time as and when appropriate. Further information on approaches to collaboration is provided in the Good practice section of this guide.

Key questions to consider:

- Are there cross-boundary flooding issues?
- What are the local catchments for rivers, surface water, groundwater and reservoirs, and for the sea (e.g. coastal cells and estuaries)? How do these catchments compare to local authority boundaries? (Data on the [catchment explorer](#) website may help).
- Does the size of the river catchment, or other type of flood catchment area, indicate that a collaborative approach with other LPAs would have advantages?
- Does the flood risk differ across the local authority area? Does this require different collaboration approaches in one SFRA?
- Does the flood risk in different parts of the local authority area require collaboration with different local planning authorities?
- What are the existing collaboration agreements between these organisations?
- Where are the flood risk impacts of developments felt? Would downstream impacts affect neighbouring local authorities?
- What stage in the Local Plan process are the neighbouring authorities? What are the opportunities for collaborating?
- What local flood strategies and plans can inform a catchment wide assessment?

1.3 Identify teams within the local authority who need to support and use the SFRA**Good practice:**[Collaborative working](#)[Comprehensive scoping of the SFRA](#)**Outcome:**[Outcome 6: Flood risk evidence base informs plans and policies](#)

SFRAs and other evidence base studies are often delivered by (or commissioned by) spatial planning teams within the local planning authority, but successful SFRAs that inform decisions and policies rely on engagement and collaboration across teams within the local planning authority.

Identify who is likely to be involved in producing the SFRA (providing advice, data, resources), or who will use the SFRA. This can also identify opportunities for joint working, sharing data and delivering multiple benefits.

Teams to involve could include:

- Flood risk management (including lead local flood authority teams)
- Emergency planning
- Development Management
- Urban design
- Economic development and regeneration
- Estates
- Housing
- Open space and parks
- Infrastructure planning
- Highways development management and operational delivery
- Environmental assessment
- Biodiversity
- Geographic Information System (GIS), data management, IT/digital services
- Communications

Key questions to consider:

- Which teams in the local authority will use the SFRA to inform plans and policies?
- Which teams need to be consulted to make sure the SFRA meets the needs of others?
- How/when will the LPA engage with other teams when scoping and developing the SFRA?
- How will the LPA ensure the needs of the stakeholders are met?
- How will the teams be encouraged to use the SFRA?

Task 2 Begin engagement**Good practice:**[Collaborative working](#)**Outcome:**

2.1 Hold early discussions

[Putting appropriate governance in place for implementing the SFRA](#)

[Outcome 6: Flood risk evidence base informs plans and policies](#)

The local planning authority should hold early discussions with the identified stakeholders and interested parties to inform the project scope. The key questions below can help to steer the early scope discussions.

Key questions to consider:

- Which policies and plans will the SFRA support?
- What is the timeline for policy development and how does the SFRA factor into this?
- What is determining the study area and extent?
- What is determining the study programme (assessment, consultation and embedding)?
- Who could provide data? Are there data sharing agreements?
- Who needs to be part of the project governance (decision making roles)?
- Where approaches are yet unknown (i.e. applying climate change allowances to groundwater flood risk) how will these approaches be agreed?
- Can the work be undertaken by the local planning authority or does it require bought in services?

Task 3 Determine SFRA governance**3.1 Establish governance arrangements****Good practice:**

[Collaborative working](#)

[Putting appropriate governance in place for implementing the SFRA](#)

[SFRA is accessible and easy to update](#)

Outcome:

[Outcome 6: Flood risk evidence base informs plans and policies](#)

Appropriate governance should be in place to manage the engagement with other parties, to deliver a quality SFRA and help embed the evidence into policies and plans. Governance for an SFRA may include representatives from RMAs (particularly the LLFAs) and other organisations who will support and use the SFRA. It may be efficient to use the same governance as the local plan.

Determine the governance arrangements when scoping, producing, implementing and updating the SFRA (each stage may need different governance). Consider whether a steering group is needed for the SFRA and flood risk matters going forward. This could be incorporated into the remit of an existing group or forum.

The governance will need to identify who in the local planning authority (LPA) will be responsible for updating datasets and keeping the SFRA up to date. It should be agreed when an SFRA update is required and the specific triggers that would start this process (see [SFRA Guidance](#)). If the SFRA is put together as a dynamic or "live" document or dataset the update process can be more efficient.

If a specific steering group has been set up as part of the production of the SFRA, plan for how this will continue following this iteration of the SFRA and the remit of the steering group. Getting support from external data suppliers for future updates is also critical to the process.

Key questions to consider:

- Which LPA team will lead the study?
- What governance structure is required?
- Which organisations/ teams need to have representatives on the project team?
- Is creating a new group or using an existing one the most effective way to establish the governance arrangements?
- What level of representation is needed to ensure the SFRA is used?
- How will any potential conflicts between stakeholders be resolved?
- What are the triggers for updating the SFRA?
- What are the arrangements for maintaining and updating the SFRA?
- What data will be required, from whom, how will it be collected?

- How will the effectiveness of the SFRA be monitored (including how they inform planning decisions, other plans or policies)?
- Will the SFRA need to be formally adopted by the Local Authority (or Authorities) and if so, what are the arrangements for this?

Task 4 Start scoping

4.1 Set up formal meetings and begin to scope the SFRA

Good practice:

[Collaborative working](#)

[Comprehensive scoping of the SFRA](#)

[SFRA is accessible and easy to update](#)

Outcome:

[Outcome 1: Development is located in areas of lowest risk of flooding from all sources, whilst not increasing flood risk to others](#)

[Outcome 3: Land is safeguarded for current and future FRM purposes](#)

[Outcome 5: Opportunities have been taken to reduce existing levels of flood risk](#)

[Outcome 6: Flood risk evidence base informs plans and policies](#)

[Outcome 7: Residual risk of flooding is safely managed](#)

Tasks to scope the SFRA should begin once governance arrangements have been determined and early engagement has been undertaken with stakeholders and interested parties.

One of the first tasks will be to agree:

- The SFRA study area and extent
- The SFRA programme
- Who will produce the SFRA
- What the SFRA will be used for
- The opportunities that will be taken throughout the SFRA for collaboration and achieving wider outcomes
- Any issues that the SFRA will need to address
- The desired outcome for each interested party
- The outputs needed from the SFRA (for example proformas for site allocations, report, website, online maps)
- Who will deliver the SFRA (in-house team or contractors)

Key questions to consider:

- What are the timescales needed for each activity?
- How will the outputs of the SFRA be disseminated and published? Does this impact on how the SFRA needs to be scoped and delivered? (For example, does the local authority already have an online mapping portal that could be expanded to include the flood risk evidence base?)
- How will its outputs be maintained and updated as datasets / flood risk management approaches / policies change?
- Have the long-term efficiencies of having an online mapping tool been considered?
- Does the local authority have a team that can co-ordinate this data management, or is support from neighbouring authorities or consultants required?
- Will the local authority need support beyond the SFRA (for example, at planning inspector hearings or representations to inspectors)?
- Has the scope of the assessment, its inputs, spatial extent, limitations, timescales and programme for preparation, review, revisions and agreement, been agreed?

- Does the programme of activities allow enough time to apply the assessment to the proposed Local Development Plan policies, allocations and examinations? Are engagement activities for the SFRA and local plan aligned?

4.2 Gather data from RMAs and external partners, collaborating LPAs and internal teams within the local authority

Good practice:

[Collaborative working](#)

[Comprehensive scoping of the SFRA](#)

[Taking account of specific local flooding characteristics](#)

Outcome:

[Outcome 1: Development is located in areas of lowest risk of flooding from all sources, whilst not increasing flood risk to others](#)

[Outcome 3: Land is safeguarded for current and future FRM purposes](#)

[Outcome 5: Opportunities have been taken to reduce existing levels of flood risk](#)

[Outcome 7: Residual risk of flooding is safely managed](#)

A large task of the SFRA is to gather data that is available across the local authority, and from other organisations and interested parties (see task 1). The LPA will need to establish what data is available, how it can be shared, how it will be used to validate other datasets (for example local modelling used to check Environment Agency maps).

The early scoping should establish:

- What data and information is available to support the SFRA
- How this will be gathered and timeframes for doing this
- The limitations of that data and whether new data is required (for example new flood modelling)
- How any new modelling will be subject to an appropriate and transparent quality assurance process (if new modelling is to be assimilated into Environment Agency products like the flood zones, they will need to undertake this quality assurance exercise)

Once the availability has been established, the data can be requested and gathered. Data requests should be clear, stating the data and format needed.

Such data will include:

- Historic flood risk reports and studies from all parties involved in flood and water management
- Significant or designated assets that affect flood risk
- Flood probability and impacts data (representing current and future climate scenarios)
- Existing or planned flood risk management activity
- Prospective allocation sites
- Existing flood risk management work underway within the scope area
- Existing strategies and plans that will frame the SFRA scope, for example the Local Flood Risk Management Strategy, River Basin Management Plans, and Flood Risk Management Plans.

Requests should be made allowing for enough time for the requests to be processed and any discussions to be had regarding its quality and limitations.

Key questions to consider:

- What will the data be used for?
- What data is held by which organisation, and do they have specific data sharing agreements (e.g. non-disclosure agreements or data sharing agreement)? (Note, Environment Agency and internal drainage boards may have hydrological models they can provide, as well as the inputs and outputs. Parish Councils may provide anecdotal information and photographic records).
- What are the formats of the available data and will this affect how it can be used?
- Are there any gaps or issues with accuracy that will cause a problem? (For example, data on ordinary watercourses can be limited compared with main rivers).
- How will these data gaps be addressed?
- Have all relevant flood risk management authorities been consulted to request available data?

- When will the data be updated and how will this be included in the SFRA?
- What are the data gaps and how will these be filled?
- What assumptions need to be made (for data gaps or accuracy limitations), and how will uncertainty impact on the SFRA outputs?

Task 5 Produce the full scope or specification

Consider:

- All the feedback and information gathered from the previous tasks
- The activities that need to be undertaken within the project/contract (including any new modelling for ordinary watercourses, surface water, sewer flooding, reservoirs/artificial sources like canals, and groundwater risk for present day and future climates)
- The required timescales to undertake the activities, and whether this fits with local plan development
- What outcomes need to be achieved
- What detail needs to be included (for example the types of outputs needed, data management, data availability and quality, new data needs, IPR and access rights)
- The resources required to deliver the SFRA

PRODUCING

Task 6 Produce Level 1 mapping, report and user guide

The [SFRA Guidance](#) online describes all the requirements of a Level 1 SFRA, and what it should contain. The Level 1 SFRA should include enough detail to identify whether it's possible to allocate land for all development outside flood risk areas. This will inform the Sequential Tests.

Flood risk areas should:

- be based on all sources of flooding (main rivers, ordinary watercourses, sea and estuaries, surface water, reservoirs and artificial sources, groundwater and sewers)
- take climate change into account
- not consider flood risk management features and structures unless:
 - they might increase the extent of flooding
 - they are in particular locations where it is deemed they need to be included (this should be decided with the Environment Agency).

The guidance below supplements the [SFRA Guidance](#) with approaches that have been found through research and can be shared to support peer to peer learning.

6.1 Assess all sources of flooding

Good Practice:

[Assessing surface water flood risk](#)

[Assessing groundwater flood risk](#)

[Assessing flood risk from artificial sources](#)

Outcome:

[Outcome 1: Development is located in areas of lowest risk of flooding from all sources, whilst not increasing flood risk to others](#)

Evidence has found that existing guidance and practice is strong for assessing flood risks from main rivers and the sea, but not for ordinary watercourses, surface water, groundwater and artificial sources. There is not one single way to do this, and there could be several approaches. Engaging with other LPAs to share approaches may help in this process.

Key questions to consider:

- Have all sources of flooding been identified and are they within the study area?
- What information is held on flooding from main rivers, seas and estuaries, ordinary watercourses, surface water, groundwater, sewers and reservoirs / artificial sources that could be used in planning decisions?
- Does additional work need to be completed to identify key 'at risk' areas (e.g. where historic records indicate increased frequency of flooding)?
- How will the SFRA compare the risk of flooding from surface water, groundwater, ordinary watercourses or sewer system to the risk from other flood sources in the area (i.e. the frequency and consequences of flooding)?
- Are there interactions between different sources of flooding that could exacerbate the risk of flooding?

Surface water:

- How does the risk of surface water flooding compare (i.e. the frequency and consequences of flooding) to the risk from other sources in the area?
- Do historic records or references from local knowledge differ to other available information (e.g. the risk of flooding from surface water maps online) and does this need investigating through the SFRA?
- Is there any information (e.g. hydraulic modelling) that indicates that future changes in surface water flooding would exacerbate flood risk from other sources or vice versa?
- What approach will be used to consider surface water flooding when applying the sequential test to potential development allocations?

Groundwater:

- Is there evidence to indicate that groundwater will exacerbate other sources of flooding or vice versa?
- How does the risk of groundwater flooding (the probability and consequences) compare to the risk from other sources in the area?
- What approach will be used to apply the sequential approach to this source of flooding when testing potential development allocations?
- Are any areas at risk of long lasting and/or deep groundwater flooding where spatial planning decisions should be informed by the sequential approach or safe and resilient development design?

Artificial sources:

- Who needs to be consulted when development is proposed in areas at risk of flooding from reservoirs, canals, sewers (public foul and surface water sewers) and any other artificial sources?
- What approach will be used to apply the sequential approach to this source of flooding when testing potential development allocations?

6.2 Create risk zones for all flood risks to determine how the sequential test will be applied

Good Practice:

[Applying the sequential approach based on all sources of flooding](#)

Outcome:

[Outcome 1: Development is located in areas of lowest risk of flooding from all sources, whilst not increasing flood risk to others](#)

The sequential test will be applied using the flood risk information in the SFRA to ensure a sequential approach is used to steer development to the areas of lowest risk of flooding.

The approach for applying this to fluvial and tidal flooding information are well practiced. But evidence shows that for other sources of flooding, which are difficult to separate into risk zones this can be more difficult. There is no adopted national planning guidance in England for how to approach this, and it is therefore for the LPA undertaking the process to decide. This is a critical part of assessing 'all sources of flood risk' and LPAs should consider the appropriate approach for applying this to site assessment.

LPAs may want to consider how to compare risks of flooding from other sources to risks of flooding from rivers and the sea, and create associated flood zones. This may be more straightforward for surface water where one approach could be to assess risks of flooding in terms of low, medium and high risk, with equivalence to the return period definitions used for fluvial flood zones.

This may be more challenging for other flood sources. Relevant risk management authorities should be consulted to acquire relevant information or advice on producing any new data that may be required. Any additional flood modelling or approaches should be proportionate to the level of risk in the local planning authority boundary.

The risks of flooding from all sources should be presented consistently, and applied consistently to decisions about development locations.

LPAs should also obtain any information from site promoters, through the call for sites process, that is needed to apply the sequential test. This might include information about the proposed density and distribution of development across the site, for example.

Key questions to consider:

- What approach will be used to consider surface water, reservoir and groundwater flood risk, as well as fluvial and tidal flood risk when applying the sequential test?
- Does the intended approach need to be endorsed by the flood risk management authorities?
- Can the SFRA be used to develop a locally appropriate way of comparing these different sources of risks to enable consistent decision making that takes into account all sources of flood risk?
- What information can you get from site promoters through the call for sites process to apply the sequential test (e.g. proposed density and distribution of development across the site)?

6.3 Assess the cumulative impacts of development and land-use change

Good Practice:

[Assessing and managing the](#)

Outcome:

[Outcome 4: Cumulative impacts of development and land-use](#)

[cumulative impact of development on flood risk](#)

[change on flood risk are identified and addressed](#)

National policy requires LPAs to consider cumulative impacts in, or affecting, local areas susceptible to flooding.

This should include any impact expected from:

- strategically planned development
- windfall development
- permitted development
- significant changes in land use, such as paving over domestic gardens or reforestation of uplands

Key questions to consider:

- What are the potential impacts of multiple planned developments within the same catchment area?
- How might the likely development within the authority area contribute to the cumulative impact (particularly catchments that have lots of windfall development)?
- Are there any significant land use change in the area (e.g. strategic sites or large settlements) that should be considered?
- How can the SFRA be used to assess how sensitive catchments are to the cumulative effect of development (e.g. is there opportunity to produce scenarios or sensitivity tests to demonstrate “what if” situations)?
- How can the SFRA inform decisions about the locations of development and local plan policies, ensuring that the cumulative effect of development on flood risk within sensitive catchments is appropriately managed?
- How can any cumulative impact from windfall sites be planned and managed?
- Is the assessment of the cumulative impacts of development adequate if the development is beyond local authority boundary?
- Does land within the same catchment need safeguarding to mitigate impacts of cumulative development?

6.4 Assess the expected effects of climate change

Good Practice:

[Assessing and managing the impact of climate change on flood risk](#)

Outcome:

[Outcome 2: Inappropriate development is avoided in areas that will become unsustainable in the future](#)

The SFRA should:

- assess the effects of climate change on all sources of flooding
- identify areas on maps where climate change is expected to increase flood risk
- identify on maps where the effects of climate change are expected to make existing development unsustainable

This will help identify any development that may need to be relocated to sustainable locations.

Climate change information will need to be applied to assess future flood risks. Climate change guidance for [England](#) sets out the allowances that need to be applied to sea levels, peak rainfall intensity and peak river flows. These allowances are routinely applied when undertaking modelling studies for river and sea flood risk to consider the impact of climate change. Similar modelling can be done for surface water, to include consideration of climate change using the allowances for peak rainfall intensity. The LPA should consider where this information will come from or how it will be produced if it is not readily available.

There is currently no national guidance on how to assess the impact of climate change on the risk of flooding from groundwater, sewers or reservoirs and other artificial sources. If a locally agreed approach is to be used, this should be agreed by the SFRA governance and any relevant stakeholders.

Safeguarding land for current and future flood risk management purposes

The SFRA should highlight the need to safeguard areas of land that are likely to be needed for flood risk management. This task should be undertaken collaboratively with the LLFA and the Environment Agency and other stakeholders that could inform this process. The LPA should use this information in their Local Plan to allocate areas to safeguard from any development that would prevent or hinder such measures from being delivered (for example, flood storage areas, or areas of planned flood resilience measures).

Key questions to consider:

- Have an appropriate range of climate change allowances been assessed to understand how climate change is likely to affect flooding from all sources?
- What approach will the SFRA take to assess climate change impacts on groundwater, reservoir and sewer flooding?
- Will the SFRA be updated when any new climate change allowances are updated? If it won't, what recommendations may it need to include for any new climate change allowances to be applied in future decision making?
- Has land been identified to safeguard for future flood defence infrastructure?
- What lifetime should the development be designed to and how might this affect the need to safeguard land for future flood management?
- Has/will the SFRA information be used to inform local climate change adaptation plans?

6.5 Identify opportunities to reduce the causes and impact of flooding**Good Practice:**

[Identifying and using measures to reduce the risk of flooding](#)

Outcome:

[Outcome 5: Opportunities are taken to reduce existing levels of flood risk \(net gain\)](#)

The SFRA should also refer to relevant strategic flood risk documents to identify opportunities to reduce the causes and impacts of flooding. This may include identifying areas of existing development that could be earmarked for a change of use in future years to deliver a flood storage function.

The SFRA should consider holistic catchment approaches to minimising flood risk, i.e. where developments upstream of flood risk areas may provide measures that will slow the flow of water from upstream to downstream in order to provide a wider benefit. LPAs can use their local plan policies and allocations to provide developers with more clarity about what will be expected of them in relation to reducing the causes and impacts of flooding and, where relevant, satisfying the second part of the exception test.

The SFRA can play an important part as the evidence base to inform policies that can help to reduce flood risks and adapt to living with the risk of flooding, not just manage existing and potential new risks.

The LPA should engage with the RMAs to get advice and information that can inform appropriate approaches to help identify where flooding causes and impacts can be reduced.

Key questions to consider:

- Have development proposals maximised their potential to reduce existing flood risk as well as mitigating any risk they may cause themselves? This may also be referred to as providing a "betterment".
- Does evidence on future levels of flood risk due to climate change provide a catalyst to help progress opportunities to reduce existing levels of flood risk? How can this be applied to policy or site allocations if so.
- Have locations upstream of flood risk areas been fully explored to assess if measures implemented there could help reduce risk downstream? This will apply even where the upstream development is not shown to be at risk.
- Have flood risk management authorities helped to identify opportunities to reduce the causes and impacts of flooding through development?
- Have flood risk management authorities helped to identify opportunities to adapt development to flood risk, as part of the SFRA?

6.6 Requirements for windfall sites**Good Practice:**

[Providing guidance on requirements for windfall sites](#)

Outcome:

[Outcome 2: Inappropriate development is avoided in areas that will become unsustainable in the future](#)

The local plan site allocations will identify what type of development should take place over the life time of the plan period. There will still be instances where other parties subsequently propose development (residential and non-residential) in additional areas, which are referred to as 'windfall' sites.

The SFRA should form part of an evidence base for developers to use early on when considering where to locate development proposals as part of the call for sites process and designation of allocated sites through the local plan, and for local authority development management officers to use when reviewing applications for windfall developments.

Key questions to consider:

- Can the sequential test be applied to all sources of flooding, if so what policy requirements may be needed?
- How will the sequential test be applied to all sources of flooding and what policy requirements may be needed to assist this?
- Are there locations where windfall sites are likely to come forward which are at flood risk?

6.7 Consult on the Level 1 SFRA

Consider:

- The rules of thumb:
 - Engage early and widely
 - Work collaboratively
 - Be comprehensive
 - Take a digital approach
 - Update often
 - Share it and use it.
- Other engagement that may be happening for the local plan
- The needs of the stakeholders and teams reviewing the SFRA
- Who else could provide advice on how to apply the sequential test to windfall sites (e.g. other risk management authorities).
- The need to identify 'critical drainage areas' in the local plan / SFRA or other designation which may allow for the sequential test to be applied to windfall sites for fluvial and other sources of flooding. This will need to be a locally agreed approach.

Task 7 Scope Level 2 SFRA

A Level 2 SFRA is needed if either:

- all land for development cannot be allocated outside flood risk areas (as identified in Level 1 SFRA)
- all land for development can be allocated outside flood risk areas, but the LPA believe high numbers of applications in flood risk areas will be submitted for sites not identified in the local plan

A Level 2 SFRA should be detailed enough to identify which development allocation sites have the least risk of flooding. It should identify the severity and variation of risk within medium and high flood risk areas, so that the sequential test can be applied, and contain enough information to apply the exception test, if relevant. It should also include information to enable decisions about whether development can be made safe throughout their lifetime without increasing risk elsewhere.

If a Level 2 SFRA is needed, revisit the tasks 1 - 5 to ensure it is adequately scoped and engages with relevant stakeholders.

Use the Level 1 report to inform and update the scope for your Level 2 study, considering any data quality or availability issues raised by the Level 1 study, and if locations that require detailed assessment were identified. The Level 2 SFRA may need site specific maps and information describing the nature of the flood risks identified (including depth, velocity, breach etc.). This may require more data to be gathered

and produced if it is not available from relevant stakeholders. Further information is provided in the [SFRA Guidance](#) online to determine whether a Level 2 SFRA is needed and what it should contain.

Consider:

- All the feedback and information gathered from the previous tasks
- What approvals or endorsements may be needed for setting localised criteria to define areas of flood risk and justify that development can not be located within these
- The activities that need to be undertaken within the project/contract (including any new modelling for ordinary watercourses, surface water, and groundwater risk for present day and future climates, and reservoir/artificial sources breach modelling)
- What are the required timescales for completing the Level 2 SFRA
- What outcomes need to be achieved
- What detail needs to be included (for example the types of outputs needed, data management, data availability and quality, new data needs, IPR and access rights)
- The resources required to deliver the SFRA

Task 8 Produce Level 2 mapping, report and user guide

The [SFRA Guidance](#) online describes all the requirements of a Level 2 SFRA, and what it should contain. It should:

- be detailed enough to identify which development allocation sites have the least risk of flooding
- contain the information needed to apply the exception test, if relevant
- enable LPAs to decide if development can be made safe without increasing flood risk elsewhere

It should allow LPAs to:

- apply the [sequential test](#) by identifying the severity and variation in risk within medium and high flood risk areas
- establish whether proposed allocations are capable of being made safe throughout their lifetime without increasing flood risk elsewhere (information on development type, density and layout are useful for this)
- apply the [exception test](#), where relevant (the LPA may give a general steer in the SFRA on whether the exception test can be passed, but it will be the developers who apply the exception test)

The guidance below supplements the guidance with approaches that have been found through research and can be shared to support peer to peer learning.

Key questions to consider:

- Are those producing policies able to access and engage with the outputs of the SFRA?
- Will the level 1 and level 2 SFRA be produced early enough in the process to inform local policy and site policies?
- Does the SFRA provide evidence on specific local flood risk considerations that need to be written into local plan policies (for example climate change, self builds etc)?
- How can the outputs from the SFRA be most effectively shared across other teams within the LPA?
- Are there clear recommendations on how local plan policies should respond to the findings and priorities from the SFRA (for example are local policies or supplementary planning documents required)?
- How are any recommendations distinct from, or build upon, any recommendations identified in the Level 1 report and user guide?
- Will the sequential test be carried out within the SFRA Level 2 report, or should it be a separate assessment?
- Has the Level 2 report provided information to enable both parts of the exception test to be undertaken?

- Does the SFRA contain sufficient information to identify the flood risks and opportunities posed by development, to enable the LPA to weigh these up against any wider sustainability benefits to the community when undertaking the exception test, as needed, for proposed site allocations?

8.1 Information for assessing the safety of the development

Good Practice:

[Safely managing residual risk](#)

Outcome:

[Outcome 7: Residual risk of flooding is safely managed](#)

The Level 2 SFRA should include information to allow the LPA to decide whether proposed development is capable of being:

- made safe from flooding for its lifetime
- designed so it will not increase flood risk elsewhere
- safeguards land for flood risk management, where applicable.

The LPA should consult with emergency planning authorities and local resilience fora and development management teams to agree principles and processes for safe design.

Key questions to consider:

- Has the local authority emergency planning team and other emergency responders been engaged to develop principles for assessing safe design (see : [Flood risk emergency plans for new development guidance](#))?
- Do the local flood characteristics trigger the need for supplementary (or other form of) planning guidance for developers on requirements for safe and flood-resilient design in areas with flood risk identified for development?

8.2 Consult on the Level 2 SFRA

Consider:

- The rules of thumb:
 - Engage early and widely
 - Work collaboratively
 - Be comprehensive
 - Take a digital approach
 - Update often
 - Share it and use it
- Other engagement that may be happening for the Local Development Plan. Could consultation activities be undertaken together?
- Who needs to scrutinise the SFRA
- The needs of the stakeholders and teams reviewing the SFRA
- The review timescales

USING

Task 9 Use the evidence in the SFRA

Your SFRA will help a planning authority make decisions about:

- the [local plan](#) or spatial development strategy
- individual planning applications
- how to adapt to climate change
- future flood management
- emergency planning (the resources needed to make development safe)
- the need or planned approach for the delivery of flood management infrastructure
- Local flood risk from all sources and catchment processes or cross-catchment boundary risk

The guidance below supplements the [SFRA Guidance](#) with good practice approaches that have been found through research and can be shared to support peer to peer learning.

9.1 Engage others to disseminate the SFRA

Good Practice:

[SFRAs are accessible and easy to update](#)

Outcome:

[Outcome 6: Flood risk evidence base informs plans and policies](#)

It is good practice to disseminate the SFRA findings to departments within the local authority, other planning authorities, the Environment Agency, the lead local flood authorities, developers, neighbourhood planning bodies, emergency planners and the emergency services, local resilience forums and flood risk consultants.

The dissemination should include information on how stakeholders can access the information easily, and the process to supply updated information to inform future updates to the SFRA.

The SFRA should be easily located and accessible on the local planning authority website.

Consider how to do this most effectively. This could include;

- Running a launch event
- Promoting the SFRA on social media and on the council website
- Training for internal and external stakeholders so that they are aware of the data, recommendations and how the SFRA should use and apply these.
- Ensuring that local authority teams are aware of the mapping that can be used to inform plans and strategies, including infrastructure planning, parks and open space, development management, emergency planning.
- Ensuring that other RMAs can use the findings to inform joint working on flood risk management matters.

Key questions to consider:

- Can the SFRA outputs be shared digitally and interactively?
- How will the SFRA be made accessible to others?
- What support is needed to do enable the outputs to be shared (e.g. IT/website support)
- Who needs to know about the SFRA to use it?
- How are they going to use it? What will they want to know?
- How will it be updated if feedback is received through the consultation?

9.2 Inform local plan

Good Practice:

[Using outputs to inform plans and strategies](#)

Outcome:

[Outcome 6: Flood risk evidence base informs plans and policies](#)

The SFRA is part of the evidence base for the local plan or spatial development strategy.

The local plan is at the heart of the planning system with a requirement set in law that planning decisions must be taken in line with the plan unless material considerations indicate otherwise. Plans set out a vision and a framework for the future development of the area, addressing needs and opportunities in relation to housing, the economy, community facilities and infrastructure – as well as a basis for conserving and enhancing the natural and historic environment, mitigating and adapting to climate change, and achieving well designed places. It is essential that plans are in place and kept up to date.

The SFRA should be produced early in the local plan development so that the evidence can influence the location of future development and enable other opportunities.

The SFRA will be used to do the sustainability appraisal of the local plan or spatial development strategy. The SFRA should be used to carry out the [sequential test](#) for the local plan or spatial development strategy, and to do the [exception test](#), if land for development is proposed to be allocated in flood risk areas. In these cases the evidence in the SFRA will enable the local planning authority to establish if a development can be made safe without increasing flood risk elsewhere.

As part of the local development plan, neighbourhood planning bodies will use the SFRA to develop neighbourhood plans. These consider whether neighbourhood planning areas may be appropriate for development.

The SFRA will be used by the inspector at the local plan examination, so the evidence needs to be robust and comprehensive to withstand this scrutiny and enable the local plan to be adopted.

Key questions to consider:

- Are all approaches used in the SFRA justifiable?
- Is there clear and evidenced decision making, and has this been endorsed throughout the process?
- Are specialist resources required to support examinations and hearings?

9.3 Inform wider plans and policies

Good Practice:

[Using outputs to inform plans and strategies](#)

Outcome:

[Outcome 6: Flood risk evidence base informs plans and policies](#)

Any recommendations of the SFRA about flood and water management in the local area should be applied by LPA officers and relevant risk management authorities to inform subsequent plans, policies and strategies that inform the way flooding is managed and sustainable communities are created. This includes findings and recommendations about climate change adaptation. For example, LLFAs are statutory consultees on development management for major applications (with surface water implications) and they should be consulted early if there are recommendations in the SFRA relating to sustainable drainage policies.

The [SFRA Guidance](#) online describes how others will use the SFRA, and should help to target any engagement activity.

The SFRA can be used by LPA officers and relevant risk management authorities to inform or update a range of other plans and strategies, including:

- Local flood risk management strategies
- Flood and Water Management Act Section 19 investigations
- Surface water management plans
- Drainage and wastewater management plans
- Shoreline management plans
- Catchment flood management plans
- Flood risk management plans
- Local, regional or catchment-level flood risk management strategies
- Individual flood risk management schemes
- Wider climate adaptation plans and strategies.

Through careful planning, activities to manage flood risk management may be incorporated into other strategic plans and projects to deliver benefits in other areas, such as improving health and wellbeing, local economy, skills and employment, reducing emissions and supporting biodiversity, informing local nature recovery strategies. Examples of such strategies/plans include:

- Infrastructure delivery plans
- Capital strategies
- Local transport plans (produced by county councils / unitary authorities)
- Local industrial strategies
- Local enterprise partnership strategic economic plans;
- Blue and green infrastructure/open space strategies
- Climate change strategies and action plans
- Viability assessments
- Planning obligation supplementary planning documents
- Statements of common ground (supporting the Duty to Cooperate in England)
- Design guides.

Various stakeholders and partners should be consulted to ensure they can use the SFRA to underpin their plans and policies.

Key questions to consider:

- Do the teams and organisations producing other technical supporting documents for the local plan and policies know about, and understand, the SFRA and how they could use it?
- How can the outputs and recommendations from the SFRA be effectively shared across teams and organisations who are producing associated plans and policies?

Good practice

This section provides descriptions and examples of the good practices found by Environment Agency research (2018-2019) that can help deliver the [SFRA Checklist](#).

The examples provided are not prescriptive or exhaustive of all cases available but intend to showcase possible approaches that could be considered or adapted further. It is worth noting national policy guidance does not encompass all issues and potential outputs associated with the SFRA process and local decision making and innovation is needed.

It should also be noted that where a project example has been identified as good practice for a particular approach, it should not be assumed that the whole SFRA or study is considered good practice in all respects. Over time, these cases may become out dated or replaced by new examples. These should be shared with existing networks, such as ADEPT or CIWEM to encourage peer to peer learning.

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1. Collaborative working

Understanding and managing the risk of flooding as part of a SFRA relies on successful collaboration, including: between LPA teams; with neighbouring LPAs within the same river catchment; with neighbouring LPAs across catchments; with other risk management authorities; and/or other interested parties such as local communities and neighbourhood planning groups or conservation and environmentally focused groups. This is described in the following sections.

Collaboration with other risk management authorities

The responsibilities for managing flood risk lies with a range of risk management authorities depending on the source of the flooding. The Environment Agency have a lead role in the management of flooding from main rivers, the sea and reservoirs, the LLFAs are responsible for co-ordinating the management of “ordinary” watercourses, surface water and groundwater, whilst water and sewerage companies are responsible for sewer flooding. In some parts of the country, internal drainage boards (IDBs) manage watercourses and land drainage networks. Owners of reservoirs, canals, infrastructure and land adjacent to watercourses, coastal groups, resilience forums and local communities may also have parts to play. The LPA should consult all these risk management authorities early and involve them in the SFRA development.

Collaboration between LPA teams

LPAs should consider which teams within their local authority need to be involved. Whilst SFRAs and other evidence base studies are often commissioned by spatial planning teams, successful SFRAs and the resulting implementation of decisions and policies will depend on the successful collaboration across teams. Teams involved will include those who will use the SFRA, those who may support its implementation (e.g. corporate GIS teams), and those who will feed into it. These teams will include development management, urban design, regeneration, estates, housing, economic development, infrastructure planning, emergency planning, highways, drainage, green space, flood risk management authority, GIS and data management.

Local authority teams that will be involved in producing and implementing the SFRA should be identified prior to commissioning that task so that they can be involved in the scoping of the study. This will also enable the stakeholders to identify the datasets and resources available for the study as well as any opportunities for joint working and the delivery of multiple benefits. Many of these teams could benefit from the evidence base provided by the SFRA, and may be able to contribute to the costs or resources needed to complete it. If the work required by other teams results in an extension of the scope of the SFRA, then the funding to pay for the work could be provided by them. If this is not identified and the cost factored in early enough then it can cause tensions internally or extra costs to the spatial planning team.

The SFRA data and information should be accessible to all internal stakeholders. Producing online mapping tools has been found to greatly improve the usability of the flood risk evidence base by all LPA teams.

Collaboration with other LPAs

Working with neighbouring LPAs can result in: better understanding of flood risk issues; sharing of resources; reduced costs for document or website production; improved opportunities for flood risk management; improved opportunities for establishing a consistent approach to flood risk management across the area.

The current NPPF and PPG in England reinforce the requirements attached to the legal ‘Duty to Cooperate’ in plan making. LPAs should now prepare Statements of Common Ground which form part of the evidence required to demonstrate that they have complied with the Duty to Cooperate and addressed cross boundary strategic planning and infrastructure issues (including flooding).

To identify an appropriate spatial scale for a SFRA and which LPAs to work with, the following issues may need to be considered: the severity of the local flood risk issues; the type and scale of the catchment; the scale and location of future development; involvement of relevant risk management authorities and availability of resources.

Producing an SFRA is often driven by the timeframe for local development documents and this is sometimes used as a justification for commissioning studies for individual LPAs. However, it is strongly recommended that joint studies are pursued where there is clearly a flood risk management advantage. Using online mapping tools to establish a live evidence base of flood risk datasets can greatly support the production of SFRAs across a group of LPAs that may be preparing Local Development Plans over differing timeframes. A live flood risk evidence base is much easier to keep up to date as new datasets become available and separate SFRA reports for each LPA can be prepared as and when they are needed. Producing online mapping tools in collaboration with other LPAs delivers cost and time savings for the LPAs involved.

Another common theme from the evidence was that addressing flood risk for spatial planning decisions was not a task restricted to the periodic production of a Local Development Plan and its strategic development allocations, it was a task encountered regularly. The climate change priority of LPAs and communities has seen flooding cited as one of the most frequent and well understood ways in which a changing climate is affecting people's homes and businesses. Addressing climate change required liaison with many partners and prior or ongoing collaboration by them on SFRAs provided a strong foundation for that climate change collaboration with resulting time and cost efficiencies.

LPAs often do not consider preparing joint SFRAs due to differing timetables for Local Development Plan preparation. However, the evidence suggests that the focus should be on working together to establish an online platform to display and view flood risk datasets which are much easier to keep up to date. This is further described in [Good Practice 6: Making SFRAs accessible for a wide audience and easy to update](#). Standalone SFRA reports for each LPA can be prepared as and when they are needed with reference to the online mapping.

Collaboration between LPAs when producing SFRAs drives consistency in assessing flood risk where it transcends LPA boundaries e.g. rivers and facilitates more effective catchment management.

Examples are provided below which have been assessed as “good practice” for collaborative working to produce an SFRA (Environment Agency research, 2021), and have links to where further information can be found.

Example: West London Boroughs Strategic Flood Risk Assessment

Description

A joint SFRA webpage for boroughs of Barnet, Brent, Ealing, Harrow, Hillingdon and Hounslow.

Benefits

Collaborating enabled the Councils to share skillsets across the different authorities during the scoping and production of the SFRA; sharing of roles – flood risk manager from one Council, sustainable drainage systems (SuDS) expertise from another Council, Project Management from a third Council.

Collaborating between the six London Boroughs enabled successful data sharing and improved understanding of local flood risk.

Collaborating enabled a consistent approach for flood risk management where river catchments cross local authority boundaries.

Collaboration was led by one borough, providing leadership, a single point of contact, and a lead organisation to co-ordinate and delegate.

Considerable time and financial savings were made by commissioning and producing the SFRA collaboratively. Costs for the production and ongoing maintenance of the online webpage and web mapping are shared between the six Boroughs.

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Example: Cambridgeshire Flood and Water Supplementary Planning Document

Description

The Cambridgeshire SFRA was used to inform a Supplementary Planning Document (SPD) developed by Cambridgeshire County Council in partnership with the five LPAs within Cambridgeshire County and other stakeholders including the Middle Level Commissioners, Anglian Water and internal drainage boards. The SPD was adopted by all 5 LPAs in the county and it was endorsed by Cambridgeshire County Council in their role as LLFA to support the implementation of flood risk and water related policies in the Local Plans.

Anglian Water have since developed a Water Management Checklist to inform SFRAs that are being produced by LPAs, and supported by LLFAs, in their region.

Benefits

This provided the opportunity to understand cross-boundary issues and deliver consistency for future development across the county.

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Example: Gloucester City Council, Cheltenham Borough Council, Tewkesbury Borough Council

Description

The Joint Core Strategy Consortium partnership between Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Council led to the collaborative production of a Level 2 SFRA which considers flood risk from all sources.

Benefits

The collaborative consideration of new developments ensures sustainable development across all three council areas, tackling cross-boundary issues in a consistent approach.

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Example: Norfolk Strategic Flood Risk Assessment

Description

A Level 1 SFRA for Norfolk area, comprising 4 reports for:

- 2017 Greater Norwich Area SFRA (Norwich City Council, Broadland District Council, South Norfolk Council and parts of Broads Authority administrative areas)
- 2017 North Norfolk SFRA (North Norfolk District Council, parts of Broads Authority)
- 2017 Great Yarmouth SFRA (Great Yarmouth Borough Council and parts of Broads Authority)
- 2018 King's Lynn and West Norfolk SFRA (Borough Council of King's Lynn and West Norfolk)

The Norfolk LPAs have a long track record of cooperation and are working together on strategic cross boundary planning issues, through the Norfolk Strategic Planning Framework. One of the aims of the framework is to inform the preparation of future local plans through shared objectives and strategic priorities and through shared evidence base.

The SFRA was led and co-ordinated by North Norfolk District Council through a steering group consisting of the LPAs and key stakeholders and adopted a consistent methodology over the region. The SFRA was prepared in conjunction with the following RMAs: the LLFA, Environment Agency, the Broads Authority, Anglian Water, Highways England and internal drainage boards.

Benefits

Working together with LPAs and other RMAs enables a consistent approach to flood risk management, sharing of datasets and information, sharing of expertise and local knowledge and an understanding of the wider cross boundary flood extents.

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2. Considering flood risk at a strategic scale

The catchments of large and small watercourses often cross multiple local authority areas, as can groundwater aquifers and the flow paths of surface water and reservoir floodwater. Tides and currents operate across large 'cells' of coastline and in estuaries. Measures to alleviate flooding in one location may require consideration of development upstream or downstream in a neighbouring authority area. It is also worth noting that strategic sites of larger density may also span multiple catchments and, as with cumulative development, may influence peak flows through the catchment and downstream areas/authorities.

The spatial scale of flood risk studies should be informed by the source, pathway and receptors at risk of flooding. A range of scales needs to be considered, and in some cases, flood risk can most effectively be assessed and managed collectively at a scale that covers several local authority areas. This should be informed by existing local flood risk management strategies. These are particularly useful when they are up to date, have action plans, investment plans and identify where strategic solutions could be implemented. In coastal areas, the SFRA should be informed by the policies within shoreline management plans and marine management plans. It is important to note that policies may not be supported by investment, so LPAs should engage with coastal protection authorities to determine what information to include in the SFRA. This is particularly important for informing future land use and climate change modelling scenarios.

From a planning perspective, the mechanism to enshrine flood catchment scale initiatives should, in the first instance, be set out in the statements of common ground agreed with relevant adjoining authorities. Consultation with the Environment Agency and LLFA should also be front loaded in the plan making process and LPAs should not wait for the first formal consultation stage (held in accordance with Regulation 18 of the Town and Country Planning (Local Planning) Regulations 2012) to hold these strategic discussions.

Working together with neighbouring LPAs also provides the opportunity to have consistent flood risk planning policies, giving clarity to developers exploring planning proposals in multiple locations on the same flood catchment (refer to [Good Practice 1: Collaborative Working – Collaboration with other LPAs](#)).

Examples are provided below which have been assessed as "good practice" for applying a cross-boundary or catchment approach to producing an SFRA (Environment Agency research, 2021), and have links to where further information can be found.

Example: Applying a cross-boundary approach, Cambridgeshire County Council

Description

A significant amount of new development will occur in Cambridgeshire in the next 20 years and beyond. In order to reduce the impact upon the water environment, the LPAs recognised development needed to be appropriately located, well designed, managed and take account of the impacts of climate change.

The Cambridgeshire Flood and Water Supplementary Planning Document (SPD) was developed in November 2016 by Cambridgeshire County Council as the lead local flood authority (LLFA) in conjunction with five LPAs within Cambridgeshire (Cambridge City Council, South Cambridgeshire District Council, Fenland District Council, East Cambridgeshire District Council, and Huntingdonshire District Council), and other relevant stakeholders.

The SPD provides one document for the county which describes how flood risk and sustainable drainage systems (SuDS) should be managed and delivered through new development. It provides guidance on the implementation of flood and water related policies in each authority's respective local plans. This approach was taken in part because of the interconnected nature of the rivers and drainage network of the fens, whereby development in one location could increase flood risk in one or more other locations. It was also recognised that both the river catchment and sewer network (particularly urban areas) had insufficient capacity to accommodate more surface water runoff that could result from the scale of the proposed development. This was explored through the SFRA and prompted the adoption of a SuDS approach to manage surface water.

The SPD facilitates consistency across the river catchment on flood risk management policies and approaches by the LPAs. The SPD supports developers and consultants to identify, understand and achieve the expectations across the county more efficiently due to the consistent approach. As a result, the LLFA and LPAs are able to reduce the time spent on reviewing planning applications as submissions



should be of better quality.

Benefits

Using a cross-boundary approach provides a better understanding of the interconnected risk across multiple sources of flooding and across LPA areas. It helps identify more effective ways to manage and mitigate the flood risk whilst unlocking areas for development.

The consistent approach to flood risk policies and requirements for development management simplifies requirements for applicants, which enables them to avoid having to interpret multiple approaches for multiple locations. It also reduces time and costs for LPAs reviewing planning applications.

Source: Extract from Cambridgeshire Flood and Water Supplementary Planning Document

Reproduced with kind permission from Cambridgeshire County Council.

Example: Applying a catchment approach, Manchester City Council, Salford City Council and Trafford Council

Description

Within Greater Manchester there is an intricate and well-connected network of rivers, streams, sewers and canals. Issues of flooding associated with these different and interlinked sources of flooding require careful management across different risk management authorities and LPA areas. Actions to manage flood risk and water from new development need to be carefully considered so that they do not increase risk downstream.

The sub-regional SFRA for the Association of Greater Manchester Authorities recommended that there should be consistent flood risk policies and guidance across all AGMA councils to ensure that the forthcoming large-scale development and regeneration in the sub-region can occur in an efficient and sustainable way.

In order to provide a suitable assessment of flood risk in the area, a Level 1 and 2 Hybrid SFRA was prepared collaboratively by Manchester City Council, Salford City Council and Trafford Council and their contractors JBA in 2010.

Benefits

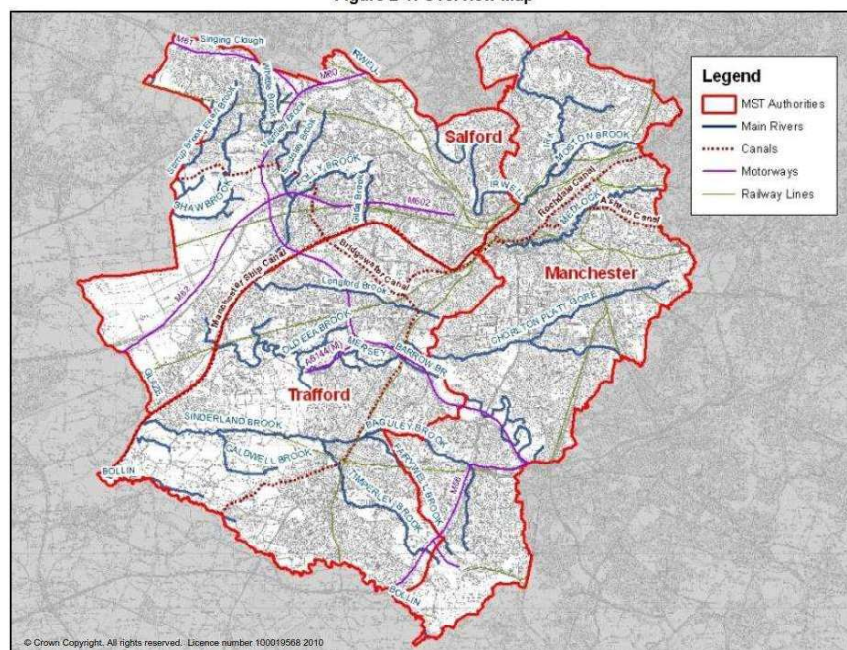
The catchment approach adopted by Manchester City Council, Salford City Council and Trafford Council and the associated risk management authorities when producing the SFRA led to a common understanding of the flooding issues across the catchments covered by the LPA areas.

A consistent approach to flood risk assessment and management was adopted across the catchment, which enabled the production of consistent flood risk policies and guidance.

Establishing working arrangements by catchment area during the production of the SFRA paved the way for successful partnership working when implementing the SFRA and tackling flood risk issues as they arose.

Consulting with the other LPAs and risk management authorities in this collective way saved time and therefore resource costs.

Figure 2-1: Overview Map



Source: Extract from Manchester, Salford and Trafford Level 1 SFRA, 2010

Reproduced with kind permission from Manchester City Council, Salford City Council and Trafford Council.

3. Putting appropriate governance in place for implementing the SFRA

Understanding flood risk, assessing it locally and then deciding how best to avoid, reduce, manage and mitigate those risks is often complex and involves multiple individuals and organisations. Decision making can be a significant process, considering the location and design of developments that will be sustainable, resilient and able to appropriately manage current and future flooding.

Good governance is needed to get the complex and often contradictory needs of stakeholders into a comprehensive scope. It is therefore essential that appropriate governance is in place to ensure that the findings from evidence base documents such as a SFRA are disseminated to appropriate teams, individuals or organisations so that other plans, initiatives and policies can be informed by them.

Approaches can include establishing a steering group for considering flood risk management or introducing it into the remit of an existing group or forum. The membership of the chosen group will need an appropriate breadth and level of representation to enable ownership of the SFRA outcomes and champion how that information then informs spatial planning decisions. In some cases, it may be effective to invite developers to participate, for example in relation to major growth proposals which they will have a key role in delivering.

Governance arrangements should be established in the scoping phase of a SFRA. The purpose of good governance is to ensure that the SFRA is produced based on evidence, to objectively assess development. This ensures the process is transparent and defensible prior to the results emerging, whatever they may be.

Establishing the governance arrangements early can minimise separate discussions with multiple internal departments and external stakeholders on how to inform spatial planning decisions. This can provide notable efficiencies for both time and budget resources. It also enables a more effective response to subsequent planning applications where flood risk and drainage are key considerations.

4. Comprehensive scoping of the SFRA

Careful scoping of a SFRA is a vital to make sure it is produced, updated and used effectively. A 'produce first, consult later' approach risks missing issues and opportunities that can be more challenging and expensive to incorporate later. Poor or out of date evidence bases can have a major impact on the LPA's ability to carry out its statutory planning functions, if the local plan is found to be unsound because of poor evidence, or if insufficient information is available to apply the sequential test. Proactive, informed leadership that co-ordinates the input of data and advice from flood risk management authorities can lead to comprehensive scopes that capture all the known flood issues and opportunities that can be explored during the production of the SFRA.

All flood risk management authorities should be consulted to identify all relevant issues and expectations, for example the need to undertake additional watercourse modelling, planned flood schemes that will change the level of flood risk, and particular catchment / coastline characteristics to consider, plus opportunities for flood mitigation or wider environmental benefits.

The same principle applies to other teams in the local authority. Engaging colleagues during the scoping exercise on issues such as infrastructure planning, management of green spaces, climate change response, emergency planning and development management enables buy-in from these teams and may identify synergies that can deliver cost and time efficiencies. Flood risk management authorities can support the LPAs by anticipating the future need for a SFRA, drawing together existing data and identifying issues requiring investigation that can be provided to the LPA early in the scoping phase.

Defining the scope of the evidence base is critical in ensuring it is fit for purpose. The purpose is linked to the objectives and which will be informed by consultation. The commissioning authority needs to fully scope out the objectives before they determine whether the evidence base is deemed fit for purpose. This ideally should be done before the budget is confirmed. A data gap analysis can be undertaken beforehand in a simplistic form and improved as the purpose and objectives are refined.

It has been found that the value of the flood risk information provided by a SFRA and associated tools extends beyond just informing a local plan and development allocations. It can be very helpful to informing each flood risk management authority's own work. As such they are encouraged to work collaboratively with the LPA on a shared flood risk management agenda.

Where flood risk expertise is not a key skill strength for the person leading the scoping and commissioning of a SFRA, it may be useful to invite an officer from one of the flood risk management authorities to be a partner, particularly from the Environment Agency or LLFA flood team. This expertise can help the LPA to interpret flood risk modelling, or shoreline management policies, FCERM scheme impacts on flood risk and what this means for the local plan and development proposals. This may depend on the capacity of the supporting organisations.

5. Taking account of specific local flooding characteristics

An SFRA should take account of the specific characteristics of the flood risks in the area and processes that can impact on flood risk.

In areas at increased risk of flooding and rapid surface water flooding the SFRA may recommend measures such as designing to capture key surface water flow paths and requiring surface water drainage systems to be designed to higher design standards in particular areas. These recommendations can then be incorporated by the LPA into its requirements for sustainable drainage systems (SuDS) and upstream storage management approaches/catchment based interventions to incrementally slow the flow of water.

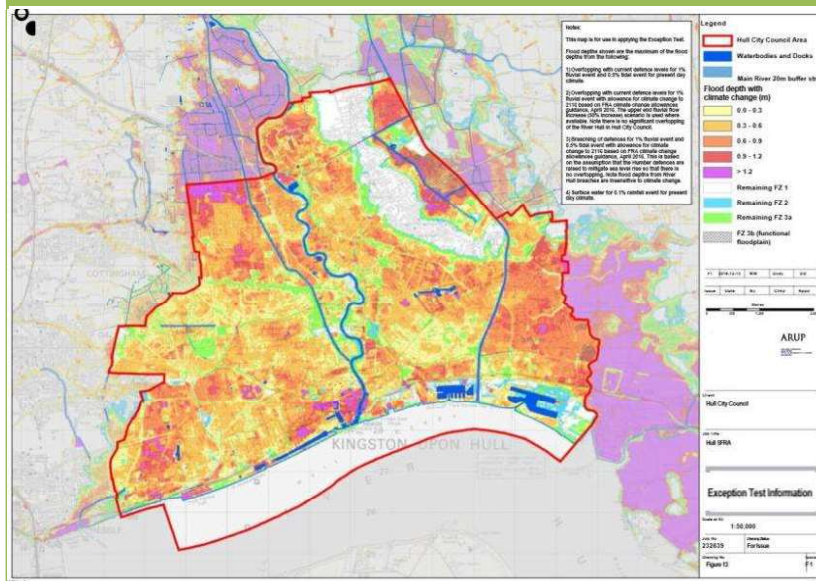
In a level 2 SFRA information such as flood extent, depth, velocity and in some cases rate of onset and duration, can be used to steer development to locations of lowest risk, should development in that location be deemed appropriate. This should also be used to consider appropriate building layouts, access-escape routes, density and provision of open space.

In areas that benefit from river and sea flood defences and associated infrastructure, residual risk of flooding needs to be safely managed through development design requirements and through the sequential test/approach. Water overtopping or breaching of flood defences can be treated as a separate source of flood risk (in comparison to assessing the risk of flooding in the absence of flood defences) due to the concentrated flow effect were a defence to fail. To fully demonstrate the flood risk (and particularly the residual flood risk) in areas such as these, the SFRA should consider the standard of protection that these defences provide, and the condition they are in, in order to identify any defences that are failing or with a short life expectancy, and prompt early conversations regarding the future improvement of these assets. The presence of defences should not be considered a means to enable new development. The existing risks need to be well understood and shown to be manageable and not increase the flood impacts.

It is good practice for the SFRA to consider wider catchment impacts of development, especially where these might fall out of the administrative area of the LPA. For example, the SFRA should consider development impacts on wider ecological networks and ensure that proposals do not adversely affect ecology or water quality. The SFRA should also consider if there are any upstream FCERM activities that provide benefit in the local plan area (for example pumping or land drainage activity reducing the risk downstream), and should be considered when assessing any residual risk.

Examples are provided below which have been assessed as “good practice” for taking into account local flooding characteristics in an SFRA (Environment Agency research, 2021), and have links to where further information can be found.

Example: Taking account of specific flooding characteristics: High risk and low lying, Hull City Council



Description

Hull is very low-lying and located within a large area defined as flood zone 3 for river and sea flood risk. There are very few areas of lower flood risk to steer development towards. Surface water is often unable to drain away into watercourses as the water level is higher than the surrounding land. The majority of the city is defended from these sources of flood risk by flood alleviation structures, such as engineered walls, embankments, water storage lagoons and pumping stations. The flood defences reduce the probability of flooding in much of the city but if a defence were to be breached or overtopped the consequences could be significant.

To mitigate this residual risk and ensure safe access, escape and evacuation should flood defences be overwhelmed, it was necessary to consider the requirement for a 'place of safety' as an integral part of new developments. Given the low-lying nature of Hull, this required a place of safety to be effectively integrated into all new developments (including permitted changes of use). The flood risk information produced in the SFRA (2016) provided the LPA and partners with the level of understanding needed to produce further tools to help manage the risk: local Flood Risk Standing Advice

Environment Agency: Local Flood Risk Standing Advice

Refer to SFRA Figure 13 for flood depth information

Consult the EA on all development within Flood Zone 3b (Functional Floodplain). In most cases, development should not be permitted.					
Consult the EA on all development lying within 20m of the bank top of a Main River or 20m of the Humber Estuary (As shown on SFRA Figure 13).					
Consult the LPA on all major developments.					
All development shall be provided with a place of safety at the level shown on SFRA Figure 15.					
Where relevant, the LPA must satisfy itself that the requirements of the Sequential Test and Exception Test have been met. See below guidance.					
Do not consult EA on any development lying solely within Flood Zone 1, unless any other consultation trigger is met on our Consultation Checklist					
Development Category	Vulnerability Classification	A Flood Depths >600mm	B Flood Depths 300-600mm	C Flood Depths <300mm & Remainder of FZ3	D Flood Zone 2
1 Minor Development	All use classes	Mitigation Note 3	Mitigation Note 3	Mitigation Note 3	No consultation
2	Essential Infrastructure	Consult EA with FRA Guidance for developers here	Consult EA with FRA Guidance for developers here	Consult EA with FRA Guidance for developers here	Consult EA with FRA
3	Highly Vulnerable (including basements dwellings)	Consult EA - development should not be permitted	Consult EA - development should not be permitted	Consult EA - development should not be permitted	Consult EA with FRA
4 Change of use or Prior Approval resulting in	More Vulnerable	Consult EA with FRA Guidance for developers here	Mitigation Note 1	Mitigation Note 2	FZ2 Note 1
5	Less Vulnerable	Mitigation Note 3	Mitigation Note 4	Mitigation Note 5	FZ2 Note 2
6	Water Compatible - development includes essential ancillary sleeping or residential accommodation	Consult EA with FRA	Mitigation Note 1	Mitigation Note 2	No Consultation
7	Other Water Compatible	Mitigation Note 3	Mitigation Note 4	Mitigation Note 5	No Consultation
8	Essential Infrastructure	Consult EA with FRA Guidance for developers here	Consult EA with FRA Guidance for developers here	Consult EA with FRA Guidance for developers here	Consult EA with FRA
9	Highly Vulnerable (including basements dwellings)	Consult EA - development should not be permitted	Consult EA - development should not be permitted	Consult EA - development should not be permitted	Consult EA with FRA
10 Operational Development	More Vulnerable	Consult EA with FRA Guidance for developers here	Mitigation Note 6	Mitigation Note 7	FZ2 Note 3
11	Less Vulnerable	Mitigation Note 8	Mitigation Note 4	Mitigation Note 5	FZ2 Note 2
12	Water Compatible - development includes essential ancillary sleeping or residential accommodation	Consult EA with FRA	Mitigation Note 6	Mitigation Note 7	No Consultation
13	Other Water Compatible	Mitigation Note 9	Mitigation Note 4	Mitigation Note 5	No consultation

and specific planning policies.

Working together, Hull City Council, East Riding of Yorkshire Council and the Environment Agency identified a bespoke approach to flood risk management was needed beyond national standing advice.

The local flood risk standing advice³ subsequently developed set out the requirements for the height of ground floor levels, flood resilience measures, and place of safety within the development / change of use based on the maximum modelled flood depths from river, sea and surface water flooding as well as the vulnerability of the proposed development / change of use.

The SFRA information also helped inform the development of a range of local plan policies to address the local flood risk issues, whilst enabling safe and sustainable development to proceed. The policies included: flood defences; surface water storage and drainage; sustainable drainage; addressing flood risk in planning applications; groundwater protection; green infrastructure and the green network, and; biodiversity (Local Plan Policies 37 – 41, 43 – 44).

Benefits

³ [Strategic flood risk assessment | Hull City Council](#)

The scope of the SFRA specifically took account of low-lying nature of the city and the associated local characteristics of river, sea, surface water and other sources of flood risk. The outputs of the SFRA were thus of sufficient detail and relevance to inform the production of local Flood Risk Standing Advice for Hull and robust policies to manage flood risk yet enable growth in new development and revitalise existing communities. That in turn provided clarity on the planning requirements for new development for both applicants and local authority development management officers, enabling applications to be processed more efficiently, saving time and money.

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6. Making SFRA accessible and easy to update

It is essential that SFRA are designed to be easily updated so they can be agile to changes in evidence, policy, legislation, climate change allowances, or wider circumstances. The Local Development Plan can often take years to adopt, which may mean the SFRA requires updating several times. Developing the SFRA as a ‘living document’, with online maps that can be easily updated to reflect new data or change in development sites, can help with this process. It should also be kept up to date after the local plan has been adopted as the SFRA will continue to be used for other purposes, such as assessing viability of windfall sites.

The SFRA scoping stage should determine triggers for when an SFRA update is required and factor in any future budget or data agreements that may be needed to support this. The online [SFRA Guidance](#) provides further information to support this process. As examples, datasets such as historic records of flooding will be updated when new flooding events occur and other datasets go through periodic revisions and updates. Also, guidance may change (e.g. guidance on climate change allowances) leading to new flood modelling and national mapping being produced, likewise local modelling may also be undertaken. Some of these datasets may be produced by the LPA, some may be produced by others.

To make this process efficient, good practice is to use online mapping systems to enable individual datasets to be updated when necessary via live web map services, without the need to commission a report update or reproduce hard copy maps. In this way, when the master dataset is updated, any other portals linking to that dataset will also automatically receive the update without any GIS layers needing to be transferred. Alternatively, the local plan team could lead one fully integrated web based spatial platform for all the local plan evidence which can then be adopted after consultation.

Using online mapping, rather than static hard copy maps in reports, can greatly improve the how accessible and usable the datasets are to LPA officers and the public. This also avoids problems in terms of making the data legible and at a useful scale, and avoids large file sizes that are inaccessible by the public on council websites. The quality and reliability of the data should be understood and presented where possible to help others when they use it to inform decisions.

A lot of the information to support the SFRA is GIS based and therefore amenable to displaying in online mapping portals. This also makes it easier to combine or overlap with other GIS datasets that are needed to make spatial planning decisions. It is important LPAs consider this in the scope of any mapping services that are to be procured.

Online mapping portals also provide a valuable tool for other departments within LPAs to use, thereby improving the consideration of flood risk issues by other teams within the LPA (refer also to [Good Practice 16: Using outputs to inform other plans and strategies](#)). Similarly, developers are more likely address flood risk from the outset in their designs if the information available to them and their design teams is easily accessible and simply presented.

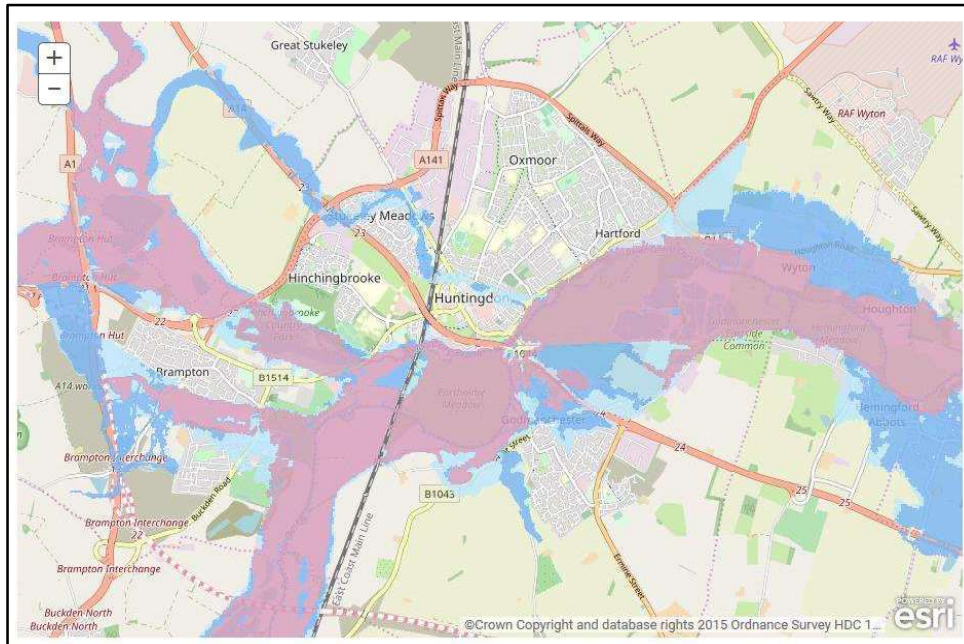
Examples are provided below which have been assessed as “good practice” for making the SFRA accessible and easy to update (Environment Agency research, 2021), and have links to where further information can be found.

Example: Making SFRA accessible and easy to update, Huntingdonshire District Council

Description

The SFRA produced for Huntingdonshire, first published in 2017, uses an online mapping portal rather than static hard copy mapping. Flood risk from a range of sources (river, surface water, groundwater) is collated together and can all be viewed in one place. The website includes a link to the report which explains all the information in the online mapping. The limitations of the data and appropriate use are clearly stated on the online mapping portal to make the users aware.

☒	Flood Zones	 Flood Zone 2	 Flood Zone 3a	 Flood Zone 3b	
☒	Climate Change Flood Risk	 Central	 Higher Central	 Upper End	
☒	Updated Flood Map for Surface Water	 30 year extent	 100 year extent	 1,000 year extent	
☒	Areas Susceptible to Ground Water Flooding	 ≥ 75%	 ≥ 50% < 75%	 ≥ 25% < 50%	 < 25%
☒	Flood Warning Coverage	 Flood warning area			



Source: Extract from the Huntingdonshire SFRA online mapping

(<https://www.huntingdonshire.gov.uk/environmental-issues/flooding/strategic-flood-risk-assessment/>)

Benefits

The online mapping portal has greatly improved the accessibility and usability of datasets by LPA officers and the public. That in turn has improved awareness of flood risk issues amongst the local community and developers.

Each dataset can be updated without the need to update the whole of the SFRA, ensuring that the SFRA can be kept up to date more easily and cost effectively.

The mapping shows the data at the required resolutions, as opposed to hard copies which have maps inserted into them at only one resolution which may not be useful or at a legible scale.

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