Kirklees Council Local Flood Risk Management Strategy

Summary Report
2024

KIRKLEES LOCAL FLOOD RISK MANAGEMENT STRATEGY

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INTRODUCTION

There are over 35,000 properties currently at risk from surface water flooding in Kirklees, and 9,000 at risk from main rivers in a 1 in 1000-year rainfall event. These numbers will rise in the future due to climate change. This Local Flood Risk Management Strategy (Local Strategy) for Kirklees sets out how Kirklees Council addresses and will address these risks in the future with a targeted Flood Risk Action Plan, the management of local flood risk and how it undertakes its flood risk management responsibilities that are a statutory requirement of the Flood and Water Management Act (FWMA) 2010.

This Local Strategy will replace the current strategy which has been in place since 2012.

Our Local Strategy is aligned with the National Flood and Coastal Erosion Management Strategy[1] and the latest guidance and legislation. Our Local Strategy will encourage more effective risk management by enabling local communities and business owners to work together to:

- Balance the needs of the community, environment, and economy.
- Enhance and extend our partnership working between Kirklees Council and other key stakeholders (e.g., charities, community groups, Parish Councils, and health bodies).
- Improve community awareness of flood risk, respond to their expectations and their priorities.
- Ensure a clear understanding of local flood risks and prioritise high risk catchments and communities.
- Encourage innovative flood risk management techniques.
- Support the development of emergency plans and make sure responses to flood incidents are effective and that communities are better prepared.
- Support communities to recover more quickly and effectively after major flood incidents. Research carried out by the University of York and the Centre for Mental Health reported that the risk of longterm mental health problems was up to nine times more likely for flood victims compared to those who had never experienced flooding2.
- Enable continued learning to ensure we remain progressive.

A Flood Risk Action Plan has been developed that sets out measures for the council and key partners to help achieve the themes in the Local Strategy. The Kirklees Local Strategy will continually develop as new evidence, expertise and resources influence flood risk management in the district.

It is important to note the strategy intends to mitigate the impact of flooding with a focus on properties, but it recognises that it cannot prevent flooding. The challenge is here is a global one, in addressing climate change, and is outside the scope of this strategy.

1 National Flood and Coastal Erosion Risk Management Strategy for England. Environment Agency. 2020

2 University of York | January 2021

The Local Strategy is supported by six key objectives for managing flood risk and increasing resilience:

1. Evidence - We will enhance our strategic understanding of flood risk from local sources, both in the present day and in the future considering new data, studies, research and science in climate change impacts for Kirklees.
2. Communities - We will work with communities and businesses to raise greater awareness of present and future flood risk through engagement, support and education to help them to become more resilient to future flood risk.
3. Adapt - We will work to implement adaptive approaches so we can continue to keep our natural and built environment resilient in response to a changing climate.
4. Sustainable - We will contribute positively to sustainable growth and support environmental net gain by influencing development and regeneration plans to deliver flood risk benefits, which will benefit society and the local economy whilst enhancing biodiversity in promoting measures that work with the natural processes of our catchments.
5. Partnership - We will work with all risk management authorities and stakeholders to achieve a consistent, coordinated and catchment-based approach to flood risk management.
6. Innovation - We will seek opportunities (including funding, technological, research) to be innovative and try new approaches in making communities resilient to flooding now and in the future.

FLOOD RESILIENCE AND ADAPTATION

Our Local Strategy considers resilience and adaptation to be a principal aim in supporting existing and new communities in dealing with future flood risk. Adaptation is about strengthening Kirklees' approach to adapting to climate change. It will reduce the potential impact that our changing climate, through flooding, storms, and higher temperatures, will have on Kirklees.

There are four key areas when managing flood resilience as shown below, based on the National Strategy[3].

3 National Flood and Coastal Erosion Risk Management Strategy for England. Environment Agency. 2020

PLACE MAKING

IMPROVE PLACE MAKING:
MAKING THE BEST LAND USE MD DEVELOPMENT CHOICES TO MANAGE FLOODING MD COASTAL CHANGE

Communities. planners and land managers making the best land use and design choices for development and infrastructure to manage the damages from flooding and coastal change. This includes making space for water to manage risk and support wider environmental benefits

PROTECT

BETTER PROTECT: BUILDING *AND* MAINTAINING DEFENCES AND MANAGING THE FLOW OF WATER

Sustained and long term investment in building and maintaining flood and sea defences ensuring they *provide* an appropriate standard of protection. operate reliably and perform as expected when exceeded. Better protection includes nature based solutions that manage the flow of water to reduce the risk of flooding and coastal change.

PLAN TO ADAPT

RECOVER

RECOVER QUICKLY: GETTING BACK TO NORMAL AND BUILDING BACK BETTER

Helping people and local economies recover more quickly by clearing up the damages. returning water and power supplies or draining floodwaters from farmland. Recovery should also include building back better so that properties and infrastructure are more resilient to future events.

RESPOND

READY TO RESPOND: PREPARING FOR AND RESPONDING EFFECTIVELY TO INCIDENTS

Organisations and communities working together to prepare for and respond to flood and coastal incidents through timety and effective forecasting, warning and evacuation.

THEMES OF OUR LOCAL STRATEGY

Our Local Strategy establishes four key areas to focus our efforts in better protecting and supporting our communities against the risk of flooding.

Place making – to make our local places more climate resilient to flooding by considering land use in combination with flood risk. We will make space for floodwater, ensure buildings and infrastructure consider current and future flood risks including supporting the use of climate resilient local planning policies and avoiding inappropriate development in flood risk areas through spatial planning. We will ensure early engagement with developers in the pre-planning process.

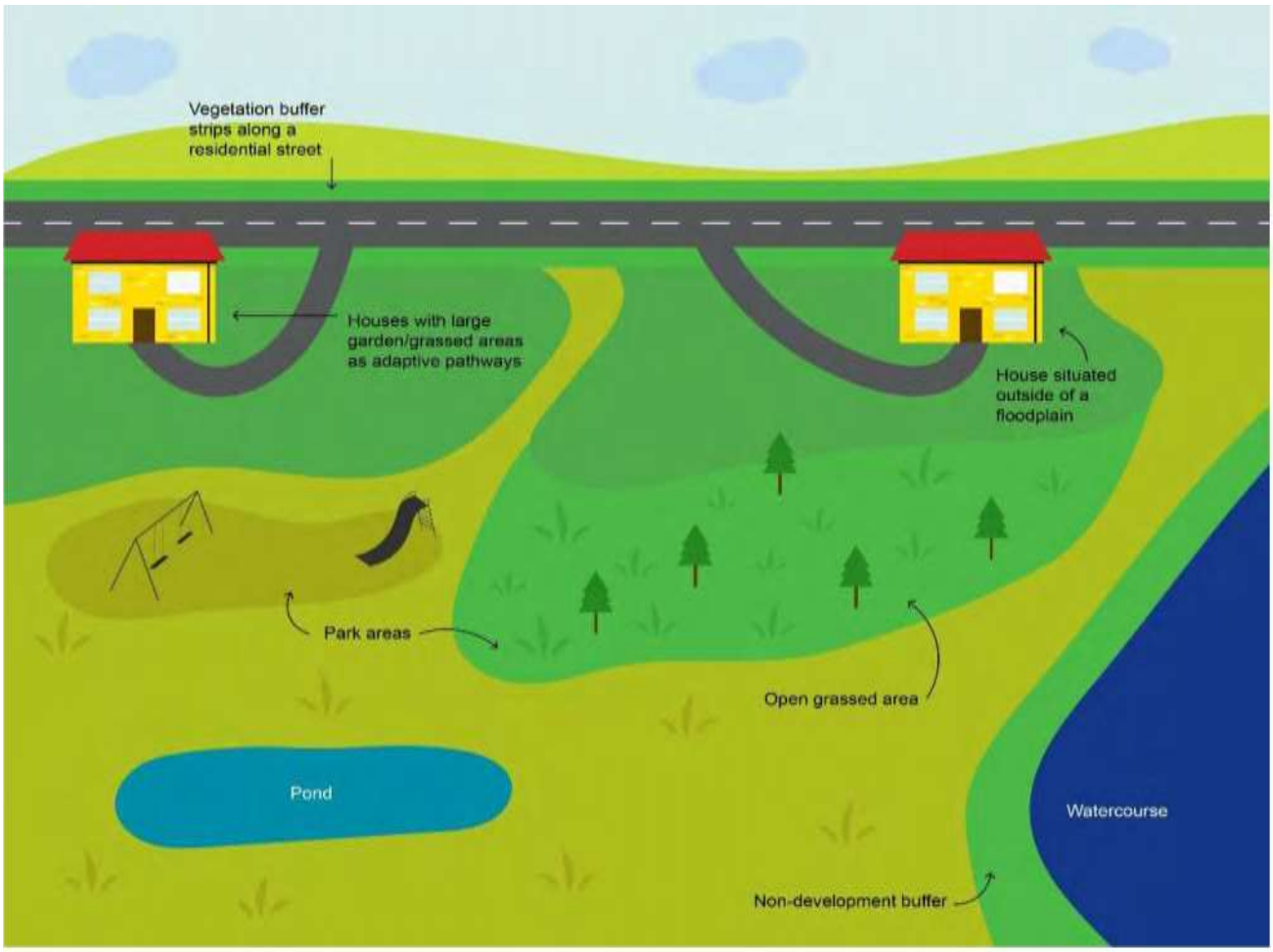


Figure 1-1 examples of place making

Protect – ensure our communities are better protected from flooding both now and in the future. We will support existing communities through implementing nature-based solutions in catchments such as utilising upland water storage, better planned land management practices, deculverting, blockage clearance of assets, construction of new defences, retrofitting to existing homes, businesses, infrastructure, and key services.

Natural Flood Management - maximising water retention, slowing the flow, slowing the rate at which water enters a watercourse, rainfall interception, floodplain restoration, gully blocking.

Environmental Land Management – government support schemes for landowners to alter their land management practices enhancing the local environment and provide flood risk benefits.

Adaptive pathways – allow communities to be agile to climate change where land use can easily adapt to future changes to the local environment.

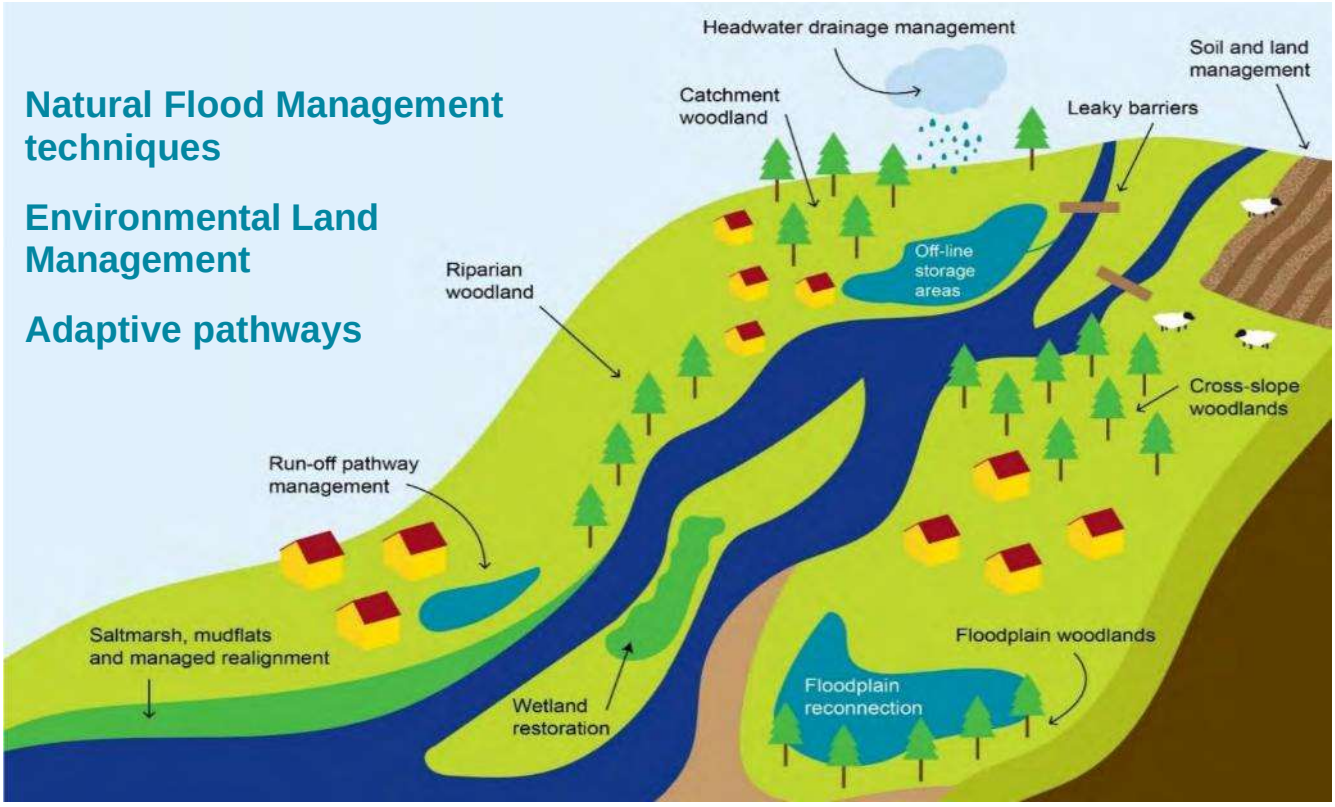


Figure 1-2 examples of natural flood management

Property Flood Resilience – using various techniques to lower flood risk through the reduction of the impact of flooding on a property (e.g. installing flood doors).

Figure 1-3 examples of Property Flood Resilience techniques

Sustainable Drainage Systems (SuDS) – used in new development or retrofitted to existing development. SuDS manage surface water and runoff as close to the source as possible and should mimic natural drainage through infiltration and attenuation following the SuDS hierarchy.

Rural environment where 95% of water infiltrates into the ground and 5% runs off as overland flow.

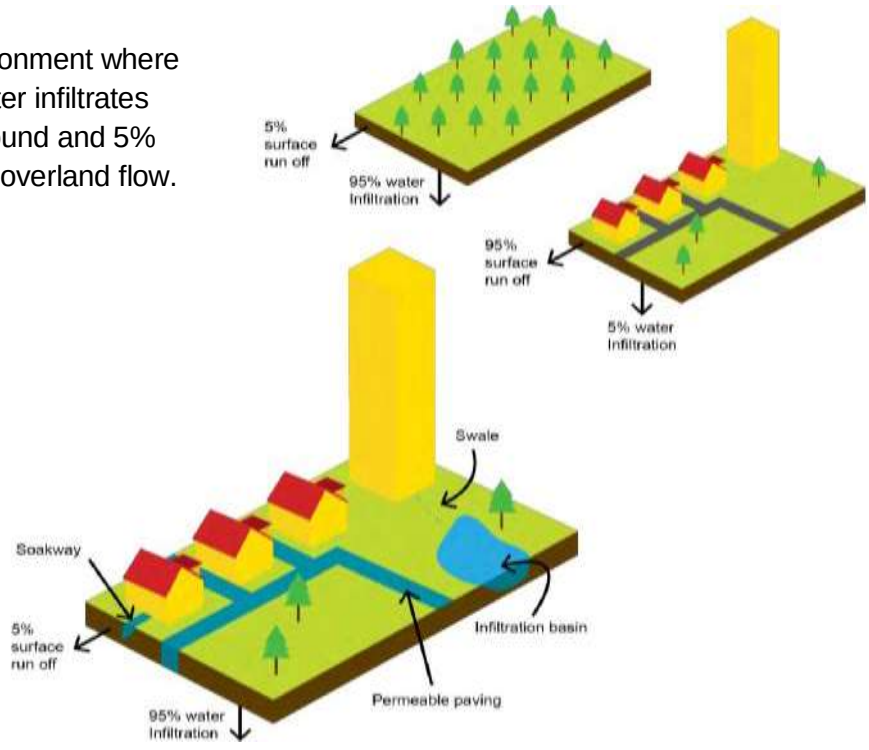


Figure 1-4 examples of SuDS techniques

Response – being adequately prepared to ensure we can better respond to a flood event. We will assist organisations and communities in ensuring they are adequately prepared for a flood event occurring, for example, through early flood warnings, emergency flood and evacuation plans, and education and training and to enable local community flood groups to become resilient.

Recovery – recovering quickly and effectively from a flood event. We will aim to provide post-flood event recovery support, signpost affordable flood damage insurance, support community wellbeing and implement a build back better approach. We will also aim to review and record flood impacts to increase intelligence and review flood risk assets.

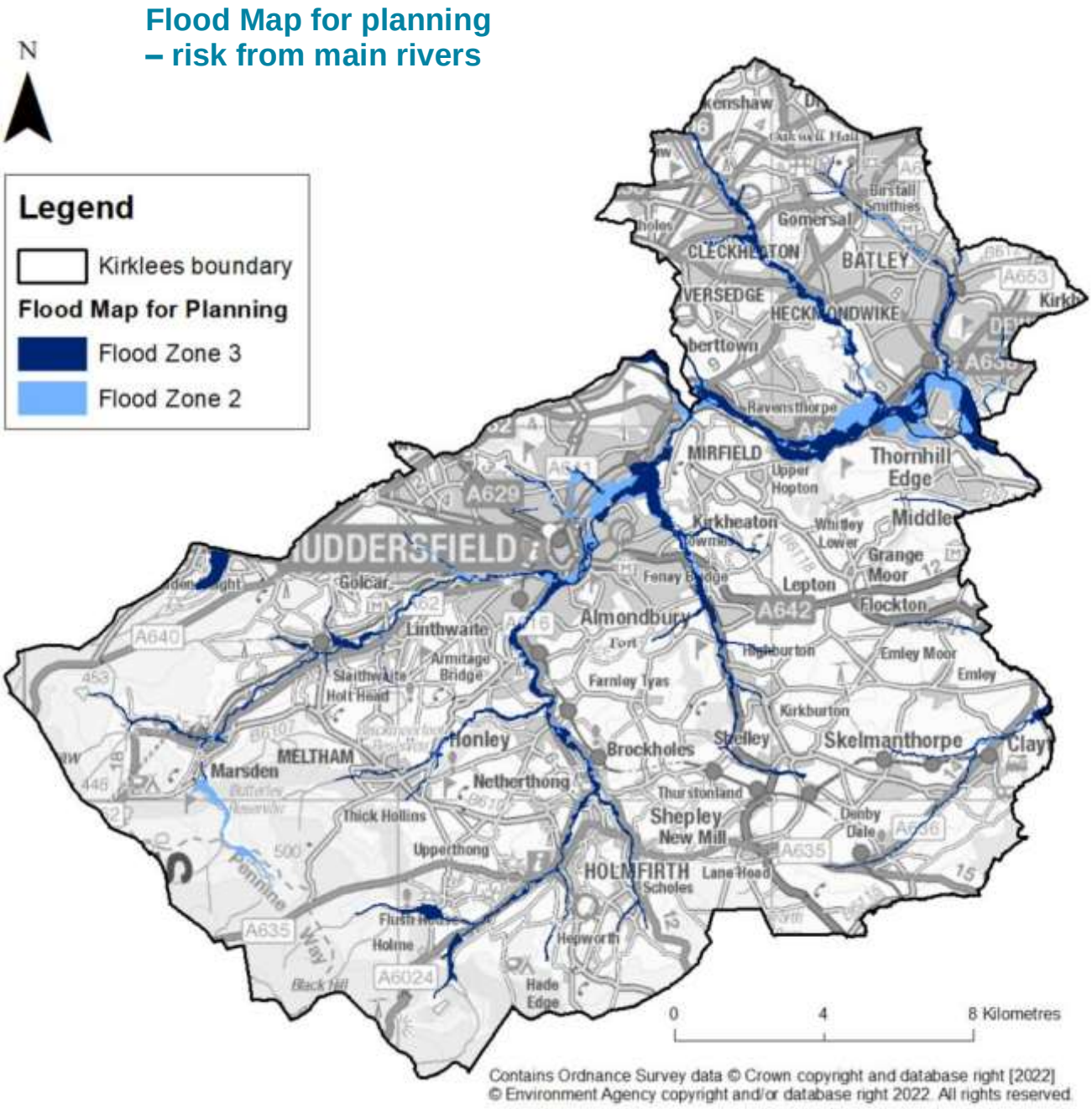
Figure 1-5 examples of responses to flooding

FLOOD RISK IN KIRKLEES

The principal flood sources in Kirklees include fluvial and surface water; the most common pathways are rivers, drains, sewers, overland flows; and the receptors include people, their property and the environment. Within the strategy we have considered the impact of all sources of flooding and historic flooding across Kirklees.

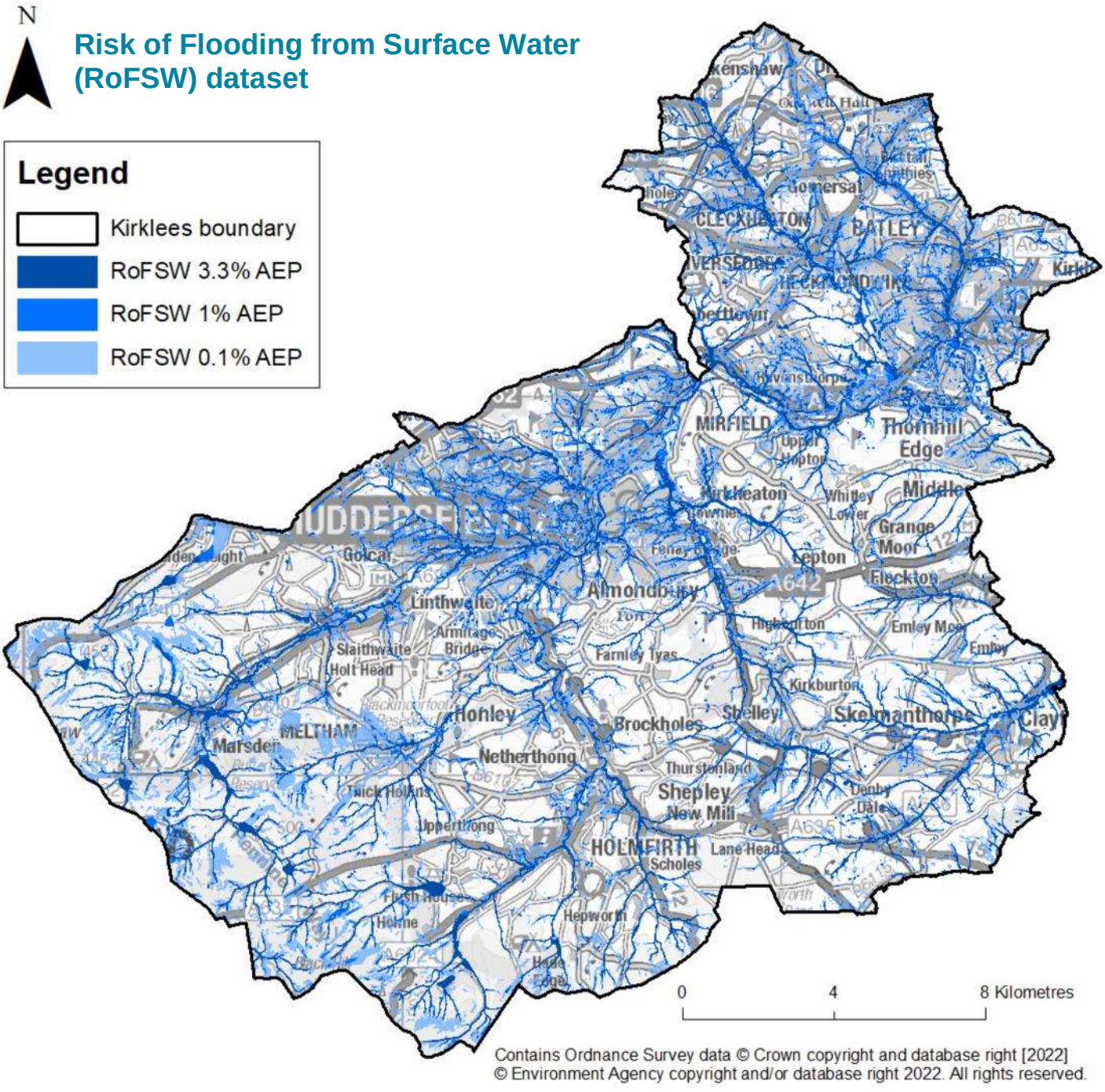
Existing Risk - Rivers

The map below shows the existing risk from main rivers in Kirklees.



Existing Risk – Surface Water

The map below shows the existing risk from surface water in Kirklees.



HISTORIC FLOODING

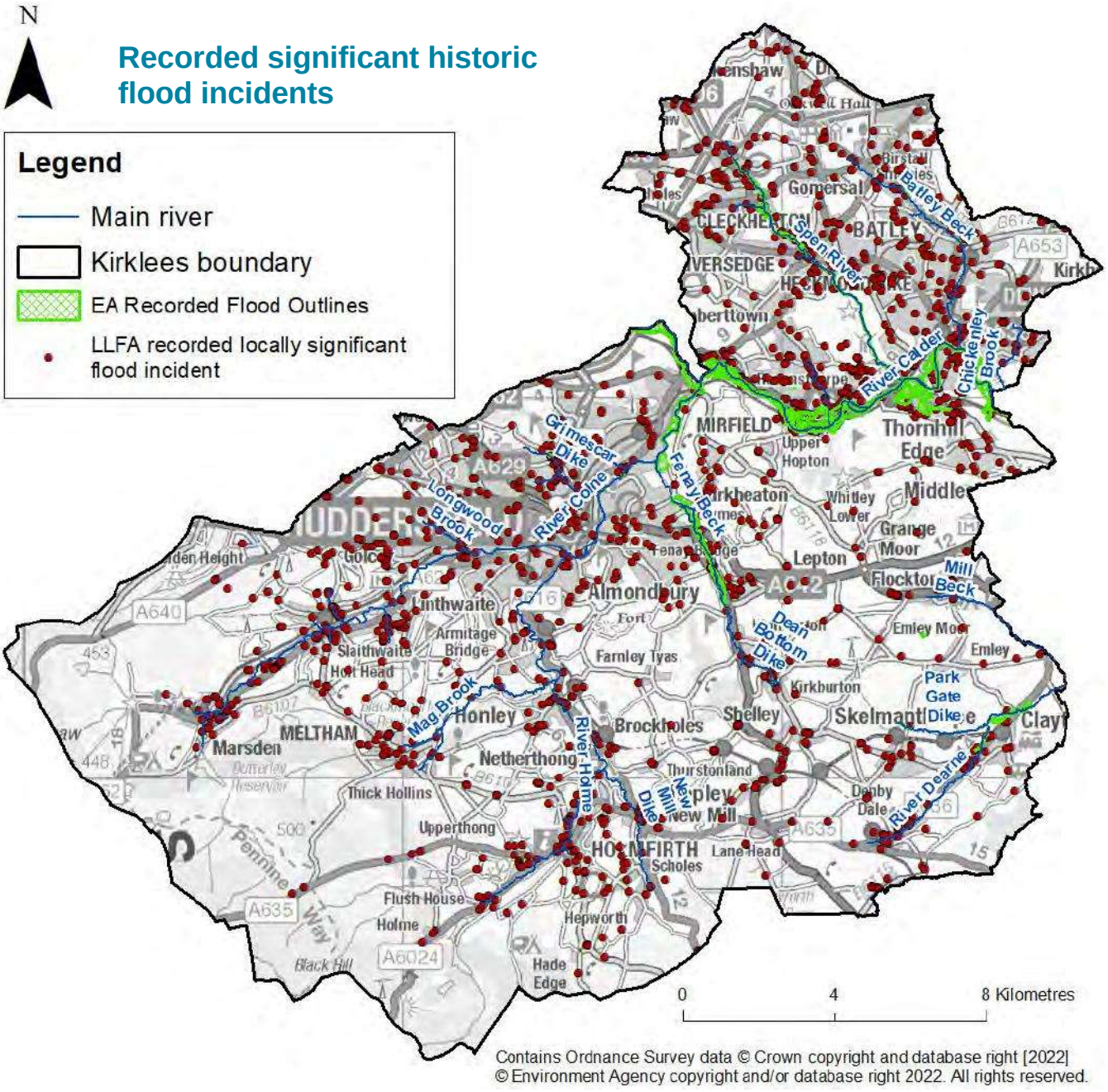
Kirklees has a history of flooding in many different locations from fluvial, surface water and sewer sources. Information on significant incidents of flooding is recorded by the EA and the LLFA.

Notable recorded historic flood incidents include:

- February 2022 – Storm Dudley, Eunice and Franklin: triple storm week brought strong winds and rain to the district. A considerable number of internal property flooding was reported to both residential properties and businesses.
- February 2020 – Storm Ciara and Storm Dennis: channel capacity exceeded on main rivers, including the River Calder, and ordinary watercourses.
- December 2015 – Channel capacity exceeded on the River Calder upstream of Sands.
- June 2007 - Estimated 500 properties flooded due primarily to surface water where rainwater was unable to enter drainage systems due to design capacity being exceeded. The flooding was widespread across the district, but hotspots occurred around Ravensthorpe, Liversedge, Cleckheaton, Chickenley, Mirfield, Milnsbridge, Brockholes, New Mill, Denby Dale, Scissett and Clayton West.

The map below shows flood incidents, from any source, recorded as locally significant by Kirklees since 2007. These incidents include internal and external flooding of properties and businesses, and roads, footpaths and gardens. The major flooding events within Kirklees have mainly occurred around the main rivers: the River Colne, River Calder and Spen River.

Recorded significant historic flood incidents



CLIMATE CHANGE

Following on from the UK Climate Projections 2009 (UKCP09), the UK Climate Projections 2018 (UKCP18) delivered a major upgrade to the range of UK climate projection tools designed to help decision-makers assess their risk exposure to our changing climate.

The existing EA river models available in Kirklees are not up to date with the latest climate change allowances. However, it is clear from the allowances stated that climate change will likely have a significant impact on the district. The impacts of climate change are well documented and will have a significant impact on flood risk within Kirklees. Increases in duration and intensity of extreme rainfall events because of climate change will increase flood risk from multiple sources.

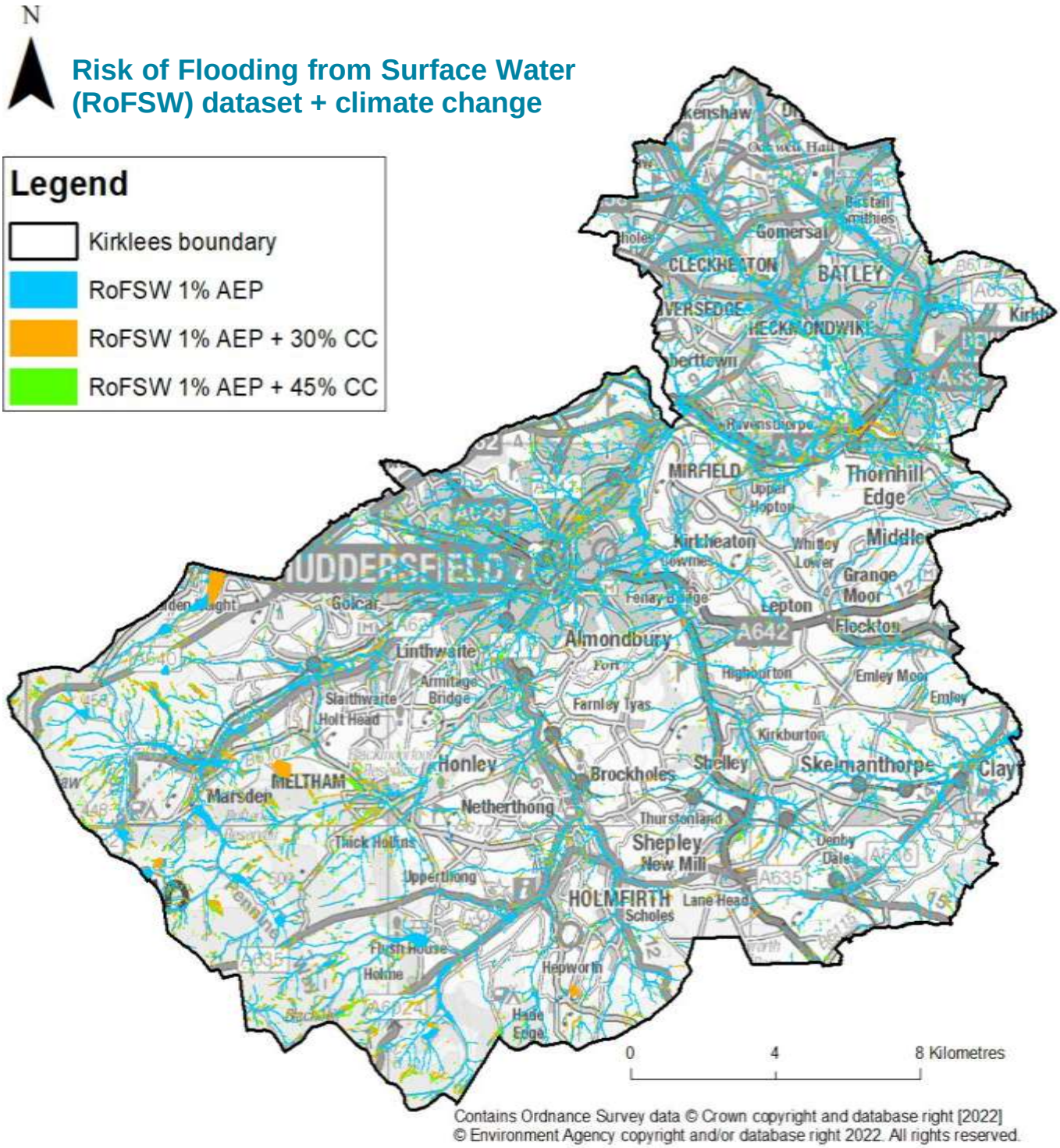
SURFACE WATER AND CLIMATE CHANGE

The impacts of climate change on surface water and for small scale drainage design, the Environment Agency updated their allowances for peak rainfall intensities in 2021 based on management catchments, provided in table below. The allowances are based on the high emission scenario of UKCP18, with the central allowance representing a 4°C increase by 2100.

Management catchment	**Allowance category**	**Total potential change anticipated for peak rainfall intensities (based on a 1961 to 1990 baseline)**			
		3.3% annual exceedance rainfall event		1% annual exceedance rainfall event	
		2050s (up to 2060)	2070s (2061-2125)	2050s(up to 2060)	2070s (2061-2125)
Aire and Calder	Upper end	35%	40%	40%	45%
	Central	20%	25%	25%	30%
Don and Rother	Upper end	35%	35%	40%	40%
	Central	20%	25%	20%	25%
Upper Mersey	Upper end	35%	40%	40%	45%
	Central	20%	30%	25%	30%

Peak rainfall intensity allowances for management catchments in Kirklees

The map below illustrates how the risk from surface water will increase with climate change in Kirklees.



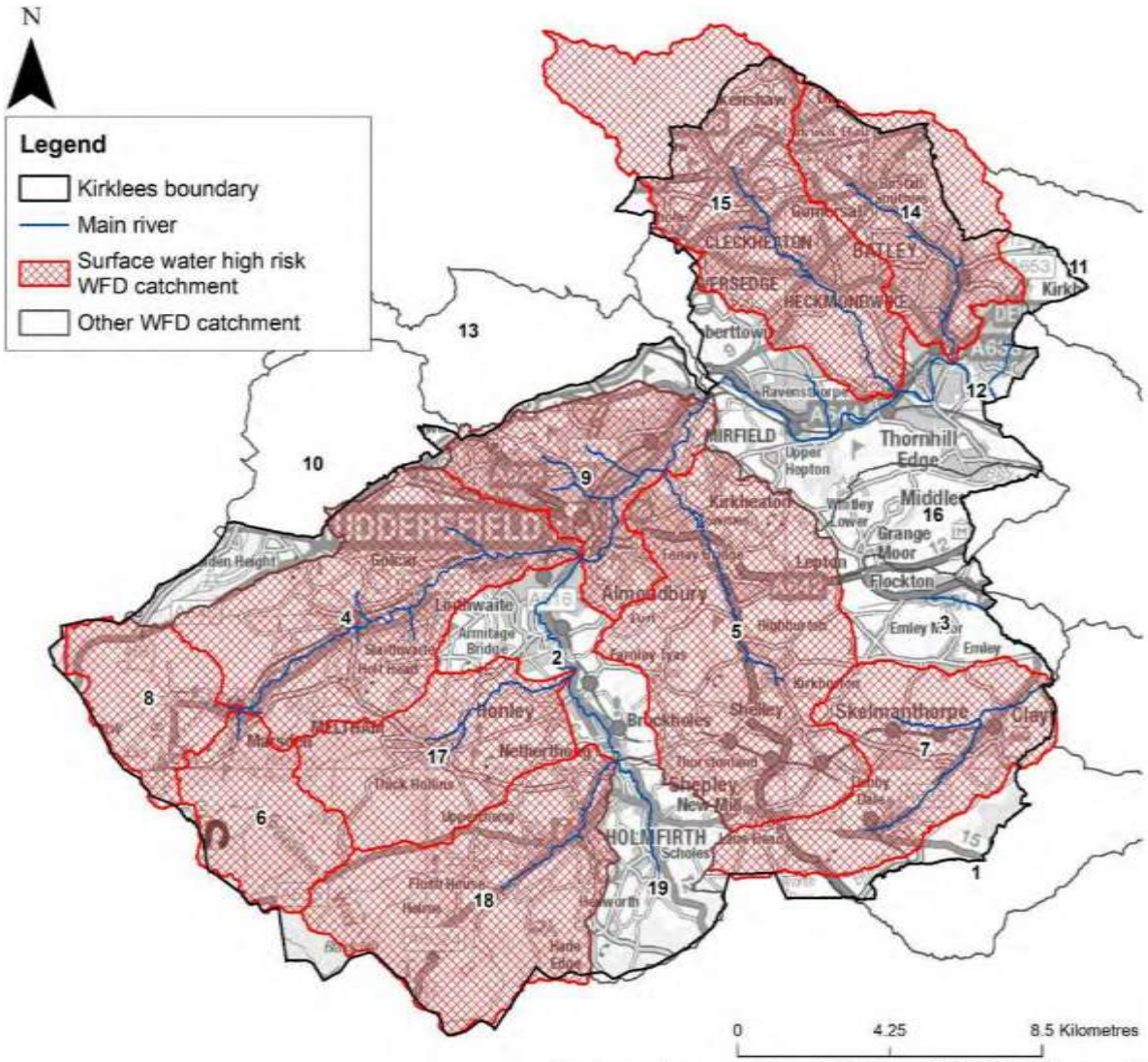
FLOOD RISK MANAGEMENT ROLES AND RESPONSIBILITIES

As a Lead Local Flood Authority, Kirklees Council's responsibilities relate to managing flood risk from surface water, groundwater and ordinary watercourses. In relation to Kirklees, other risk management authorities include:

- **Environment Agency**
- **Water and sewerage companies – Yorkshire Water**
- **Highways Authority – Kirklees Council and National Highways**

HIGH RISK CATCHMENTS

Kirklees Council has carried out a high-level strategic study into which are the highest risk hydrological catchments in the district based on surface water flood risk to existing properties and infrastructure. At a strategic level, this will help us to identify the communities within these high-risk catchments that may be in greatest need of action on flood risk management. These high-risk catchments are shown on the map below.



1 - Cawthorne Dyke from Source to River Dearne
2 - Holme from New Mill Dike to R Colne
3 - Bentley Brook from Source to River Dearne
4 - Colne from Wessenden Brook to R Holme
5 - Fenay beck from Source to River Colne
6 - Wessenden Bk from Butterly Resr to River Coln
7 - Dearne from Source to Bentley Brook
8 - Colne from Source to Wessenden Brook
9 - Colne from River Holme to River Calder
10 - Black Brook from Source to River Calder
11 - Chald from Source to River Calder
12 - Calder from River Colne to River Chald
13 - Calder from Ryburn Confluence to River Colne
14 - Batley Beck from Source to River Calder
15 - Spen Beck from Source to River Calder
16 - Smithy Brook from Source to River Calder
17 - Mag Brook from Source to River Holme
18 - Holme from Source to New Mill Dike
19 - New Mill Dike from Source to River Holme

FLOOD RISK ACTION PLAN

Together with the longer-term local strategic themes, we have also formulated a set of shorter term, measurable actions which formulate our Flood Risk Action Plan.

The action plan (see the full report) is to remain a live document and be continually updated as and when new measures and actions are defined, when new funding sources or delivery partners are found, and when the action has been delivered or a programme for delivery has been formulated. The strategy is to be in place for the ten years, during which the measures and actions in the action plan will be delivered.

The actions making up the Flood Risk Action Plan have been developed from the following sources:

- Rollover actions from the current implementation plan where still appropriate.
- Feedback and suggestions from stakeholders following the stakeholder engagement workshops carried out as part of this Local Strategy.
- The Humber Flood Risk Management Plan 2 (2021 – 2027) consultation responses on draft actions and measures included in the latest FRMP update.
- Identified high risk catchments and communities.

The measures listed within the Flood Risk Action Plan shows how it aligns with the following:

- Resilience themes:
    - Place making
    - Protect
    - Respond
    - Recover
- Local Strategy action falling within a resilience theme.
- Geographic areas where actions are required.
- Key delivery partners for delivering the action.

IMPLEMENTATION AND MONITORING

Our Local Strategy sets out the roles and responsibilities of the RMAs. In partnership with other RMAs and key stakeholders, we will use this strategy to guide our approach to local flooding issues across Kirklees.

The overarching objective of the strategy is to reduce local flood risk to residents, businesses and key infrastructure by increasing resilience in our communities. This will be achieved through the implementation of our Flood Risk Action Plan with a focus on nature-based solutions and helping

communities to be more resilient. The measures and actions will be delivered over the next ten years. The successful implementation of the strategy will be influenced by external factors such as funding and resource availability. Funding of capital works may prove to be a challenge, particularly where schemes must receive partnership contributions. Where appropriate, we will seek to fund schemes through multiple routes.

REVIEW

The Local Strategy will be reviewed and updated as and when required. The Flood Risk Action Plan will be reviewed annually to check that the measures continue to be appropriate and achievable. It should be noted that this strategy represents the current situation (at the time of publishing) based on current evidence base.