



Local Flood Risk Management Strategy 2023-2029



Executive Summary

Communities across Doncaster have experienced extensive flooding in the past. With each flood event, we can further understand the mechanisms which cause flooding. As a result, this enables us to help communities better prepare for future flood events and improve their flood resilience. This is especially important due to the escalating threat posed by the impacts of climate change, such as the predicted increase in severity and intensity of rainfall.

The purpose of the Local Flood Risk Management Strategy is to set out how City of Doncaster Council will approach flood risk management over the next six years. This strategy identifies aims, objectives, measures, and outcomes, which are underpinned by the Environment Agency's long-term vision for England. The long-term vision is to create a nation ready for, and resilient to, flooding – today, tomorrow, and up to the year 2100.

Over the last six years, City of Doncaster Council has invested over £9.5 million on flood infrastructure to reduce the risk of flooding to homes and businesses across Doncaster. Working in partnership with other risk management authorities has helped achieve this. Over the next six years, we will be focusing on how we can become more resilient and better prepared for flooding. This will involve utilising, where appropriate, nature-based solutions alongside engineered flood infrastructure to build long-term sustainable resilience. This strategy offers the opportunity to take a more holistic approach to managing local flood risk and to combat environmental issues associated with climate change.

Approval Schedule

<u>Version</u>	<u>Date</u>	<u>Prepared by</u>	<u>Reviewed by</u>	<u>Approved by</u>
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Draft 2	15/05/2023	Emily Evington	Richard Campbell	
Consultation Version				
Adopted final version				

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For more information on flood advice:

<https://www.doncaster.gov.uk/services/emergencies/flood-advice>

For more information on flooding health guidance and advice:

<https://www.gov.uk/government/collections/flooding-health-guidance-and-advice>

For more information on how to report flooding:

<https://www.doncaster.gov.uk/services/transport-streets-parking/report-flooding>

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Abbreviations

AW – Anglian Water

CDC – City of Doncaster Council

Defra – Department for Environment, Food & Rural Affairs

EA – Environment Agency

FCERM – Flood and Coastal Erosion Risk Management

FDGiA – Flood Defence Grant in Aid

FRA – Flood Risk Area

FRMP – Flood Risk Management Plan

iCASP - Yorkshire Integrated Catchment Solutions Programme

IDB – Internal Drainage Board

LLFA – Lead Local Flood Authority

LPA – Local Planning Authority

NFM – Natural Flood Management

NPPF – National Planning Policy Framework

PFR – Property Flood Resilience

RFCC – Regional Flood and Coastal Committee

RMA – Risk Management Authority

SAB – Sustainable Drainage Systems Approval Body

SFRA – Strategic Flood Risk Assessment

SoP – Standard of Protection

STW - Severn Trent Water

SuDS – Sustainable Drainage Systems

SYMCA – South Yorkshire Mayoral Combined Authority

UK – United Kingdom

YW – Yorkshire Water

Introduction

Overview

Under Section 9 of the [Flood and Water Management Act 2010](#), the City of Doncaster Council (CDC), as the Lead Local Flood Authority (LLFA) must develop, maintain, apply and monitor a strategy for local flood risk management within its area. Under the Flood and Water Management Act 2010, local flood risk is defined as floods caused by surface runoff, ground water, and ordinary watercourses. We released our initial Local Flood Risk Management Strategy in 2014. In this document, we outline our updated strategy for the years 2023-2029.

The Local Flood Risk Management Strategy's goal is to outline a precise plan for future flood risk management in Doncaster while ensuring that individuals, organisations, communities, and other Risk Management Authorities (RMAs) play a significant role in managing flood risk.

Whilst the Local Flood Risk Management Strategy considers all sources of flooding, it specifically focuses on surface runoff, ground water and ordinary watercourse flooding. The management of main river flooding, such as the River Don, Torne, Idle and the Ea Beck, remains the responsibility of the Environment Agency. This strategy considers the interactions that main river flooding may have with local flood risk and promotes a partnership working philosophy between all RMAs, to deliver the effective management of flood risk in Doncaster.

Over the last 10 years, flood risk management has been shaped by England's experiences to flood events. National legislation and policies outline how we should manage flood risk. In the past, flood risk management has focused on engineered structures to keep water away from important infrastructure, like roads and homes. However, there is always a residual risk, even with engineered structures. Rather than working with the mentality of keeping water out, we need to identify ways to work with water and utilise the benefits. This involves everyone having a role in awareness of flood risk and the steps that an individual can take to reduce the impact of flooding. It isn't possible to completely prevent flooding in areas which are often affected, however implementing nature-based solutions alongside traditional flood defences may limit the impact.

The strategy has been developed in consideration of the current legislation and guidance. We have already undertaken an initial high level screening exercise to identify local flood risks, in the form of the Strategic Flood Risk Assessment (SFRA) Level 1 (November 2015). The Local Planning Authority (LPA) are currently considering updating the SFRA.

The strategy is a living document. Therefore, the timetable for review will be flexible. Implementation of flood mitigation schemes, new development, historical and new flooding are activities that may trigger a review and updating of the strategy. As a minimum, the strategy will be reviewed every six years.

Strategy Area

CDC covers an area of approximately 568 square kilometres, with a population of 308,100 (2021 census). Doncaster's topography is predominantly flat with some of it below sea level (Figure 1). Doncaster currently relies heavily on an extensive system of man-made drainage channels, pumping stations, and other control structures to drain the land effectively. The strategy area is covered by four Internal Drainage Boards (IDBs) (Danvm Drainage Commissioners, Doncaster East, Black Drain, and Isle of Axholme & North Nottinghamshire), which covers around 48 percent of Doncaster (Figure 2).

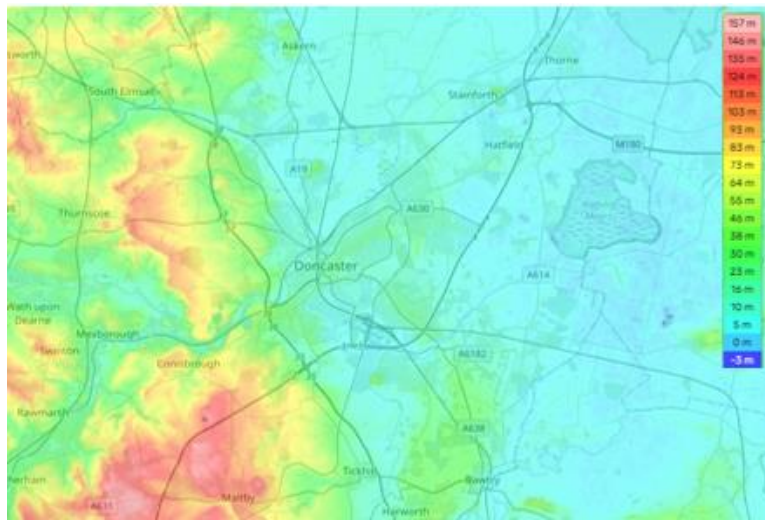


Figure 1. Topographic map of Doncaster.

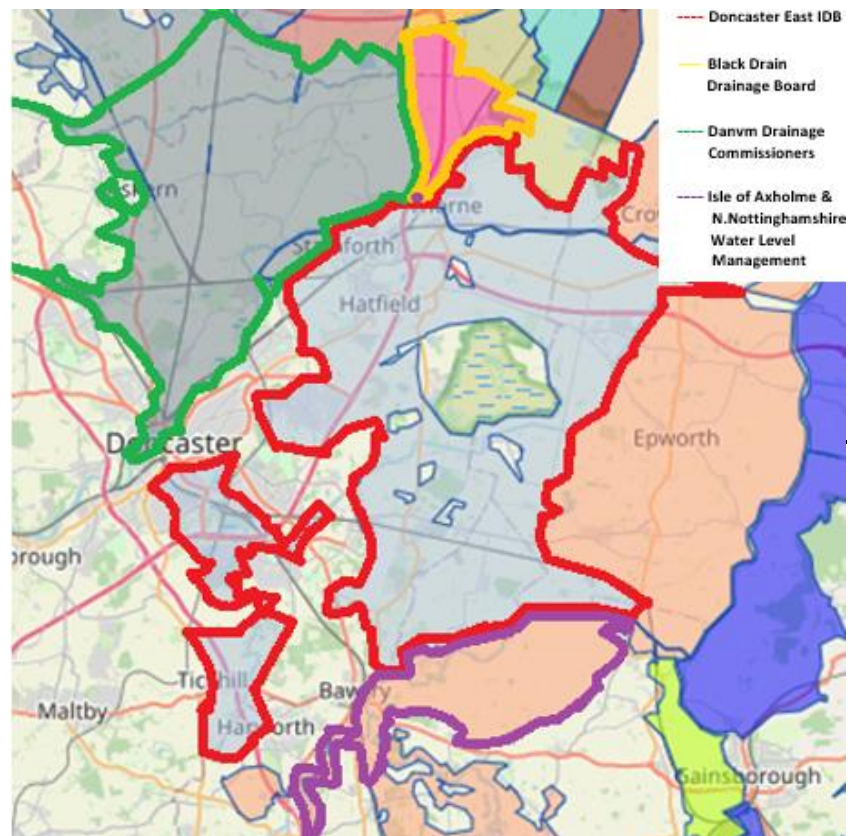


Figure 2. Map showing the coverage of Internal Drainage Boards within our boundary.

There are several large rivers which flow through Doncaster, namely the River Don, River Dearne, River Torne, River Went and the Ea Beck, along with several other minor rivers and canals (Figure 3). The strategy area is hydraulically split between the River Don and River Trent catchments. Two Environment Agency areas; Yorkshire and Trent also serve it, which reflects that the city is hydraulically split along the southern length of the River Don. Doncaster is also split between three Water Authorities; Yorkshire Water (YW), Severn Trent Water (STW) and Anglian Water (AW) (although AW only serve a very small section to the south of the city).

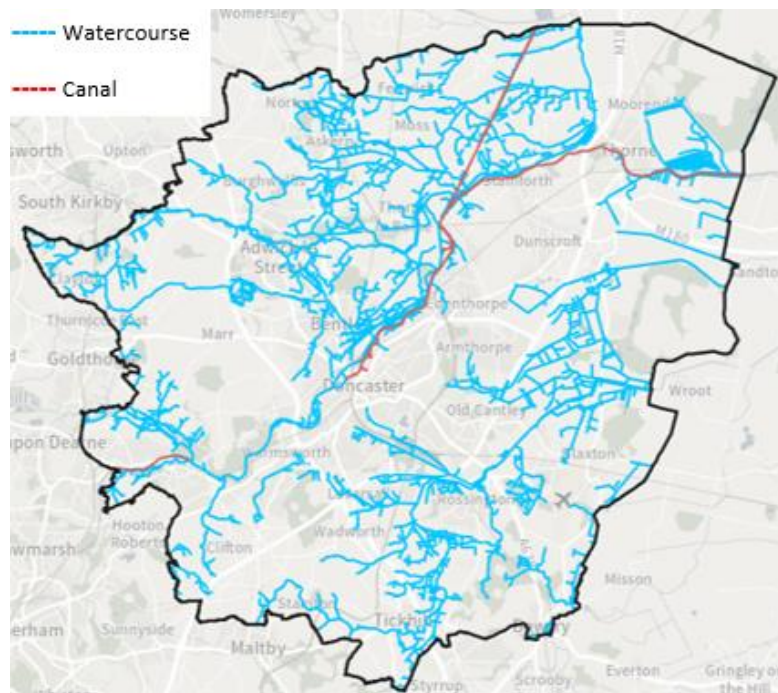


Figure 3. City of Doncaster Council boundary and watercourse network.

LLFA Responsibilities

Risk Management Authority	Risk Management Functions
City of Doncaster Council – Lead Local Flood Authority	<ul style="list-style-type: none"> ▪ Develop, maintain, apply and monitor a Local Flood Risk Management Strategy. ▪ Duty to co-operate with other RMAs. ▪ Duty to exercise flood risk management functions in a manner consistent with the Flood and Coastal Erosion Risk Management (FCERM). ▪ Powers to undertake works to manage flood risk from surface water or groundwater. ▪ Power to request information in connection with its flood risk management functions. ▪ Duty to investigate local flooding incidents. ▪ Duty to maintain a register of assets which have a significant effect on flood risk. ▪ Power to designate structures or features that affect flood risk. ▪ Power to consent works on ordinary watercourses (IDBs continue to exercise this power within their areas). ▪ Responsibility as a sustainable drainage systems (SuDS) Approval

	<p>Body (SAB) with responsibility for approval, adoption and maintenance of new SuDS.</p> <ul style="list-style-type: none">▪ Duty to exercise FCERM functions consistently with the national and local strategies.▪ Duty to contribute to sustainable development in exercising FCERM functions.▪ Statutory consultee for Major Planning Applications for the LPA.
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Doncaster's Historic Flood Events

Our flood records began in 2007. However, there have been numerous flooding incidents prior to 2007 with the most notable being those of Autumn 2000 and Spring 1947.

The implementation of the Flood and Water Management Act 2010 provided the legislation for local authorities to manage flood risk more effectively. Combining improved management of flood events with efficient recording and delivery of flood mitigation solutions which has made our responses to flood events more co-ordinated.

1947

Historical records of flooding are inaccurate prior to the Second World War. The first significant flood event after this date was the Great Flood of March 1947. On March 7th, the thaw of one of the heaviest snowfalls on record was caused by an increase in air temperature. Accompanied by heavy rainfall within the space of a few hours, flash flooding occurred across the southwest of Doncaster.

2000

Since records began, the year 2000 was recorded as the wettest year, resulting in the Doncaster catchment becoming heavily saturated. During late October and early November, persistent heavy rainfall led to rivers overtopping and flood defence failures. Inadequate local surface water drainage caused surface water flooding to occur simultaneously.

2007

Between 14th – 25th June 2007 a large volume of rain fell across South Yorkshire causing widespread flooding (Figure 4; Figure 5). During the early stages of the second rainfall event (24th & 25th June) becks, streams and drains were overwhelmed in Doncaster, causing severe road flooding. There were 48 individual areas of Doncaster that were affected by the flooding, the majority of which were surface water flooding incidents. In total, 3,286 homes were affected.



Figure 4. Low Road, Conisbrough during the 2007 flood event.



Figure 5. Bentley High Street during the 2007 flood event.

2012

Following the implementation of the Flood and Water Management Act 2010, our response during the July 2012 flooding was improved. The management of the flood event was more co-ordinated, and the recording and delivery of flood mitigation solutions was significantly more structured. This event saw the internal flooding of 49 properties.

2019

Between 7th – 10th November 2019, Doncaster experienced major flooding on a scale not witnessed since 2007. The consequences for residents, businesses and communities were significant (Figure 6; Figure 7). Almost 800 households were flooded; many residents were evacuated for their safety; extensive road closures were needed; and large numbers of businesses were impacted.

The Met Office National Climate Information Centre dataset shows 2019 to have had the wettest 5-month period since 1891. Prior to the flood event, continual heavy rainfall had resulted in soil becoming fully saturated by October and elevated river levels. On 7th November intense rainfall fell over South Yorkshire, which lasted approximately 24 hours.



Figure 6. Flooding at Fishlake during the 2019 flood event

The River Don at Doncaster, River Derne at Adwick, River Torne at Auckley and the Ea Beck at Adwick Le Street all hit record-breaking levels.

Embankments along the River Don breached at various points across Doncaster. The allocated flood storage areas were unable to cope with the volume of floodwater during the exceedance event, including at Bentley and Fishlake. Significant flooding also occurred at Conisbrough, Tickhill, Kirk Bramwith and Scawthorpe.



Figure 7. Flooding at Bentley during the 2019 flood event.

Following the flooding event, we published a [Section 19 Flood Investigation Report outlining the events of the 2019 flood event](#) in accordance with Section 19 of the Flood and Water Management Act 2010.

2022

Between 18th – 22nd February 2022, the Met Office issued yellow and amber weather warnings for fluvial and surface water flooding. Heavy rainfall caused the River Don levels to rise. The Don at Conisbrough, the Ea Beck at Norwood, and the Don at Fishlake were locations whereby the rivers exceeded their banks. Four properties in the south-west of the city experienced internal flooding as a result.

We are working towards delivering flood risk management schemes in areas, which are more susceptible to flooding to reduce the risk of properties being flooded in any future events.

Understanding Flood Risk

Flood risk is a combination of the chance of an event happening and the consequences if it occurred. Flood risk is dependent on there being a source of flooding, a route for the flood water to take and a receptor, such as a housing estate.

Flood Risk = Probability x Consequences

The probability of a flooding event happening can often be misleading or confusing. Return periods are used to describe the frequency and likelihood a flood event will occur. However, using terms such as 1 in 50 years or 1 in 500 years can be deceptive to the public, thinking that a 1 in 50-year flood event will only occur every 50 years. Return periods are an average of how often a flood event of that magnitude will occur and so the probability or chance of flooding should be used instead, so for example, a 1 in 50-year flood has a 2 percent probability of occurring in any one year.

The consequences of a flood depend on two factors, exposure, and vulnerability. Exposure is a measure of the number of people or things that may be affected by a flood. Vulnerability is a measure of the potential of people or things to be harmed. For example, the consequences of a flood will be less severe in an area with very few people who are able to evacuate quickly and easily. Flooding in an area with lots of people who have difficulty with evacuation is likely to have consequences that are more serious, as it has a high exposure and high vulnerability.

As defined in the Flood and Water Management Act 2010, flooding includes any occurrence where land not normally covered by water becomes covered by water. Flooding can be caused by many different mechanisms. To manage flood risk, it is important that we understand the different types of flood risk.

Watercourse Flooding

Watercourses include rivers, brooks, dikes, culverts, ditches, or anything that may only convey water for a short length of time in a year. Flooding occurs when a watercourse cannot cope with the amount of water draining into it from the surrounding land. This may lead to the overtopping of the watercourse which could cause flooding to adjacent land and properties. Watercourse flooding is often referred to as 'fluvial' flooding.

Surface Water Flooding

Surface water flooding occurs when rainwater does not drain away through the normal drainage systems, such as sewers and highway gullies, or soaking into the ground. Rainfall can exceed the infiltration capacity of either the soil or the drainage network causing water to build up on the surface instead. This is known as 'pluvial' flooding.

Sewer Flooding

Sewers and the receiving networks are designed for a 1 in 30-year storm event, whilst gully pots are designed for a 1 in 5-year storm event. Sewer flooding occurs when sewers cannot cope with the amount of water flowing through them during a storm. The sewers become overwhelmed and excess flows spill out from drains onto adjacent land and property.

Groundwater

Groundwater flooding is usually local and governed by the local geology. It is complexly intricate but typically occurs after periods of prolonged or heavy rainfall. Unfortunately, there is little that we can do to support you if your property has been affected by groundwater flooding, except for directing you to sources of advice and services.

Groundwater flooding can arise from:

- Natural exceptional rises in groundwater level, reactivating springs and short-lived watercourses, often referred to as 'clearwater' flooding.
- Rising of groundwater following reductions in historic abstraction.
- Mine water recovering to natural levels following the cessation of pumping.
- Local shallow drainage or flooding problems unrelated to deep groundwater responses.

Some areas within Doncaster are known to be more prone to groundwater flooding than others due to the naturally high level of the water table level in that vicinity.

Highway Flooding

Highway flooding occurs when surface water cannot access the highway drainage network due to blockages or capacity issues. Some highway gullies connect directly into the sewer network; others have a dedicated highway drainage network specifically for highway surface water. As we are the Highway Authority, we have a duty to manage flood risk on adopted non-trunk roads. National Highways are responsible for maintaining trunk roads while private landowners are responsible for maintaining non-adopted highways.

Reservoir Flooding

Reservoir flooding occurs when a reservoir fails or breaches which results in the stored water escaping and flooding on to the adjacent land and, or properties. Reservoirs are artificially created ponds or lakes that are usually formed by building a dam, across a river or watercourse.

Canal Flooding

Canal flooding can occur due to excessive surface water running off or discharging to the artificially created waterway. Canal flooding can also occur due to breaches of watercourse

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riverbanks into the canal. Canal water levels can vary due to controlled and uncontrolled inflows or lock usage. The relevant Navigation Authority manage the canal network across Doncaster, which is either us or the Canal and Rivers Trust.

Managing Local Flood Risk

This strategy details how we propose to adapt and improve our resilience to changing climate conditions in Doncaster. This strategy is underpinned by the Environment Agency’s vision set out in the [Flood and Coastal Erosion Risk Management \(FCERM\) Strategy for England](#) to create a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100.

The FCERM’s 2020 vision has three long-term goals:

1. **Climate resilient places:** working with partners to bolster resilience to flooding and coastal change across the nation, both now and in the face of climate change.
2. **Today’s growth and infrastructure resilient in tomorrow’s climate:** making the right investment and planning decisions to secure sustainable growth and environmental improvements, as well as infrastructure resilient to flooding and coastal change.
3. **A nation ready to respond and adapt to flooding and coastal change:** ensuring local people understand their risk to flooding and coastal change and know their responsibilities and how to take action.

This Local Flood Risk Management Strategy applies the FCERM’s national vision of implementing flood risk management locally in Doncaster, and details how we aim to reduce the impacts of flooding now and in the future. To have realistic and deliverable objectives (or outcomes), it is essential that the measures to achieve these are pragmatic. The actions to achieve these objectives will provide a clear understanding in how local flood risk will be managed by us and other RMAs. The objectives will deliver the statutory requirements whilst incorporating objectives from other plans and strategies.

Our five strategic aims to support the national FCERM strategy

1. Continually improve our understanding of flood risk in Doncaster
 2. Promote flood risk management schemes to better protect communities, homes, businesses, and land in Doncaster
 3. Work in partnership with other Risk Management Authorities
 4. Encourage flood resilience measures in local planning policy
 5. Improve local knowledge and awareness
-

How are we going to do it?

This following tables include:

- Aims, which support the FCERM three long-term targets
- Objectives to deliver each aim
- Measures showing how the objectives will be achieved
- Outcomes expected from each aim

We are in the process of recovering from the effects of the coronavirus pandemic and coping with the rising cost of living. There is an opportunity to work with the Government's mantra of 'building back better' and Doncaster's Delivering Together aim of 'Thriving people, places and planet' by putting flood and climate resilience, and nature recovery at the heart of future plans. The following tables outline how flood resilience in Doncaster will continue to improve over the next 6 years (2023 – 2029).

Aim 1: Continually improve our understanding of flood risk in Doncaster

Objective	Measure	Outcome
a.) Identify and address gaps in knowledge	<ul style="list-style-type: none">▪ Utilise the Connected by Water partnership to understand the interactions of all sources of flood risk across the catchment.▪ Improve technology to monitor and record drainage network capacity across the borough.▪ Develop a detailed Level 2 Strategic Flood Risk Assessment for Doncaster. Use this to identify the flood risk zones and flood risk management schemes alongside potential sites for development.	<ul style="list-style-type: none">✓ Develop and maintain good working relationships with other RMAs.✓ Develop the interactive GIS Dashboard to monitor and record the city's drainage network capacity.✓ Utilise information to target actions, which may reduce and mitigate risk more effectively and efficiently.
b.) Investigate and report on flood events across Doncaster	<ul style="list-style-type: none">▪ Respond to reports of flooding and gather evidence.▪ Complete Section 19 reports as defined in Section 19 of the Flood and Water Management Act 2010.	<ul style="list-style-type: none">✓ Learn from experiences to improve future response to flooding.✓ Add to the evidence base of flood data.
c.) Review existing flood alleviation schemes and identify future schemes	<ul style="list-style-type: none">▪ Develop an asset register to establish where future schemes may be required.▪ Collaborate with other RMAs investment programmes.	<ul style="list-style-type: none">✓ Use data and evidence to develop a strategic plan of investment for a resilient and sustainable city for the future.

Aim 2: Promote flood risk management schemes to better protect communities, homes, businesses, and land in Doncaster

Objective	Measure	Outcome
<p>a.) Improve the physical environment by creating multi-benefit spaces across the city that includes flood risk management schemes</p>	<ul style="list-style-type: none"> ▪ Identify sites suitable for flood risk management schemes in relation to specific sources of flood risk. ▪ Utilise our land to adapt green spaces into multi-purpose spaces, including the construction of surface water storage areas. 	<ul style="list-style-type: none"> ✓ Co-created flood risk management schemes, which the community take ownership, utilise, and help maintain. ✓ Installation of property flood resilience (PFR) measures and the uptake of SuDS in gardens and/or communities ✓ Achieve Biodiversity Net Gain
<p>b.) Work in partnership to deliver flood risk management schemes</p>	<ul style="list-style-type: none"> ▪ Co-ordinate project capital and maintenance programmes with EA, South Yorkshire Mayoral Combined Authority (SYMCA), IDBs, YW, STW, the Coal Authority and Network Rail. 	<ul style="list-style-type: none"> ✓ Increased funding opportunities for flood alleviation schemes, which deliver multiple benefits. ✓ Partnership working between different RMAs. ✓ Minimise the impact of flooding to community services, critical infrastructure, and key transport links. ✓ Aim to reduce flood risk and avoid loss of life to people and existing residential properties.
<p>c.) Create a maintenance plan to manage flood risk management assets</p>	<ul style="list-style-type: none"> ▪ Utilise the Connected by Water partnership to collaborate maintenance programmes. ▪ Create a rolling maintenance schedule to keep assets in good condition. ▪ Work with other RMAs to align maintenance programmes. 	<ul style="list-style-type: none"> ✓ A city-wide maintenance programme. ✓ Sustainable working practises that help mitigate flood risk.

<p>d.) Incorporate flood risk management into wider policies and strategies delivered by us, such as Doncaster's Environment and Sustainability Strategy 2020-2030</p>	<ul style="list-style-type: none"> ▪ Seek and secure funding contributions to deliver flood alleviation schemes 	<ul style="list-style-type: none"> ✓ Integrated approach to flood risk management
<p>e.) Develop flood risk management schemes to encourage inward investment into Doncaster</p>	<ul style="list-style-type: none"> ▪ Allocate flood risk management schemes in areas identified as socially deprived based on the Indices of Deprivation ▪ Reduce the economic damage to residents and properties. 	<ul style="list-style-type: none"> ✓ Reduce economic damage to residents and properties. ✓ Installation of nature-based solutions may result in the creation of green jobs and enhanced attractiveness for potential businesses and developers. ✓ Increased social value of the area close to flood alleviation schemes. ✓ Stimulate local economic growth.

Aim 3: Work in partnership with other Risk Management Authorities

Objective	Measure	Outcome
<p>a.) Work with Connected by Water partners in a co-ordinated way to assess risk, allocate funding and seek joint mitigation to address risks</p>	<ul style="list-style-type: none"> ▪ Share data and modelling on local flood risk. ▪ Engage with other RMAs in assessing all sources of flood risk. 	<ul style="list-style-type: none"> ✓ An integrated flood risk model for Doncaster to help inform decision-making and policy. ✓ Understanding of the risk of flooding from all sources, including interrelated flood risk, both now and considering climate change implications. ✓ Openness and transparency of flood risk management on a catchment scale.
<p>b.) Contribute to local, regional, and national working groups/ partnerships/ committees</p>	<ul style="list-style-type: none"> ▪ Attend and contribute to Yorkshire and Trent Regional Flood and Coastal Committee (RFCC) meetings ▪ Attend and contribute to Yorkshire integrated catchment solutions programmes (iCASP). ▪ Be a key partner in developing and delivering the Humber 2100+ Strategy ▪ Be a key partner in developing and delivering the River Don Source to Sea - Nature Based Solutions Programme ▪ Have an officer sit on the Isle of Axholme delivery board ▪ Have an officer sit on the Torne Catchment Partnership ▪ Be a key partner on the Midlands Service Improvement Group 	<ul style="list-style-type: none"> ✓ Sharing of expertise and local understanding of the unique hydrological situation across Doncaster ✓ Sharing of best practices currently used in flood risk management in a wider context ✓ Partnership working between different RMAs

	<ul style="list-style-type: none"> ▪ Have an officer sit on an Internal Drainage Board 	
c.) Work in partnership to prepare for and respond to future flood events	<ul style="list-style-type: none"> ▪ Maintain communication with emergency planners. ▪ Maintain communication with volunteer flood wardens. 	<ul style="list-style-type: none"> ✓ Effective and efficient partnership working with emergency planners, flood wardens and responders to plan for current and future flood risk.

Aim 4: Encourage flood resilience measures in local planning policy

Objective	Measure	Outcome
<p>a.) Work with the unique hydrological situation across the borough when allocating sites for future development</p>	<ul style="list-style-type: none"> ▪ Develop a detailed Level 2 Strategic Flood Risk Assessment for the borough. Use this to identify the flood risk zones and flood risk management schemes alongside potential sites for development before allocating future use of sites. ▪ As statutory consultee on planning applications, provide guidance and advice on SuDS delivery. 	<ul style="list-style-type: none"> ✓ Identification of suitable areas for appropriate, sustainable, and resilient development. ✓ Well-designed, flood resilient properties that the resident will understand and value. ✓ Use and implementation of local policies and guidance, such as the SPD and this strategy. ✓ Ability to adapt to climate change. ✓ Ensuring developments are consistent with National Planning Policy Framework (NPPF).
<p>b.) Aim to create a blue-green catchment with SuDS to provide multiple benefits: water quantity, water quality, habitat and ecology, amenity and health and climate adaptation</p>	<ul style="list-style-type: none"> ▪ Introduce policies in relevant strategies and plans, e.g., Local Plan Policy 26, to retrofit blue/ green infrastructure across Doncaster. ▪ Install SuDS features on council buildings/ council owned land as part of redevelopment or flood alleviation schemes as examples. ▪ Develop a SAB under Schedule 3 of the Flood and Water Management Act 2010, which ensures SuDS are fit for purpose, designed and built in accordance with the SuDS Manual, and will be maintained for the lifetime of the development. 	<ul style="list-style-type: none"> ✓ Ability to adapt to climate change. ✓ Achieve Biodiversity Net Gain ✓ The installation of SuDS under the SAB will aid the Green Infrastructure Framework under the government's 25 Year Environment Plan. ✓ Achieve multiple environmental benefits in single locations. ✓ Better amenity value of the urban environment for people, wildlife, and plants.

Aim 5: Improve local knowledge and awareness		
Objective	Measure	Outcome
a.) To increase community awareness of flood risk	<ul style="list-style-type: none"> ▪ Acknowledge that individuals and communities have a role to play in reducing flood risk as well as in reducing potential effects of flooding. ▪ Ensure flood risk awareness and resources are widely available across communities, including knowledge of flood warnings, support to create flood plans and promote awareness and installation of PFR. ▪ Increase the holistic approach to flood risk management, broadening further the range of departments involved, including urban planning, emergency planning and the Highways Authority. 	<ul style="list-style-type: none"> ✓ Greater collaboration achieved. ✓ Individuals, communities, and businesses that are more resilient to flooding and climate change.

This strategy outlines our approach to addressing flood risk management over the next six years. There are many measures needed to achieve the outcomes of each strategic aim to build long term and sustainable flood resilience across the region. Some measures will require action that exceeds the six-year strategy, particularly those measures associated with climate change.

We are reviewing a pipeline of projects. Our current projects are available to view on our website.

Working towards a resilient future

In Doncaster, people are at the heart of everything we do. Over the next six years, changing people's perceptions about water will be a key component of our approach to flood risk management. There are several ways to communicate flood risk awareness and to reach a wide audience; we will continue to use innovative methods to do so. Partnerships are an integral part of what we do. We have a variety of examples of successful partnership working on a local and a national scale.

Engagement	Within the community to increase personal resilience
	Through schools to educate the climate champions of the future
	With stakeholders to bring together organisations, to improve flood resilience and recovery
Schemes	Delivering nature-based solutions to support wider environmental objectives
	Promoting a better relationship between people and the environment
	Delivering new and maintaining existing flood risk management schemes to reduce local flood risk

Community Engagement

Community engagement is an essential aspect of communicating flood risk awareness. Some of the main reasons for this are outlined below.

- Improving the understanding of local flood risk through the sharing of local knowledge.
- An opportunity for communities to come together and help tackle a common issue.
- Supporting local flood community champions.
- Providing advice and support to communities to improve their flood resilience.

Examples of some of the activities that we undertake to engage with the local community are outlined below.

Flood Wardens

Flood wardens are a vital link between us and the communities they serve. Flood wardens are volunteers that help ensure flood warning messages reach the local community. Flood wardens act as the eyes and ears of the multi-agency response by providing updates about the situation on the ground. Flood wardens have a direct line to the Environment Agency's and our Flood Liaison Officers. During flood events, flood wardens have several duties including:

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- Keeping the Environment Agency duty officers and our Flood Liaison Officers informed of river levels.
- Liaising with the Local Authority Neighbourhood Manager and Teams.
- Making sure that local people are aware of the situation and encourage them to act
- Helping to identify and support the most vulnerable people in their community.
- Co-operating with the emergency services.
- Keeping a log of events and actions taken.
- Taking photographs of flooding.
- Reporting flooding to relevant RMAs or reporting issues such as blockages which could lead to flooding.

Community Engagement Meetings

As part of the process of delivering flood risk management schemes across Doncaster, community engagement is vital in ensuring the wide range of benefits are achieved. Hosting meetings in local shared spaces, such as community centres, gives local people an opportunity to share their views and expertise on any plans or proposals before construction begins.

Similar meetings were held following the November 2019 flood event, which gave affected communities the chance to question and discuss our response, as well as other RMAs. This helped to build our understanding of the flooding and its impacts, which has been utilised to improve our response during subsequent and future flood events.

Stakeholder engagement

Stakeholder engagement is another vital aspect of communicating flood risk, as outlined below:

- It helps to identify gaps between industry and communities.
- It allows us to feed into the way industries, such as insurance, deal with flood recovery.
- It brings together a wide range of organisations to support interdisciplinary approaches to flood risk management.

A selection of the main of RMAs we work with, along with their responsibilities, are listed below.

Risk Management Authority	Risk Management Functions
Environment Agency	<ul style="list-style-type: none">▪ Developing long term approaches to FCERM, which includes developing and applying the FCERM strategy.▪ Responsible for delivering projects to manage flood risk on main rivers and the coast.▪ Regulate reservoir safety.▪ Works with other RMAs to prepare and deliver Flood Risk Management Plans (FRMPs). FRMPs explain the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. It

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	<p>also sets out how RMAs will work with communities to manage those risks.</p> <ul style="list-style-type: none">▪ Works in partnership with the Met Office to provide flood forecasts and deliver flood warnings.▪ Looks for opportunities to maintain and improve the environment for people and wildlife.▪ Consultee on minor and major planning applications for sites located within Flood Zone 2 or 3, and in Residual Flood Risk Zones.
Water and Sewerage Companies	<ul style="list-style-type: none">▪ Manage the risk of flooding to public sewers for both foul and surface water and flood risks from the failure of their infrastructure.▪ Ensure their systems have the appropriate level of resilience to flooding, and maintain essential services during emergencies.▪ Maintain and manage their water supply and sewerage systems to manage the impact and reduce the risk of flooding and pollution to the environment. Under Section 94 of the Water Industry Act 1991, they have a duty to ensure that the area they serve is “effectually drained”. This includes drainage of surface water from the land around buildings as well as provision of foul sewers.▪ Provide advice to LLFAs on how water and sewerage company assets impact on local flood risk.▪ Work with developers, landowners and LLFAs to understand and manage risks.▪ Work with other RMAs to coordinate the management of water supply and sewerage systems with other flood risk management work.
IDBs	<ul style="list-style-type: none">▪ General supervisory body for drainage within their district (the Land Drainage Authority).▪ Have regulatory and consenting powers under Section 25 of the Land Drainage Act 1991 and the Flood and Water Management Act 2010 to require works to maintain a proper flow of water in ordinary watercourses in their internal drainage district.▪ Have bylaws to protect watercourses and restrict flow and volume of water.▪ Operate pumping stations, sluices and other flood risk management structures in their internal drainage district.▪ Responsible for the managing the water levels in low-lying areas.▪ Supervise land drainage and flood defence works on ordinary watercourses in their internal drainage district.

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	<ul style="list-style-type: none">▪ Consultee on planning applications. They will be statutory consultees of the SAB once implemented.
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