



# Hull Local Flood Risk Management Strategy 2022 - 2028

Consultation Statement

June 2022

## Background

- 1.1 Hull City Council is the Lead Local Flood Authority (LLFA) and is responsible for creating, maintaining, monitoring, and updating a Local Flood Risk Management Strategy (LFRMS) as required by the Flood and Water Management Act 2010. The Council is responsible for managing the risk of flooding caused by surface water, ground water and Ordinary Watercourses, as designated by the Environment Agency (EA).
- 1.2 The EA published a national Flood and Coastal Erosion Risk Management Strategy (FCERMS) in 2020, which sets out the approach to flood risk management across England. The Council's LFRMS is underpinned by the aims in the EA's national FCERMS.
- 1.3 Hull is at significantly high risk of flooding from rivers, the sea and surface water, and so in addition to the LFRMS the Council must produce a Flood Risk Management Plan (FRMP) to comply with Flood Risk Regulations 2009 and update it every 6 years. The first FRMP was published in the first LFRMS 2015 – 2021. The second FRMP is included in the updated LFRMS 2022 – 2028. Only flood risk caused by surface water is included in the Council's FRMP. The EA are responsible for creating a FRMP for the risk of flooding from the rivers and the sea. The Council have worked in partnership with the EA to develop both FRMPs.
- 1.4 This Consultation Statement includes information on:
  - the persons/ organisations that the Council consulted with when preparing the draft LFRMS;
  - a summary of the main issues raised; and
  - how those issues have been addressed in the LFRMS.

- 1.5 This Consultation Statement accompanies Hull's LFRMS, which provides information on how the Council will manage local flood risk between 2022 – 2028. Following the publication of this Consultation Statement, the LFRMS will be adopted by the Council.

## CONSULTATION

- 2.1 Preparation of the draft LFRMS involved engagement with other Council departments and risk management authorities. The draft LFRMS has been through the Council's committee regime and elected members have had the opportunity to comment on the draft document.
- 2.2 The draft LFRMS was made available for public consultation for six weeks between Friday 8<sup>th</sup> October 2021 and Friday 19<sup>th</sup> November 2021. A public notice to publicise the consultation was placed in Hull Live and promoted on local radio.
- 2.3 The consultation was reported to the Infrastructure and Energy Scrutiny Committee and Cabinet in September 2021.
- 2.4 The draft LFMRS and associated documentation was made available for inspection on the Council's website.
- 2.5 A Flood Risk Management Officer was available each Wednesday throughout the consultation period at Trinity Market for members of the public to view a hard copy of the draft LFRMS, ask questions, collect a response form and provide feedback.

## CONSULTATION RESPONSES AND MAIN ISSUES

3.1 Following the six weeks consultation period the Council received 13 representations. Most of these supported the draft LFRMS and express agreement with the aims of the document. Representations were submitted by local residents, Hull Friends of The Earth, Humberside Fire and Rescue, Trans Pennine Trail, Hull Geological Society, Friends of Garrowby Orchard, Beverley and North Holderness Internal Drainage Board, Natural England, Historic England, Environment Agency, East Riding of Yorkshire council, and Energy and Environment Institute, University of Hull. A summary of these representations together with the Council's response are contained in Appendix 1.

3.2 Most of the responses were supportive of the strategy and it's aims. Main themes of positive feedback include: -

- Existing/ completed flood alleviation schemes – the significant investment that has been achieved in the region, particularly since the 2007 flooding, was recognised and commended. The list of proposed schemes and future investment for the next 6 years was also commended as ambitious and looks forward with the flexibility to adapt to future challenges. The Council's maintenance schedule was highlighted as being suitable to manage the flood risk management assets that are already operational.
- Partnership working – recognition was given to the Council's extensive partnership working and ambitious plans set out in the LFRMS. The Council recognise that we can only achieve so much by working alone, but by working together with other organisations and communities across the city, so much more can be achieved. Partnership working opens up further opportunities to work together with different organisations and communities to unlock new ways to address the current and future flood risk challenges in Hull.

- Educational outreach – The Council lead and support on a range of outreach activities, including educational outreach. The previous and ongoing work, particularly with school children through the Living with Water (LwW) partnership is commended. As is the Council's involvement and support of university research projects to ensure that we are kept up to date with the latest flood innovation.

### 3.3 The main issues raised through the consultation were: -

- Structure and accessibility of the strategy – some responses noted that the document was too long and hard to follow and that this reduced the impact that this strategy is intended to have. This was an issue that has been address because the LFRMS is intended to be accessible across all levels of engagement, from organisations to communities.
- Community engagement – some responses said that there needs to be more community engagement between the Council and members of the public, particularly through existing community groups. Responses also said that the role of individuals in personal flood resilience is not clear in the strategy. Responses questioned the availability of funding and insurance for deprived areas, which could lead to flood poverty.
- Climate change – responses recognise and support the importance of using nature-based solutions to manage local flood risk. It was raised that the LFRMS does not recognise the impact flooding could have on the historic environment. It was also raised that the LFRMS does not focus enough on rising sea levels and the increased tidal flood risk this brings to Hull or on groundwater flood risk.

### 3.4 The main changes made to the LFRMS in response to the consultation feedback are detailed below and in Appendix 1.

## MAIN CHANGES TO HULL'S LOCAL FLOOD RISK MANAGEMENT STRATEGY

4.1 The responses to the consultation have been considered in preparing the final LFRMS and the main changes are summarised below:

- The main strategy document has been restructured into 5 shorter chapters that will make it easier to access and understand. The main strategy document is supported by 10 appendices, which we previously included in the main strategy document, and they contain technical information. This has led to the main strategy document significantly reducing in length and focusing on the aims, objectives, measures and outcomes for maximum impact.
  
- Chapter 1
  - the introduction has been shortened in length by moving some of the content into Chapter 3, where it is more relevant.
  
- Chapter 2
  - Understanding flood risk summarises the local flood risk situation and uses the City Water Resilience Approach to set the strategic position of flood risk management, with technical information being moved to Appendix 3.
  - Information has been added to include governance of flood risk management, including leadership and strategy, and infrastructure and ecosystems.
  - Information was added at the end of Chapter 2 to provide information in the implementation and review of the LFRMS, highlighting that this is a document that will be adapted and updated as and when required in line with legal requirements.

- Chapter 3
  - Managing flood risk provides the core of the strategy presented in 5 tables, each with a strategic aim supported by objectives, measures and outcomes.
  - 1 new objective and associated measures and outcomes has been added to Table 2 – aim 2 in relation to areas of archaeological importance.
  - 2 new objectives and associated measures and outcomes have been added to Table 3 – aim 3, to demonstrate the Councils proactive approach to flood resilience and innovation.
  - 1 new objective and associated measures and outcomes has been added to Table 5 – aim 5 to ensure designated sites of nature conservation importance are protected.
  
- Chapter 4
  - No edits were made to this chapter.
  
- Chapter 5
  - Additional examples of the flood risk-related research that HCC are supporting at the University of Hull have been included to show the vast variability of research the Council supports to improve our understanding and actions to flood risk management.

## APPENDIX 1: SUMMARY OF REPRESENTATIONS

Respondent	Comments received	Council response
Local resident	<p>A clearer explanation of where flood water from the Castle Street underpass pumping station is to be stored to avoid pumping into the existing trans-city main drain when an incident is occurring.</p> <p>Planting trees, green roofs and water butts will not reduce the water table in the Hull and East Riding of Yorkshire area.</p> <p>Much of Hull and East Riding of Yorkshire is a flood plain and rising sea levels will soon find any weaknesses in the defences.</p> <p>Because of climate change, Yorkshire Water are forecasting water shortages. Since the 2007 floods Yorkshire Water recommenced pumping (fresh water) at Springhead pumping station. Consider constructing large water tanks, as used in World War</p>	<p>Information on individual schemes and their associated Flood Risk Assessments can be found on the Council's Planning Portal.</p> <p>Agree. The Blue-Green Plan the Council are working on delivering with other Living with Water partners is aimed to address surface water and sewer flood risk, not groundwater. The Council will be leading on a groundwater flood risk project over the next few years.</p> <p>RMA's all work together to ensure a consistent standard of protection is applied to flood and coastal defences, most notably in the new Humber Hull Frontages.</p> <p>Noted but not always practical. Hull is a well-developed city and so we are looking at ways to retrofit sustainable drainage above ground rather than building more underground storage tanks. Sustainable drainage can deliver multiple benefits and help build climate and flood</p>

	<p>2, in gardens to replace water butts (I have 4.5 water butts) as they soon fill up. Provide a tap to empty into the drain when conditions allow.</p> <p>If more freshwater pumping stations are constructed in the Hull and East Riding of Yorkshire area this would contribute to water shortage anticipated with climate change. This would reduce the water table in the whole area. Thus, creating a city and country-wide green sponge to absorb future heavy rains. This occurred in the Springhead area after 2007.</p> <p>Consider Building Regulations to make houses more watertight. A solid foundation allows water into a property around the membrane edges (usually behind skirting boards) and between joints in the membrane. Suggestion: - insist on bitumen covering over the whole foundation to an acceptable height up the wall.</p>	<p>resilience across the city.</p> <p>Much of Hull is included within Groundwater Source Protection Zones and so abstraction of water from the aquifer is managed by Yorkshire Water and the Environment Agency.</p> <p>Hull City Council responds to all major planning applications and request that homes are built with flood resilience measures. The Council are also working to raise the profile and increase the uptake of property flood resilience across the city to reduce the chance of water entering a home and reducing the damage if water does enter.</p>
Local resident	More should be done to persuade big businesses to become more eco-friendly.	Agree. The impacts of climate change are going to have implications on every level and so a more joined up approach to climate change and environmental awareness and action is welcomed by the Council. Work is ongoing across multiple council departments to

	<p>People won't listen until it's too late.</p> <p>I felt the strategy was focused more on survival and not enough on prevention/ reversal.</p>	<p>maximise the potential to work towards a more sustainable and resilient city.</p> <p>The Council and LwW partners are trying to raise awareness of flood risk in Hull and East Yorkshire so that people can improve their levels of resilience for future flood events. Currently uptake of flood warnings is low and so we are continually trying new ways to engage with communities.</p> <p>Significant investment (over £220 million) has been spent on flood infrastructure in Hull and East Yorkshire, but these defences do not protect against every source of flood risk or every possible event magnitude. The predicted impacts of climate change on flood risk mean that we need to prepare for more frequent and more intense rainfall, which increases flood risk. The EA's national FCERM strategy focuses on building and improving resilience because it is becoming widely acknowledged that we cannot prevent every flood event from happening, so instead we are focusing on building resilience so that communities can recover faster and be</p>
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		less impacted by the effects of flooding.
Hull Friends of the Earth	<p>How will homeowners access funding for Property Flood Resilience. If only 4 properties in the city have so far been retrofitted then there is currently a lack of impetus. As the document points out on page 70, if insurers are expecting that people take resilience measures, then there is going to be great inequality and flood poverty. To state that there will be 'an expectation that those benefiting from the infrastructure should contribute' needs to be communicated. Community engagement and communicating the risks should be a priority.</p> <p>The statement on page 11 that Hull City Council does not have a statutory responsibility to prevent flooding but rather limit the risk and impact in the short and long term needs to be made clearer especially in respect to taking a 'more holistic approach to managing local flood risk and to combat environmental issues associated with climate change.' Whilst engineered solutions can offer short term remedial risk reduction planning applications should be considered in the holistic approach in managing risk. This should include the impact on the environment they may have.</p>	<p>Property flood resilience is the responsibility of the homeowner. Previously, the Government has offered recovery grants to homeowners and businesses affected by flooding. To qualify for the funding a specific number of homes must have flooded. The Council has been responsible for administering these grants in the past. The EA's national FCERM strategy and associated Action Plan set out how people, including individuals and communities, can play a role in flood risk management. The LwW partnership will continue to carry out community engagement to raise awareness of local flood risk and ways people can improve personal resilience.</p> <p>Agree – the role of the natural environment has the potential to play a vital role in flood risk management as well as building resilience to climate change and boosting local biodiversity. This is recognised in Appendix 3. The LwW Blue-Green vision uses the natural/ semi-natural environment in its long-term approach to surface water flood risk management by working with nature and the environment.</p>

	<p>The holistic approach already mentioned has to apply more broadly in how HCC implements and manages its strategies e.g., the economic strategy that encompasses transport. The flood strategy document does recognise nature-based solutions to flood risk but HfOE feels that green infrastructure can be utilised more. If residents and businesses of the city are to be asked to contribute more for flood resilience, then putting this contribution into more engineering solutions is not a way forward.</p> <p>More community engagement is needed. Whilst HCC can emphasise the flood risk to residents there needs to be an option of how residents can contribute/engage to the strategy. Section 7 does include community engagement for a more resilient future. The word 'community' can be a vague term as most 'communities' are not homologous but rather more complex. There already exists in the city a network of groups that are embedded in their locales. Engagement with these groups (partnerships) would be a more productive and expedient way forward for achieving the outcomes.</p>	<p>Agree, the LwW Blue-Green Plan will utilise green infrastructure across targeted areas of the city. Also, with the Environment Act 2021 and the new requirement of Biodiversity Net Gain (BNG), there will be increasing opportunities for green infrastructure to be utilised more over the coming years.</p> <p>The Council raises awareness of flood risk using a variety of methods to involve as many different audiences as possible. Most of our community engagement activities are targeted and often coincide with new flood alleviation schemes.</p> <p>The LFRMS is a high-level document and so specific details on community engagement will be provided with each activity. The Council welcomes the opportunity to work with local residents and communities through existing partnerships.</p>
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	<p>The tables 1 - 5 need to be clearer. The use of row shading (as in the approval schedule) to delineate the columns would make the tables more accessible. The use of letters to identify objectives imply hierarchy; the use of bullet points for actions and outcomes does not align with objectives in the layout. Therefore, a simpler format of shading would help reading.</p> <p>Hull Friends of the Earth recognise the importance of this consultation. To allow as wide a consultation as possible there has to be an accessible format and for it to reach as many residents and businesses as possible. Not everyone has access to electronic media and in a device that can access this electronic format. Reaching out to the next generation is to be commended, especially through education. The use of education sites for nature-based solutions is holistic and encourages engagement.</p> <p>Hull Friends of the Earth welcomes the opportunity to contribute to the consultation. However, for such an important strategy HFoE is aware that there is not much awareness at the level of</p>	<p>This style of formatting was used so that specific sections of the strategy can be referred to and identified in an efficient way. Without lettering or numbering, this would not be possible.</p> <p>The consultation for the draft LFRMS was carried out during a global pandemic. The Council followed national covid rules set out by the UK Government. Great care was given to plan this consultation as safely as possible, especially as local rates of covid were high at the time.</p> <p>For the consultation of the third LFRMS planned for 2028, it is hoped that flood risk management officers will be able to attend Area Committee Meetings where local residents can attend and enquire about the strategy.</p>
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	<p>residents. A once a half a day face-to-face per week for a limited time is not a wide enough reaching out. Using social media reaches only the converted.</p> <p>This pdf format is clunky and whilst this writer is able to use the tools for completing the form there was still instruction required on use of the tools prior to this. This was using a laptop and not everyone has access to this IT.</p> <p>It is recognised this is a document for HCC strategic level use but if there are demands for community Engagement then there needs more emphasis on creating more engaged members of the public, not just for consultation purposes but for actual flood risk communication and responses during flooding events especially if more financial demands are to be placed on them.</p>	<p>This was not possible when this consultation was carried out due to covid.</p> <p>During the consultation the Council offered residents the opportunity to visit a flood risk management officer weekly where they could view a paper copy of the draft LFRMS, collect a paper response form and ask any questions.</p> <p>Agree. As the LwW Blue-Green Vision is delivered across the city, it is hoped that members of the community will be involved from the very beginning of a scheme and will take pride in being community flood champions in the future.</p>
<p>Humberside Fire and Rescue</p>	<p>Consideration to including information about how working with local partners through LRF and actions taking place. This could include preventing, planning and practising for such incidents.</p>	<p>Agree. Text has been added to Appendix 2 to reflect this.</p>

	<p>The plan provides a comprehensive overview of the activities taking place to keep the city safe and the wider challenges that it is to face from potential flooding.</p> <p>The Strategy is ambitious and looks forward although it will need the flexibility to develop as new technologies are introduced, however, in its current format it meets the needs and expectation that are available and deliverable.</p> <p>On pg 39 of the report the document talks about the responsibility of the Cat 1 responders. It would be useful to talk about the work that goes on through the LRF to plan for flooding should it occur. This is wider than the EA as a Cat 1 responder as there would be a clear requirement for Fire Service attendance and the use of local and potentially national assets in an immediate phase of flooding. Plan, evaluate and respond would be beneficial in this section demonstrating wider preparation and involvement from past experiences - shaping future practice.</p> <p>Consideration to working closely with partners in the future regards the</p>	<p>Support is welcomed.</p> <p>Agree - the LFRMS has evolved since the first version was published in 2015, which reflects the fast-changing nature of flood risk management in England. The document will be reviewed and updated when required to reflect the adapting nature of flood risk management.</p> <p>Agree - text has been added to Appendix 2 to reflect this.</p> <p>Support and working in partnership with Humber LRF and Humberside Fire and Rescue is welcomed.</p>
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	<p>'living with water' program - HFRS and many partners engage with the community regularly and with those that are vulnerable - it could be considered that they could support and deliver this message / up skill in knowledge.</p> <p>The document talks about partnership funding and should you feel there is an opportunity for the Fire Service to become involved in such bids whether it be for education facilities or training we would welcome a conversation.</p>	<p>Support welcomed and we will continue to seek ways to work together.</p>
<p>Beverley and North Holderness Internal Drainage Board</p>	<p>There appears to be no allusion to rising sea levels that are predicted as a function of global warming and polar ice melt. Of all cities in the United Kingdom, Hull must be the most vulnerable, particularly if rising sea level coincides with storm surges and high spring tides. This strategy ostensibly looks forward to 2027. While sea-level rise over that period might not be materially significant, especially in the context of current flood defence development, it would be naïve to wait till the threat grows.</p> <p>I am surprised that, while some educational initiatives are in hand, there appears to be no plan to bombard residents with information about increasing</p>	<p>This strategy was not designed to replicate what is in other strategies, such as sea level rise and associated tidal flood risk, rather it provides an overview of what HCCs roles and responsibilities are and how we will carry these out over the next 6 years. The purpose of this strategy is to fulfil 2 statutory duties as set out in Flood Risk Regulations 2009 and Flood and Water Management Act 2010; therefore, this strategy is limited to the next 6 years with an overall insight into longer term, whilst signposting to existing/ ongoing work by ourselves and partners.</p> <p>In relation to PFR the Yorkshire Pathfinder project worked with us to raise awareness with residents about PFR and we continue to raise awareness at engagement</p>

	<p>property flood resilience, perhaps even carrying the message to street level with a mobile exhibition.</p> <p>Although flood water detention is illustrated, there seems to be no allusion to the large Castle Hill Flood Detention Ponds. Neither is the renewal of the East Hull Pumping Station mentioned, regardless of the fact that it is a responsibility of the EA. I also see no allusion to the ageing Hull Flood Barrier (now &gt;40 years old) and its likely need for replacement, particularly in the context of rising sea-levels.</p> <p>Even though the strategy is written for a non-specialist audience, I would suggest rectification of inexactitudes or flawed items in order to retain full credibility. So, e.g., in the Figure on p. 44, the delimitation of the River Hull catchment is demonstrably incorrect as is the full course of the River Hull. The description (p. 46) of elements of the local geology is deficient; the description (p. 48) of surface water flooding might, in places, be considered primitive; and, despite no doubt valiant efforts by local university students, proof-reading requires further attention e.g. “aquafer” (sic).</p>	<p>events with local communities.</p> <p>Only completed schemes are listed in the LFRMS and so ongoing projects will be included in an update of this document in the coming years.</p> <p>The Council are working in partnership with the EA and other RMAs across the Humber to develop a long-term strategy to manage increased tidal flood risk and rising sea levels.</p> <p>The map on page 44 will continue to be used as it fits the purpose of this strategy and is clear for people to recognise and understand. It has also been used in other published documents.</p> <p>All information within the LFRM, including geology, is a summary of what is published in other documents and strategies. The LFRMS is designed to sign-post to other documents rather than repeat what has already been written.</p>
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<p>Trans Pennine Trail</p>	<p>The draft strategy makes strong references to:</p> <ul style="list-style-type: none"> <li>~ Rolling maintenance schedule</li> <li>~ Robust partnership working</li> <li>~ New developments to refer to strategy during planning stages</li> </ul> <p>The Trans Pennine Trail runs along the Foreshore in Hull and the partnership has been involved in discussions with our partners at Hull City Council and the Environment Agency to see how a better quality and alignment of route can be forged as part of the recent works along the foreshore.</p> <p>The TPT partnership would welcome and support continued partnership working to see how both the TPT and other sustainable transport routes can be accommodated and built to LTN1/20 standards during any future works.</p> <p>The foreshore is a wonderful visitor attraction in its own right and it is important that this is protected and enhanced to be fully accessible wherever possible whilst also acknowledging the significant impact of high-water levels, sensitive biodiversity and the need to protect all assets.</p> <p>The Trans Pennine Trail Partnership holds a list of projects needing funding across the network locally. These have been brought together with our partners at Hull City Council.</p>	<p>Support welcomed and the Council will continue to work in partnership with Trans Pennine Trail.</p>
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<p>Hull Geological Society</p>	<p>There is nothing in the strategy that would affect any geological sites, so no comments provided.</p>	<p>No response required.</p>
<p>Friends of Garrowby Orchard (FoGO)</p>	<p>Again, I have not answered these questions as there is too much text relying on residents ability to read and understand a very academic document aimed at RMAs and other agencies and stakeholders at strategic level. If there is an intention as stated in the draft strategy document to engage with communities in Hull then there MUST be an accessible format and/or engage via face-to-face consultation by invitation. Merely to have a one afternoon a week for limited time opportunity in the centre of the city is not reaching out to the residents and businesses that have been and will be impacted by this document.</p> <p>Many members of FoGO are already acting as flood wardens in their locale and in contact with HCC flood team when there is severe events that will increase the surface water run off in their area. These residents need to be contacted direct and invited to the consultation.</p>	<p>The passion and local knowledge of local residents to want to be involved in flood risk management is commended. As opportunities arise in the future the Council welcome working in partnership with FoGO.</p> <p>For accessibility, see comments above.</p> <p>We do not have the resources to invite residents personally but we have added community groups to our list of consultees so they will be directly asked to respond to future consultations. The awareness of flood risk is increasing, and we hope to get many more organisation and community groups added onto our list for future engagement.</p> <p>Again, all residents cannot be invited to every event we do as we do targeted events based on schemes / work we are doing e.g., through the Tenants Participation Scheme.</p> <p>Support acknowledged and welcomed.</p>

	<p>The role of nature-based solutions in a holistic approach is welcomed by FoGO members as many live near to the Willerby Carr Dyke aqua green and the WADFAS lagoon. They can see the flood risk reduction projects in action and understand the mix of engineering and nature-based ways of managing the surface water runoff. However, many have commented on the fact that their concerns were not heeded during the planning process for a development to be built on and around the Willerby Carr aqua green. Whilst the plans for the development demonstrated how the development would aim at being flood resilient this did not seem to extend beyond the red line of the development itself. If, as the strategy document states, those benefiting from improvements to the flood risk management infrastructure will have to pay more economically in some way, it seems unfair that even though a development may meet current NPPF guidelines it may have unintended consequences for its neighbours and downstream that are not currently mitigated for by law or guidelines. Property flood resilience is all well and good but if residents invest</p>	<p>Residents are urged to continue consulting on planning applications so that local knowledge can be taken into account.</p> <p>New developments must adhere to strict drainage requirements that do not pose an increased flood risk outside of the site of development.</p> <p>Gov offer grants after flood events if thresholds are met. The last lot of PFR grants were in 2013 and businesses</p>
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	<p>in this resilience they have to have some say in how the strategy will impact them if the outcomes of the consultation are not to be used in determining future developments. Property flood resilience also relies on a level of economic resilience which many residents in the NW Derringham Ward do not have. If only four properties in the city have been retrofitted with this resilience this does not bode well for residents who can least afford any retrofitting will be impacted most by future flooding.</p>	<p>and homes were offered it, many businesses used it. There is a shift to becoming more proactive going on in policy and insurance that will affect individuals.</p>
<p>Natural England</p>	<p>The graphic on page 47 is very confusing, hard to determine what is going on here. Suggest a more suitable graphic is made. It may make more sense if a cross-section of land is used to demonstrate groundwater better.</p> <p>Page 58: It may be useful to add a line in regarding how cost-effective nature-based solutions are. Could add swales here, 'bioswales' could be a very useful tool to reduce flooding in Hull. Please reference sentence on grasslands.</p>	<p>Initial feedback on the graphic has been positive as local people recognise key features and this helps to visualise flood risk across the city.</p> <p>Agree – text added to Appendix 3 on how NBS require less upfront costs and maintenance as they are mainly self-sustaining and don't need replacing in the same way as hard engineering that have set working life. Bioswales has been added to the list of examples.</p>

<p>Historic England</p>	<p>Thank you for providing an opportunity to consider and comment on the emerging Hull Local Flood Risk Management Strategy which is of particular interest to Historic England for the following reasons:</p> <ol style="list-style-type: none"> <li>1. The vulnerability of most heritage assets (designated and non-designated) to flooding, including occasional flooding, and the potential harm to, or loss of, significance as a result of changes to water catchment areas;</li> <li>2. The potential impact of flooding and flood prevention measures on heritage assets and their settings, including impacts on water-related or water dependent heritage assets;</li> <li>3. The potential impact of changes in groundwater flows and chemistry on preserved organic and palaeoenvironmental remains: where ground water levels are lowered as a result of measures to reduce flood risk, this may result in the possible degradation of remains through de-watering, whilst increasing groundwater levels and the effects of re-wetting/ changes in salinity brought about by coastline modification could also be harmful;</li> <li>4. The potential impact of hydro-morphological adaptations on heritage assets: this can include the modification/removal of historic in-channel</li> </ol>	<p>The Council welcomes the response from Historic England and will continue to work in partnership to preserve and enhance the historic environments in Hull.</p>
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	<p>structures, such as weirs / coastal and estuarine features such as historic sea defences; as well as physical changes to rivers/the coastline with the potential to impact on archaeological and palaeoenvironmental remains;</p> <p>5. The potential for unrecorded deeply buried and waterlogged archaeology within the 'natural' floodplain/estuarine / coastal deposit sequence;</p> <p>6. The potential implications of flood risk on securing a sustainable use for heritage assets, including their repair and maintenance;</p> <p>7. The opportunities for conserving and enhancing heritage assets as part of an integrated approach to flood risk management and catchment-based initiatives, this includes sustaining and enhancing the local character and distinctiveness of historic townscapes and landscapes;</p> <p>8. The opportunity for increasing public awareness and understanding of appropriate responses for heritage assets in dealing with the effects of flooding as well as the design of measures for managing flood risk and improving resilience; and,</p> <p>9. The opportunities for improving access, understanding or enjoyment of the historic</p>	
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	<p>environment and heritage assets as part of the design and implementation of flood risk management measures.</p> <p>Historic England advise the local authority to consider each of the above to inform an appropriate and positive response to the historic environment in the strategy. At present there is no reference in the strategy to the potential implications of flooding, and flood management measures, for the historic environment.</p> <p>Evidence gathering</p> <p>Where appropriate, Historic England recommends the collection, assessment and monitoring of specific baseline information when developing and implementing the flood risk management schemes outlined in Table 7 of the strategy, in order to understand their potential impact on the historic environment. This could include identifying the potential for buried, waterlogged archaeological and palaeoenvironmental remains of significant interest and fragility that can be associated with river valleys, floodplains, estuaries, coastal and wetland areas. In particular,</p>	<p>Agree – text added to include historical environment in to ‘effects of flooding’ in environmental list in Appendix 3.</p> <p>Agree – objective, measures and outcomes added to Aim 2 to ‘take into account areas of archaeological importance and the potential for unrecorded archaeology’, including working with the Humber Archaeological Partnership.</p>
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	<p>this exercise should take account of areas of archaeological importance and the potential for unrecorded archaeology (NPPF para 192 and footnote 68) and seek to establish the following:</p> <ul style="list-style-type: none"><li>• the significance of the archaeological remains?</li><li>• its condition, the burial environment and state of preservation?</li><li>• the likely impact of development activity (e.g. potential removal or dewatering from the proposed scheme) on that significance and state of preservation?</li></ul> <p>Baseline information in such environments archaeological remains can be:</p> <ul style="list-style-type: none"><li>• deeply buried archaeological remains, which means that they are unlikely to be identified by standard approaches;</li><li>• waterlogged archaeological remains, which would mean they are likely to be rare and potentially important, but might require greater resources to excavate and subsequently deal with.</li><li>• Indirectly impacted archaeological remains: currently well-preserved known and unrecorded, designated and non-designated buried archaeology in the vicinity which may be adversely affected by changes to the water environment.</li></ul>	
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	<p>In accordance with the NPPF where nationally important archaeology owes its significance to waterlogging and is in proximity to the scheme, to conserve its significance and avoid harm, changes in the water environment should be avoided which may be cause harm.</p> <p>Waterlogged archaeology may be nationally important if it is well preserved, rare, of exceptional significance and evidence exists for it to be understood in terms of its contemporary landscape context.</p> <p>Although it may be appropriate for this evidence gathering and assessment to take place at the more detailed design / application stage it is important to raise these issues now as part of the strategy document and signpost how they might (further down the line) be tackled as</p> <p>the consideration of waterlogged archaeology may be costly to deal with and deep floodplain, estuarine and coastal deposits difficult to evaluate by standard techniques.</p> <p>The approaches required may include deposit modelling and assessing the probable condition and state of preservation of any buried archaeology. As these are not techniques regularly used in all desk-based assessments, the need for</p>	
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	<p>them to inform the design stages of water-related proposals should be appreciated early on. This will help to reduce the risks for the development as well as maximising archaeological understanding and consistency with national planning policy.</p> <p>The strategy should identify the need for a deposit model, based on existing borehole and other information, as well as a preliminary assessment of the likely state of preservation of any buried archaeological remains, based on previous archaeological work in the locality.</p> <p>Further advice on the preservation and survival of archaeological (in particular waterlogged) remains can be found in our guidance 'Preserving Archaeological Remains', which is available via the Historic England website:</p> <p><a href="http://www.historicengland.org.uk/preserving-archaeologicalremains">www.historicengland.org.uk/preserving-archaeologicalremains</a></p> <p>Guidance for deposit modelling is in preparation but advice can be sought from our Regional Science advisors: <a href="http://www.historicengland.org.uk/scienceadvice">www.historicengland.org.uk/scienceadvice</a></p> <p>Please note also that in order to take account of unrecorded and non-designated archaeology, the Historic Environment Record should be referred to, and the views of local authority</p>	
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	archaeological expertise sought.	
Environment Agency	<p>On the whole we are satisfied with the document but would like to amend some slight inaccuracies:</p> <p>Humber Basin FRMPs and RMBP.</p> <ul style="list-style-type: none"> <li>On page 13 reference is correctly made the Humber Flood Risk management Plan, but the link provided is for the Humber River Basin Management Plan. Please could the links be checked and updated.</li> <li>On page 88 reference is made to the Humber basin management plan 0- this should be the Humber Flood Risks management Plan.</li> <li>Updates to both of these plans are currently out for consultation, though the review cycle/updates are not referred to.</li> </ul> <p>Humber 2100+</p> <ul style="list-style-type: none"> <li>We very much welcome the reference to Hulls involvement as a key partner in H2100 in the Actions in table 4. However the text still refers to the Humber Comprehensive Review. This review has been superseded by H2100+, therefore we would suggest a change in wording to simply: “Be a key partner in the development and delivery of H2100+”</li> </ul>	<p>Link amended.</p> <p>Text amended.</p> <p>The updated plans and strategies will be included in the next update of this strategy (estimated 2025) once they are published.</p> <p>Agree - wording amended in table 4 to “be a key partner in the development and delivery of H2100+”</p>

<p>East Riding of Yorkshire Council</p>	<p>East Riding of Yorkshire Council (ERYC) as a neighbouring Lead Local Flood Authority (LLFA) to Hull City Council (KHCC) provides the following response to Hull's LFRMS2 strategy for the period 2021 to 2027.</p> <p>ERYC will continue to work effectively together in their flood risk management functions as LLFA's. Since 2015, and the production of LFRMS1 for both authorities we have worked collectively together in partnerships to deliver effective flood risk management in the Hull and Haltemprice catchment. This is evidenced through the successful delivery of the circa £55m trio of Haltemprice flood alleviation schemes (Cottingham and Orchard Park Flood Alleviation Scheme (COPFAS), Willerby and Derringham Flood Alleviation Scheme (WADFAS) and Anlaby and East Ella Flood Alleviation Scheme (AEEFAS) and the works across the Humber frontages from Hessle through to Paull.</p> <p>The Living with Water partnership will be key to delivering many of the aims and objectives found within the LFRMS2 and ERYC will support endeavours to strengthen our involvement. Working together with KHCC, the EA and Yorkshire Water will be the only route to providing improved resilience to Hull and Haltemprice, where all sources of risk are</p>	<p>Support welcomed and will continue to work in partnership, particularly through the LwW partnership. No action needed.</p>
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	<p>present. The partnership must continue to use the opportunities water brings to the region to raise awareness of flooding issues and invest in sustainable solutions. In the longer term, much of this important work will be incorporated into the partner Blue-Green Plan for the catchment which colleagues are currently developing.</p> <p>The Council also supports the partnership work ongoing with the Humber 2100+ Strategy, working with Hull City Council and all other Humber authorities, aiming to provide a long-term management of tidal flood risk across the Humber Estuary. In addition, we will continue to work with KHCC to address flood risk in the River Hull catchment, though significant investment has taken place, more is to be done to manage flood risk and water levels upstream of Hull working with the Environment Agency.</p> <p>Moving forward, we will continue to work together to find future opportunities that may arise for funding and the development of projects across our administrative boundaries.</p> <p>The purpose of this strategy is clear from the outset and ERYC supports the aims, objectives and actions set out in this LFRMS2 period to 2027. The Council will work in collaboration with Hull City Council where</p>	
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	<p>can to deliver these aims, particularly those detailed in Aims 4 and 5, working in partnership with other risk management authorities and providing resilience to the wider Hull and Haltemprice catchment.</p>	
<p>Energy and Environment Institute, University of Hull</p>	<p>The half sentence at the top of page 12 seems to set out the purpose. It would be clearer to have a much shorter introduction (in fact, the Executive Summary would serve this purpose well) and then a separate short section about the Purpose of the FRM Strategy.</p> <p>The 5 tables on pages 17-22 set out the core of the strategy. They are clear, logical and easy to understand. However, it is not clear how the six themes set out on page 15 relate to the aims, objectives, actions, and outcomes. The six themes themselves are not clear from the graphic on page 15. We would suggest reworking with the themes as the subject (not the three blue boxes). Moreover, we do not understand why this material appears in the Introduction section and make further suggestions about this in our response to question 18.</p> <p>We are in broad agreement with the aims, objectives, actions, and outcomes. However, we think there are opportunities to go further and would make the following observations/ suggestions:</p>	<p>The introduction has been kept in as it is felt it will help people understand the need for the strategy and what we are doing as a Council.</p>

	<p>Aim/table 3 – we suggest changing this to “exchange and enhance local knowledge and expertise”</p> <p>We feel the strategy could go much further in recognising the internationally leading expertise at the University of Hull in flood and flood resilience - especially within the EEI. Seeking to maximise the benefit of EEI and the University in the city by demonstrating how we working together would further strengthen this important local asset.</p> <p>The strategy recognises the importance of ‘capacity’ in its definition of ‘resilience’ on page 84, but makes little reference to the capacities of individuals and communities. The community point is an important aspect here – there is more we can do to enhance the ability of communities to help themselves.</p> <p>This is an important part of modern-day flood risk management and its growing shift towards ‘flood resilience’ approaches. These approaches are based on the perspective that whilst we should try and actively manage flood risk as best as possible, we cannot prevent every single future flood event partly due to climate changed-induced increases in extreme weather events and increasing urbanisation.</p> <p>Therefore, from a flood resilient perspective, it is important to move from ‘fail-safe’ towards ‘safe-to-fail’ thinking with greater attention paid to reducing</p>	<p>Agreed – aims and objectives have been updated with suggestions.</p> <p>Comment noted. It is hoped that this strategy will act as a signpost to other already published information for communities and residents to build and increase their flood resilience. Targeted engagement occurs when new schemes are planned so that the communities directly affected by the scheme are kept informed and involved. There are supporting documents in the appendices that provide information on personal flood resilience.</p>
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	<p>flood consequences. This raises concerns over whether all citizens are equally able to take the same actions to become flood resilient (Forrest et al., 2020). Their ability to take action can be understood in capacities relating to social capital (e.g. community cohesion, getting/providing help to neighbours etc.), human capital (e.g. social welfare, relevant knowledge etc.), economic capital (e.g. access and availability of flood insurance, home ownership etc.), and urban/natural environment capital (e.g. type and quality of housing, presence of green spaces/impermeable surfaces, urban form etc.).</p> <p>We suggest introducing two additional objectives under aim 3 on page 19 as follows:</p> <p>Objective (c)</p> <p>To establish Hull as an international exemplar of best practice in regional flood resilience</p> <p>Action:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> To share learning, research and successes in flood resilience, including through the City Water Resilience Approach.</li> <li><input type="checkbox"/> To recognise, the University of Hull's Energy and Environment Institute (EEI) as a major flood resilience asset for the city and identify it as the</li> </ul>	<p>Agree – objectives, measures and outcomes have been updated.</p>
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	<p>Council's research and specialist education partner of first choice for flood and climate resilience.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> To encourage and collaborate with experts, especially at the University of Hull/EEI, to establish innovative, world leading approaches to flood risk, flood resilience and climate adaptation</li> <li><input type="checkbox"/> Support education and training of flood risk professionals including the Masters programme in Flood Risk management at the University of Hull</li> <li><input type="checkbox"/> Engage and involve citizens and businesses to increase knowledge and awareness of flood risk and resilience via targeted interventions such as short courses and of educational events in partnership.</li> </ul> <p>Outcome:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Maximised benefit from local assets to optimise flood resilience</li> <li><input type="checkbox"/> Additional recognition achieved with increased support and funding</li> <li><input type="checkbox"/> Increased civic pride, further enhancing business and citizen action</li> </ul> <p>Objective (d)</p> <p>To build capacity to support flood resilience, recognising the capacity of individuals and communities to adapt and respond to flood risk are not all the same.</p> <p>Action:</p>	
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	<ul style="list-style-type: none"> <li><input type="checkbox"/> To acknowledge that individuals and communities have a role to play in reducing flood risk as well as in reducing potential flood consequences.</li> <li><input type="checkbox"/> To ensure flood risk awareness and relevant training is widely available across communities including knowledge of flood warnings (including how to sign up and how to respond), support for citizens, businesses and communities to create flood plans and promoting PLP/PFR awareness and installation support, as well as access and availability of flood insurance</li> <li><input type="checkbox"/> Continue to take a holistic approach to FRM, broadening further the range of council departments involved (eg education, social welfare, health, urban planning, justice and fairness, community facilities, and others).</li> </ul> <p>Outcome:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Siloes broken and greater collaboration achieved</li> <li><input type="checkbox"/> Multiple benefits realized from building flood resilience in Hull.</li> <li><input type="checkbox"/> Citizens, businesses and communities that are more resilient</li> </ul> <p>It is clear that the actions to be taken by the Council, as set out in this strategy will have an impact on reducing local flood risk. Working collaboratively with</p>	<p>Support welcomed.</p>
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	<p>the LWW Partnership and others as well as with citizens, businesses, organisations and communities will prove beneficial. The city and region is at the forefront of flood resilience best practice and this strategy will contribute positively to this continuing. It is critical to maintain and enhance proactive engagement and collaboration across the communities in the region to sustain and improve our position further.</p> <p>The strategy certainly addresses the potential impacts of climate change. It is hard to know what will be sufficient and whether the measures set out in the strategy will be sufficient. In reality, there is likely to be a deficit between the action needed and the action taken for anything but the most benign climate predictions.</p> <p>The strategy represents a responsible and strong response to the situation of the city of Hull within the scope of what is available to the Council. We have made some suggestions in our response to this consultation that we consider would strengthen the strategy further.</p> <p>As a general observation, we would suggest the impact and value of the strategy is significantly</p>	<p>Support welcomed.</p> <p>Agree – LFRMS has been restructured. The main strategy is now much shorter and is based around the</p>
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	<p>compromised because it is too long and would benefit from a simpler structure. In summary, we would suggest reorganizing the document around the five excellent tables on pages 17-24. We would advise relocation of most of the content from other sections to appendices or online with url references where necessary and thus shorten the strategy. We offer below some comments on each section:</p> <p><b>EXECUTIVE SUMMARY</b></p> <p>This section reads more like a short introduction. We suggest adjusting the text to summarize the key components of the LFRM strategy to enable the section to function better as an executive summary. It may become slightly longer as a result.</p> <p><b>INTRODUCTION</b></p> <p>The introduction is long. On pages 12-24 it departs from its introductory purpose and sets out the LFRM strategy itself. We suggest this material is not appropriate for the Introduction and should be in a new section of its own called 'LOCAL FLOOD RISK MANAGEMENT STRATEGY' (as on p12) or 'OUR APPROACH' (as on p14) or similar in order to break this up and make more digestible.</p> <p>In particular, the tables 1-5 represent the 'engine' of the strategy and we suggest they should comprise the major part of the FRM Strategy document with</p>	<p>aims of the strategy with 10 supporting appendices, which contain technical and additional information. This makes the strategy easier to follow and navigate.</p>
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	<p>much shorter introductory and explanatory sections before and after.</p> <p><b>STRATEGIC CONTEXT</b></p> <p>We suggest strategic context should precede where the strategy is set out.</p> <p>However, this section sets out the legislative and policy context, not the strategic context. We would suggest the legislative and policy material is more appropriate for an appendix or online reference.</p> <p>We suggest this section could benefit from focusing on how Hull and the LFRM strategy are positioned within global and local contexts and the particular features of Hull which have shaped this strategic approach. Ample material is provided in section 4 but a summary of the context for Hull in terms of the changing climate and the city's specific vulnerability would be appropriate here.</p> <p>This might include hydrogeological, topographical, geographical and socio-economic contexts but also the political situation including changing LEP boundaries, Mayoral elections etc. Industrial (high carbon, energy intensive history, energy estuary and green transition) contexts are also relevant.</p> <p>There are also a number of strategic strengths which form part of the context. These include a committed leadership approach, a strong and innovative</p>	
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	<p>partnership in LWW and internationally leading research and learning within the city in the form of EEI.</p> <p><b>ROLES AND RESPONSIBILITIES</b></p> <p>Some of the material in this section would be useful in the introduction but much of the more technical information would be better in an appendix or online cross-reference.</p> <p><b>FLOOD RISK IN KINGSTON UPON HULL</b></p> <p>This section provides a thorough and useful context and background to flood risk in Hull. Some of the material provided here would be very suitable to set the strategic context as mentioned above.</p> <p>We suggest that this section is strong enough to be structured as a stand-alone companion document to the LFRM strategy, especially if combined with material from the Flood Adaptation and Resilience section. Incorporating it within the strategy itself contributes to a document of unwieldy length and renders the strategy less accessible to policymakers and the public.</p> <p><b>FLOOD RISK MANAGEMENT PLAN</b></p> <p>We have no major comments on this section</p> <p><b>FLOOD ADAPTATION AND RESILIENCE</b></p> <p>This section provides an excellent summary of measures and schemes in the city to alleviate</p>	
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	<p>flooding. We suggest some of this material would fit well within the Introduction section but much of it would combine well with the content in the Flood Risk in Kingston Upon Hull section to form a separate document.</p> <p>The section on funding on pages 67-70 seems incongruous here. This technical information adds little to the strategy and might be better located in an appendix or within another section such as Roles and Responsibilities.</p> <p><b>WORKING TOWARDS A RESILIENT FUTURE</b></p> <p>We welcome the reference in this section to research.</p> <p>Under Living With Water baseline survey, please could the University of Hull be acknowledged? As well as the full report, it may also be helpful to include a link to the infographic summary leaflet, which is a more accessible read (G Davidson or S Ramsden can provide electronic copy if required)</p> <p>The section relating to the University significantly under-represents the scale of activity in flood and flood resilience, much of which is working with HCC and LWW. Projects of relevance to the LFRM strategy include Risky Cities, Water Cultures, Mapping Flood Recovery Gaps, SuDSLAb-UK, On</p>	<p>Text amended to acknowledged correctly.</p>
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	<p>the Edge, Climate Cafés, INSECURE, EvoFlood, Flood Innovation Centre and Ark-National Flood Resilience Centre</p> <p>We would suggest including reference to the University’s successful MSc programme in Flood Risk Management as an important contributor to attracting talent to the city and supporting specialist skills development in flood risk management.</p> <p>Reference could also be made to our short course and CPD offers at the University in this space.</p> <p>Under ‘partnerships’ on page 79, please include The University of Hull in the list of LWW partners.</p> <p>The EEI is supportive of the work done by HCC (and Living with Water) on the important issue of flooding. The information provided arises from our collective expertise in this area. We all have a vested interest in enhancing the resilience of our city and we are keen to contribute to the LFRM Strategy to help enhance its effectiveness.</p> <p>The EEI is keen to bridge the gap between theory and practice on flood risk management and to utilise its international research experiences to support a flood resilient Hull.</p>	<p>Text has been updated to include additional examples.</p> <p>Support is welcomed. The Council values the relationship with the University and will continue to work closely together to overcome challenges now and in the future.</p>
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