



**Prosperous Communities  
Committee**

**Tuesday, 5 December 2023**

**Subject: Humber 2100+ Partnership & Strategy**

Report by:

Director of Commercial & Operational Services

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Purpose / Summary:

To update members on the progress of the Humber 2100+ project and timeline, including the endorsement of the Present-Day Scenario

**RECOMMENDATION(S):**

**That Members note the contents of this report, specifically;**

- **The Humber 2100+ project update**
- **The indicative timeline**
- **The endorsement of the present-day outputs**

## IMPLICATIONS

### **Legal:**

There are no direct legal implications as a result of this report, nor legal requirements for West Lindsey to be a part of the Humber 2100+ Partner Project. However, the policy context and responsibilities for water management is important context to note and understand.

Defra has overall national responsibility for policy on Flood, Coastal, Erosion Risk Management in England. Risk Management Authorities (RMA) are responsible for managing risks from all water sources, including rivers and streams, reservoirs, the sea, eroding coastlines, surface water, groundwater and sewers.

West Lindsey as a district council is a RMA and hence does have responsibility for managing risk, other RMAs include:

- the Environment Agency
- local flood authorities and regional flood and coastal committees
- district councils
- internal drainage boards
- highway authorities
- water and sewerage companies

### **Financial:**

Work undertaken in relation to the Humber 2100+ Partnership Project & Strategy work is carried out using existing Council resources.

There are no direct financial implications in relation to the development or implementation of the Humber 2100+ Strategy.

### **Staffing:**

Work undertaken in relation to the Humber 2100+ Partnership Project & Strategy work is carried out using existing Council resources.

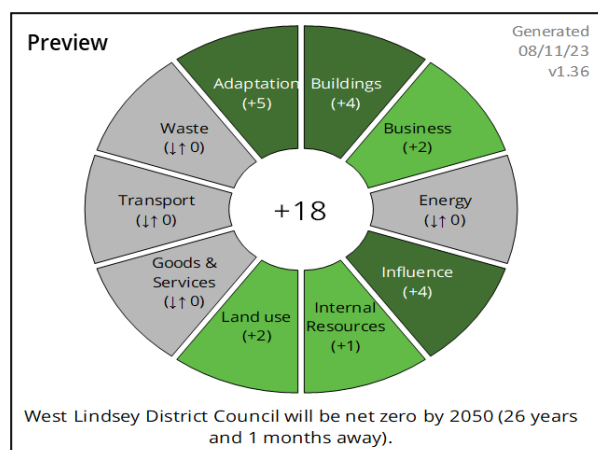
**Equality and Diversity including Human Rights:**

Public bodies should minimise disadvantages experienced by people due to their protected characteristics, take steps to meet the different needs of people from protected groups, and encourage participation amongst these groups where participation is disproportionately low. Equality Analysis considers the actual effects of policies or proposals on social groups with the following protected characteristics (as defined by the Equality Act 2010).

The purpose of the developing Humber 2100+ Partnership Project & Strategy is to mitigate and manage the impact of sea-level rise on communities, business and land as a result of climate change within the Humber Estuary catchment. The strategy objectives support the Council's own ambition to ensure that neither the effects of flood risk nor climate change, disproportionately affect any residents of the district. As the project progresses it will undertake a strategic equality analysis to consider the potential impacts of tidal flooding on the population within the Humber 2100+ strategy area, specifically in relation to their protected characteristics of those covered by the Equality Act.

**Data Protection Implications: None**

## Climate Related Risks and Opportunities:



The overarching principles of the Humber 2100+ Partnership & Projects are to mitigate the impacts of Climate Change whilst supporting long-term resilient growth and the delivery of multi-benefit schemes, whilst enhancing natural capital through improved water and land management.

An adaptive pathway approach will provide better protection for homes, livelihoods and businesses by responding to local needs as well as the long-term global trend of sea level rises.

As such the Council's continued involvement the Project Partnership and Humber 2100+ Adaptive Strategy development will continue to have a positive impact on the Council's' border Climate Change aspirations, as detailed within the Sustainability, Climate Change and Environment Strategy adopted in Summer 2021.

## Section 17 Crime and Disorder Considerations: None

## Health Implications:

Health and wellbeing are strongly linked and interwoven into the aims of the Humber 2100+ Strategy as there are clear co-benefits of taking positive action to address flood risk and enhance the environment and promote community sustainability.

## Title and Location of any Background Papers used in the preparation of this report :

N/A

## Risk Assessment :

The effects of flooding can be devastating and with sea levels rising and storms becoming more frequent due to climate change, the Humber is at an increased risk. Because the Humber estuary is tidal, the impact of storm surges and exceptional high tides can lead to flooding well away from the coast, as additional water is pushed into the estuary.

The risk of flooding due to tidal influences extends far inland along the tributaries of the Humber, and as the water tries to flow back towards the sea, large areas of low-lying land are at risk.

The Humber 2100+ Partnership objective is to develop a new adaptive strategy to manage tidal flood risk as a result of sea level rise and increase resilience over the period from now to 2100.

It is considered due to the clear and significant implications for not understanding and managing flood risk, that not engaging in this partnership work would have a number of implications including reputational issues, risk to life, business and the economy.

**Call in and Urgency:**

**Is the decision one which Rule 14.7 of the Scrutiny Procedure Rules apply?**

*i.e. is the report exempt from being called in due to urgency (in consultation with C&I chairman)*

**Yes**

**No**

**X**

**Key Decision:**

*A matter which affects two or more wards, or has significant financial implications*

**Yes**

**No**

**X**

## **Executive Summary**

This report provides an update on the Humber 2100+ Partnership Project, including the recent endorsement of the present day outputs from the Environment Agency's mapping system, known as MDSF2.

The purpose of the Humber 2100+ Partnership Project is to manage and mitigate the impacts of tidal flood risk from the Humber Estuary as a result of sea level rises over the next hundred years.

The Humber 2100+ project is a partnership between the Environment Agency and 11 Local Authorities, of which West Lindsey District Council is one, due to the tidal tributaries of the Humber Estuary, namely the River Trent and Ancholme, running through the District.

One of the key objectives of the Partnership is to develop an adaptive pathway strategy, known as the Humber 2100+ Strategy, to manage future flood risk from the Humber Estuary. An adaptive pathway is a technical way of describing a decision-making tree. The Humber Estuary is an incredibly complex waterway, made more complex by the tidal tributaries that flow from it as well as all the communities, business and land which surround it.

The development of the strategy is split up into four key steps. These steps are:

- An initial project review to define and agree priorities and strategic outcomes of the strategy.
- Understand risk, specifically understand the present-day baseline for the Humber Estuary, including the scale of the challenge and consequences of risk.
- Agree the high-level principles to managing risk.
- Plan for adaptation, defining specifically what actions are needed, where and when and how these will flex as the partnership progresses through the adaptive pathway.

The partnership has agreed the priorities and strategic outcomes for the project and are currently working on the next step, which is understanding risk.

Recently, partnership representatives from each of the authorities were asked to endorse the present-day outputs scenario, which essentially means capturing and understanding the current risks presented by the behaviour of the Estuary today.

The next stage of this process is to understand how the present-day likelihood changes over time. This includes changing some of the original data inputs to map how the Estuary will change over time and how that will impact risk. The purpose of doing this work is to support the rationale for doing things differently and also to help inform future thinking around Estuary management.

The conclusion of Step 1 will require a formal decision from all partner authorities. It is likely this will come before committee in early to mid-2025, following formal consultation with communities, businesses and other key stakeholders.

# 1 Introduction

1.1 The Humber 2100+ Partnership Project is a project led by the Environment Agency. The purpose of the project is to develop a new adaptive strategy to manage tidal flood risk as a result of sea level rise and increase resilience over the period from now to 2100.

1.2 The Humber 2100+ project is a partnership between the Environment Agency and 11 Local Authorities, of which West Lindsey District Council is one. This is due to the tidal tributaries of the Humber Estuary, namely the River Trent and Ancholme, running through the district.

1.3 The 11 Local Authorities are:

- Bassetlaw
- Doncaster
- East Lindsey
- East Riding
- Hull
- Lincolnshire County Council
- North East Lincolnshire
- North Lincolnshire
- North Yorkshire Council
- Nottinghamshire County Council
- West Lindsey

1.4 The current Humber Strategy 'Planning for the Rising Tides' was adopted by the Environment Agency in 2008. Since then, over £150 million has been invested in flood defence improvements. However, despite this investment, it is now clear that due to impacts of climate change and sea level rises and following the tidal surge of 2013, that the risk of flooding can never be removed entirely, and a different approach is needed.

1.5 The Humber 2100+ Partnership Project was established to better understand the risk and develop a strategy which provided an adaptive pathway which not only manage tidal flood risk in the traditional manner but would also consider other approaches to ensure long term resilience for the communities, business and landowners within the catchment area.

1.6 West Lindsey have been actively part of this Partnership Project since 2020, with Senior Management, Officer and Member representation.

\*Current representation is as follows: Member: Cllr. Rollings, Senior Management: Ady Selby, Officer: Rachael Hughes.

## **2 Purpose of the Partnership Project and development of the Strategy**

2.1 The Humber Partnership Project has been established to develop a framework for implementation of the Humber 2100+ strategy. This will include understanding how to use the information gathered from the partnership and other stakeholders to help make decisions and ultimately, how the partnership will work together.

2.2 The partnership will also look at future challenges and develop solutions to mitigate against these issues. Alongside this, the Partnership will support the development of the Humber 2100+ Strategy. The strategic objectives of the project are:

- Support long-term resilient growth and maximise funding
- Deliver multi-benefit schemes & enhance natural capital
- Deliver an adaptable approach to better protect homes and livelihoods, businesses and potential development opportunities from flooding
- Respond to local needs, as well as the long-term global trend of sea level rise
- Share and use the best available data and most appropriate information on the existing defences, the current flood risk
- Ensure the Strategy is continually relevant, committing to necessary and timely reviews

2.3 It is anticipated that through the development of an adaptive pathway and final adoption of the Humber 2100+ Strategy, currently programmed for the end of 2027, that the Humber 2100+ Partnership Project will achieve these objectives.

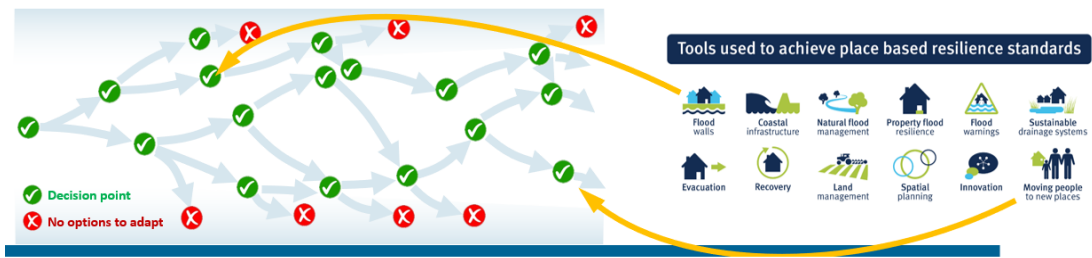
## **3 What is an Adaptive Pathway?**

3.1 An adaptive pathway is a technical way of describing a decision-making tree. The Humber Estuary is an incredibly complex waterway, made more complex by the tidal tributaries that flow from it, as well as all the communities, business and land which surrounds it.

3.2 It is impossible to predict all possible scenarios which may influence the behaviour of the Estuary over a long period of time. As such the adaptive pathway details the known options and tools available to manage the Estuary now, but also includes key decision-making points in the future which will allow a reassessment of options based on the current reality at that time. The adaptive pathway (or decision-making tree) will also allow for consideration of other factors such as potential technological advancements, new land management strategies and economic growth to name a few. Figure 1 below shows a visual representation of how the adaptive pathway may be used in a water management context.



Figure 1.

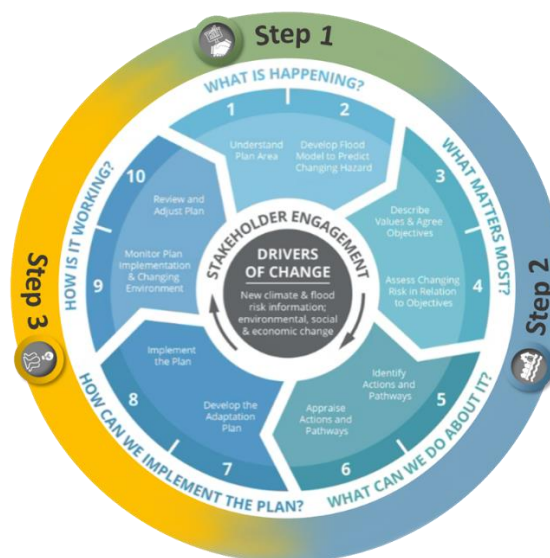


3.3 As with all decision-making trees, there will be key points within the adaptive pathway where key questions will need to be asked and answered before implementing an intervention and moving to the next decision point. An example of those key questions that will need to be asked include:

- What is happening?
- What matters most?
- What can we do about it?
- How can we implement the plan?
- How is it working?

3.4 Below, Figure 2 provides a further illustrative example of how those question would feed into the adaptive planning scenario at each decision-making point as part of the adaptive pathway.

Figure 2.



3.5 It is considered that this approach to decision making provides longevity for the strategy and also ensure it is flexible enough to deliver on the

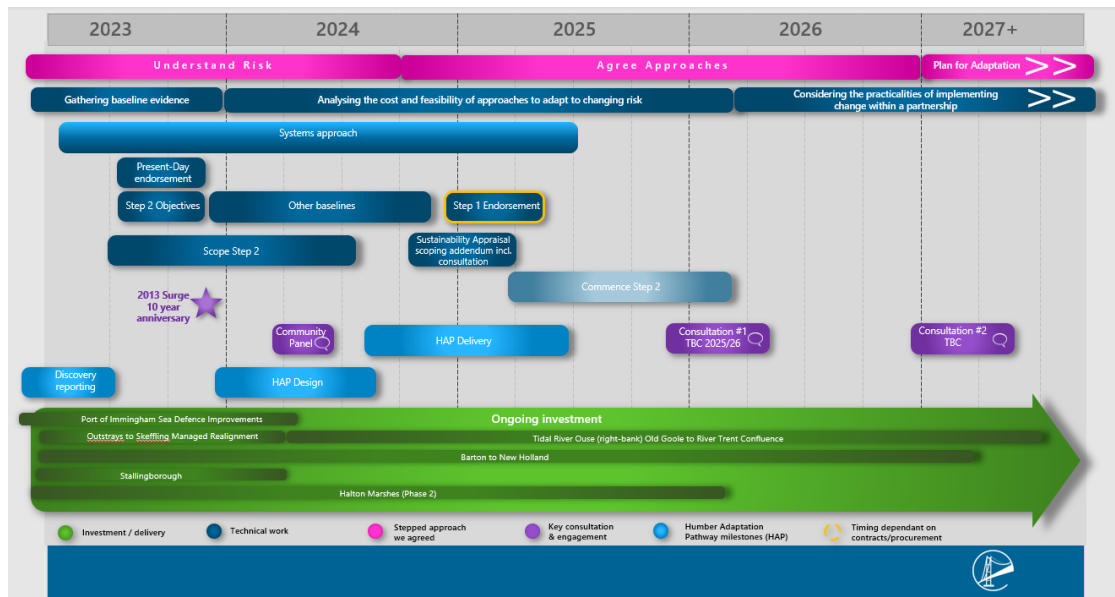
objectives of the partnership both considering current known risks and opportunities but also able to deal with those risks and opportunities not yet understood.

#### **4 Outcome of the Partnership to date**

- 4.1 The development of the adaptive pathway is split up into four key steps. These steps are:
- An initial project review to define and agree priorities and strategic outcomes of the strategy.
  - Understand risk, specifically understand the present-day baseline for the Humber Estuary, including the scale of the challenge and consequences of risk.
  - Agree the high-level principles to managing risk
  - Plan for adaptation, defining specifically what actions are needed, where and when and how these will flex as the partnership progress through the adaptive pathway
- 4.2 As detailed in paragraph 2.2, the partnership has agreed the priorities and strategic outcomes of the project and have now moved to the next step which is understanding risk.
- 4.3 Over the last couple of years, the partnership has established a robust and collaborative approach to the collection and assessment of evidence from a range of sources, including key stakeholders to understand the risks. This step has two parts to it, the first is to understand the present-day scenario. This is effectively capturing and understanding the current risks presented by the behaviour of Estuary today.
- 4.4 Partners have worked closely with the EA to input into and develop a mapping tool that captures all relevant evidence relating to the Estuary, including for example social and economic impacts, details of existing flood defences etc. and provides a comprehensive picture of risk that can be changed to reflect future scenarios and presented in various formats for scrutiny. This tool is known as a Modelling and Decision Support Framework or MDSF2 for short.
- 4.5 The MDSF2 has now provided outputs (Appendix 1) which having assessed all of the supporting evidence provide a number of visual representations of the present-day risks around the Humber Estuary. This aspect of the project is incredibly technical and has taken a lot of time to finalise and agree the inputs.

- 4.6 Due to the importance of the present-day scenarios, all the partners have been asked to endorse the outputs. This endorsement has been sought at all levels of representation of the project team for each of the Partner Authorities concluding with Member sign off.
- 4.7 During a meeting of the Humber Elected Members Forum in September, Members were requested to endorse the approach. Cllr. Rollings, our representative on that board, requested the EA provide an all-member workshop of the present-day outputs, this took place on 16<sup>th</sup> October. Endorsement was confirmed by all partners at the most recent Partnership Board meeting, it is important to note that this endorsement is simply an acceptance of the present-day modelling and not a commitment to future interventions.
- 4.8 Following the positive endorsement from all Project Members, the second part of this step is to understand how the present-day likelihood changes over time. This includes changing some of the original data inputs to map how the Estuary will change over time and how that will impact risk. The purpose of doing this work is to support the rationale for doing things differently and also to help inform future thinking around Estuary management. Whilst there has been ongoing engagement with communities, business and other key stakeholders, it is at this point that formal consultation will take place.
- 4.9 The conclusion of Step 1 will require a formal decision from all partner authorities. It is likely this will come before committee in early to mid-2025. Below is an indicative timeline of the project up to 2027. However, the project will progress well beyond this point, in line with adaptive pathway principles.

Figure 4.



4.10 As well as developing the evidence base for how the Estuary changes over time to complete this step, the project team will start to scope the next step which will look at the principles of tidal flood risk management. It is generally accepted by all that, current approaches including building higher and bigger barriers alone, will no longer offer the protection required and as such this step will look at other methods and opportunities.

4.11 Members who attended the Environment Agency’s workshop in October will know that they are working closely with other Estuary teams across the UK, but also working with other countries to understand other methods, good practice and lessons learned. This will help ensure that the most effective, up to date and technological methods will be considered and where appropriate for the Humber Estuary deployed to support flood risk management.

## 5 Conclusions and Recommendations

5.1 The Humber 2100+ Partnership Project continues to work collaboratively in the development of the Humber 2100+ strategy. It is acknowledged that the project is extensive in terms of both time and geography and is also extremely technical. However, being a part of the Project Team means that we are able to influence and shape the outcomes to support a prosperous and sustainable district.

5.2 It is therefore recommended that Members note the contents of this report in relation to the more general project update and indicative timeline, but specifically the endorsement of the present-day outputs which have been generated by the Environment Agencies MDSF2 Flood Risk Modelling mapping system.

- 5.3 Further project updates and workshops with the Environment Agency will be arranged in due course aligned with the project timeline and information will also be provided on public consultation in due course.
- 5.4 In the meantime, the Environment Agency continue to promote the project through their stakeholder newsletter, which can be subscribed to by emailing [HStrategy@environment-agency.gov.uk](mailto:HStrategy@environment-agency.gov.uk). There is also a separate farmer/landowner newsletter, which can also be subscribed to by using the above email.