Prosperous Communities Committee
Tuesday, 18 March 2025

Subject: Humber 2100+ Partnership & Strategy

Report by:	Chief Executive
Contact Officers:	Rachael Hughes Head of Corporate Policy & Strategy rachael.hughes@west-lindsey.gov.uk
Purpose / Summary:	To update members on the progress of the Humber 2100+ project and timeline, including the endorsement of Step 1, Understand the Risk.

RECOMMENDATION(S):

That Members note the contents of this report, specifically;

- **The Humber 2100+ project update**
- **The indicative timeline and steps included**
- **The endorsement of the 'Understand the Risk' outputs of Step 1 to be used as the basis for Step 2 'Agree Approaches' which will test various scenarios to manage tidal flood risk in the Humber Strategy area**

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: FIN/148/25/MT/MK

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.

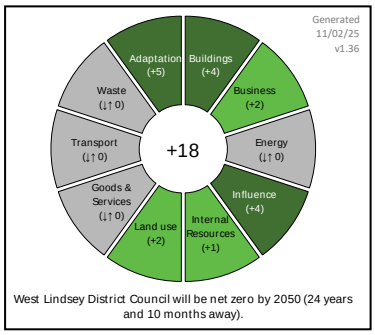
Equality and Diversity including Human Rights:

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 [illegible] and the delivery of multi-benefit schemes, whilst enhancing natural capital through improved water and land management.

An adaptive pathway approach enables the management of tidal flood risk 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 :

05th December 2023 _ Prosperous Communities Committee endorsement of Present Day outputs as part of Step 1

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.

Higher sea-levels have the potential to further exacerbate this issue due to 'tide-locking' where higher or more frequent tides prevent gravity outfalls predominately used in land drainage discharging into the estuary or having a shorter timeframe meaning less water is able to drain from the land.

The Humber 2100+ Partnership objective is to 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 follows on from the report brought in December 2023, where members agreed to endorse the present-day outputs, as part of Step 1 of the Humber 2100+ project. Following endorsement from across the partnership of the Present Day out puts the partnership have moved on to complete Step 1 Understand the Risk.

The report provides a further update on the Humber 2100+ Partnership Project, including findings from Step 1, Understand the Risk outputs from the Environment Agency's bespoke modelling system, known as MDSF2.

As members will be aware, 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.

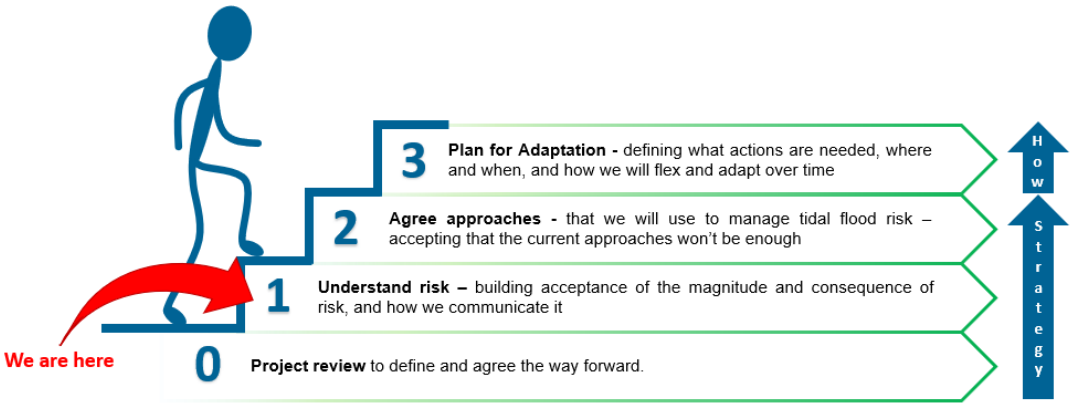
The Humber 2100+ project is a partnership between the Environment Agency and 11 Local Authorities, of which West Lindsey District Council is one, due to the tidal tributaries of the Humber Estuary, namely the River Trent and Ancholme, running through the district.

The partnership authorities each provide a strategic and operational officer to support the development of evidence and a lead member to support decision making and provide a political steer on the evidence and information being produced.

We have had lead member representation on the partnership since its creation back in 20218. Cllr. Rollings has been the lead member on behalf of West Lindsey District Council since mid-May 2023 and has played a key role in ensuring West Lindsey's interests are reflected in the development of the Step 1 evidence and messaging produced by the Humber 2100+ partnership team.

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 adaptative 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 all the communities, business and land which surround it.

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



The partnership has agreed the priorities and strategic outcomes for the project and agreed the present-day outputs and have since spent the last 18 months developing five baselines using MSDF2 mapping to understand and demonstrate how that risk will change in the future with climate change, if different approaches are taken.

These baselines are:

- Do Nothing (if all flood risk management activity were to cease)
- Legal requirement (if we were only to carry out minimal maintenance and meet our legal obligations)
- Maintain defences (to understand how the standard of protection provided by existing defences will change over time)
- Status Quo (continuation of the existing 2008 Humber Strategy)
- Hold the line plus (raising the standard of protection to 1 in 200 throughout the strategy area)

Partnership representatives from each of the authorities have now been asked to endorse the full Understand the Risks outputs scenario, which essentially finishes Step 1.

The next stage of this process is to start Step 2 and to test and develop different approaches to managing that risk, and a plan for adaptation, through future stages of the project.

Alongside the development of the Understand Risk outputs, the Humber 2100+ partnership have worked to improve public understanding of the future challenge which climate change poses to the area.

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 & 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 adaptative 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 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 Overview of project to date

4.1 The development of the adaptive pathway is split up into four key steps. These steps are:

- STEP 0 - An initial project review to define and agree priorities and strategic outcomes of the strategy.
- STEP 1 - Understand risk, specifically understand the present-day baseline for the Humber Estuary, including the scale of the challenge and consequences of risk.
- STEP 2 - Agree the high-level principles to managing risk
- STEP 3 - Plan for adaption, 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 have previously agreed the priorities and strategic outcomes of the project and are now moving through each of the steps, collating evidence and data to inform conclusions and recommendations.

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.

4.4 The Humber 2100+ partnership have worked to improve public understanding of the future challenge which climate change poses to the area. This has included setting up a dedicated ‘storymap’ website about the project (http://arcg.is/u1rPj), producing tailored communications materials and running an awareness campaign tied into the Environment Agency’s ‘Flood Action Campaign’.

4.5 The project has also piloted the use of a ‘Community Panel’ to seek public views to inform the development of the project. This ran during April 2024 and involved a group of 19 people who were recruited to form a demographic cross section of the area. The panel heard evidence from a range of witnesses and then worked to develop recommendations in response to the question ‘What should we take into account in plans to manage tidal flood risk in your area?’.

4.6 These recommendations will be used to inform the partnership’s approach to developing different ways to manage tidal flood risk, both now and in the future. Wider learning from the panel process will also help to shape ongoing engagement with those living and working around the Humber as the project progresses.

4.7 Because each step in the strategy development has interdependency on the other it is important that the partners are clear and supportive of the methodology, evidence and findings. To ensure that this process has been both transparent and as robust as possible, Step 1 was split into two parts.

4.8 The first part of Step 1 was to establish and agree the present-day outputs which effectively focussed on capturing and understanding the current risks presented by the behaviour of Estuary today. This evidence pack was endorsed by Members at Prosperous Communities Committee in December 2023 and has provided the basis for the development and conclusion of Step 1 - Understanding Risk.

4.9 Due to the large complex spatial area of the estuary, 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.

4.10 The MDSF2 has continued to be utilised to develop further modelling outputs, including future baselines with supporting evidence which provide further visual representations of both present-day and future risks around the Humber Estuary.

4.11 The development of this evidence and all of the Step 1 outputs is incredibly technical and has taken a lot of time to finalise and agree. All the detailed outputs, evidence and supporting documentation is available to partners within the Evidence Pack and the mapped outputs viewed on the EA's Geographical Information System (GIS) platform.

4.12 During a meeting of the Humber Elected Members Forum in January of this year, which Cllr. Rollings attended, Members were taken through the Step 1 endorsement report and the process, including an overview of all of the supporting evidence.

4.13 In recognition of the technical nature of this work area, officers, with the support of Cllr. Rollings, requested that the EA provided an all-member briefing on the findings of Step 1, providing members with a good opportunity to scrutinise the detail and ask questions, prior to being asked to endorse the final report.

4.14 This briefing took place on the evening of 06th February. The EA team provided a comprehensive presentation of the findings of Step 1 and supported members with their understanding, through an informative question and answer session.

4.15 One of the key aspects discussed as part of the member briefing was the need to agree messaging for the public as a result of the conclusion

of Step 1. These messages will be developed with the partner authorities and members over the coming months and will focus on the need for new and innovative ways of managing flood risk. This will include work to defences in some areas, but also promoting resilience, community preparedness as well as relying on new water management opportunities around, innovative farming practices, habitat creation and flood storage.

4.16 As a result of Step 1 and moving to Step 2 it is crucial that all understand that management of the estuary will shift away from a more traditional flood risk management strategy into the future.

5 Out puts of Step 1

See appendix 1, Endorsement Report for detail on Step 1 process and outputs

5.1 The Step 1 outputs provide a strategic scale picture of what tidal flood risk, likelihood and cost looks like in the Humber estuary both now and in the future. The outputs include modelled 'baselines' as well as additional analysis and data to support the understanding of the impacts of tidal flood risk which will help shape the partnerships thinking when moving to Step 2 - *Agree the high-level principles to managing risk*.

5.2 The Present-day baseline modelling outputs, which were endorsed by the whole partnership at the end of 2023, show what flood risk and likelihood looks like now. The future baselines modelling outputs show a series of future scenarios which indicate how flood likelihood, risk and costs could change over time (25, 50 and 100 years into the future).

5.3 The development of future baselines has been designed to help understand;

- how future tidal flood risk changes compared to what tidal flood risk looks like now (Present-day)
- how tidal flood risk (as well as the financial and carbon costs) would change in various future scenarios, if we were to make hypothetical
- interventions, or continue with existing tidal flood risk management approaches into the future
- the pace of change in tidal flood risk

5.4 The five future baselines tested over the 4 time periods, present day, 2046, 2071 and 2121. The baselines tested were *Do Nothing, Legal Requirement, Maintain, Status Quo and Hold the Line+.*

- Do Nothing - if all tidal flood risk management activities cease
- Legal Requirement - carry out minimal flood defence maintenance s to meet specific legal obligations
- Maintain - if all tidal flood risk management activities continue as they are today

- Status Quo – if the existing Humber Strategy (2008) interventions were to continue
- Hold the Line Plus (HtL+) – if the standard of protection of defences throughout the strategy area was raised to 0.5% (1 in 200 flood event)

5.5 To support this, additional analysis has also been carried out, including a Sustainability Appraisal Scoping Report Addendum and environmental outputs which help understand how tidal flood risk could impact the Humber economy, environment and society. This describes the broader impacts of the baselines and allows the partnership to understand the implications, so these impacts can be taken into account in Steps 2 and 3.

5.6 The bullet points below provide a summary of Step 1 outputs.

- Likelihood Maps – likelihood of flooding shown at estuary scale
- Risks Maps – Expected annual flood damages shown at estuary scale
- Water Level Maps – water levels throughout the estuary
- Flood Damage Assessment
- Economic, Social & environmental impacts
- Costs information – financial and carbon
- Mapped spatial constraints

5.7 Detailed explanation of the approach to modelling and analysis, including water and land data, financial and carbon costs can be found within the Endorsement Report in appendix 1 of this report.

5.8 It is important to note that the Endorsement Report and Evidence Pack whilst a useful tool for the partnership will be adapted over the coming months for other audiences to provide engaging and meaningful interpretation to support future communications, messaging and awareness raising across all stakeholders in the strategy area.

6 Conclusion, next steps and recommendations

6.1 At the start of the project, it was made clear by partners that the need for robust evidence that all agreed with, was an important starting point for the development of the stepped approach to achieving an adaptive pathway as part of the Humber 2100+ project.

6.2 The outputs of Step 1 will pave the way for conversations on how tidal flood risk can be managed in the future and ensure the adaptive pathway is fit for purpose.

6.3 By endorsing the Step 1 outputs, the following principles are accepted

- That climate change will lead to significant increase in tidal flood risk

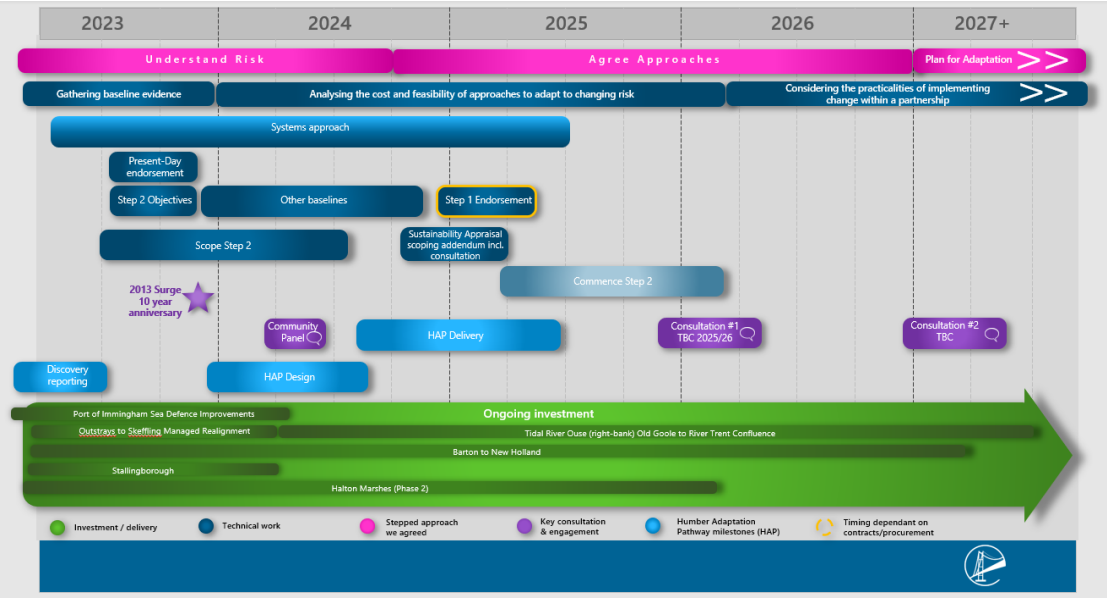
- The interconnectedness of the estuary system means that a coordinated, partnership approach to managing this future risk is essential
- Managing tidal flood risk can't continue to be done in the same way
- Adaptive management of the estuary is the only sustainable way to allow flexibility and responsiveness to change
- Each of the partners commit to support the future project within the constraints of available resources

6.4 In terms of next steps, following formal endorsement of Step 1 by all of the partners, the partnership will move to Step 2, *Agree the high-level principles to managing risk.* This will include continued engagement with communities, business and stakeholders across the estuary area and delivering against the broader project objectives.

6.5 As the project and partnership move into Step 2, there will be a need to review the governance of the partnership and, where necessary, lever in alternative skills and knowledge basis.

6.6 Below, figure 3, 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 3.



6.7 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.

6.8 Over the coming months 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 Step 2 will look at other methods and opportunities.

6.9 Further project updates, including officer and member workshops with the Environment Agency will be arranged in due course aligned with the project timeline and further information will also be provided on public consultation in due course.

6.10 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. There is also a separate farmer/landowner newsletter, which can also be subscribed to by using the above email.

6.11 It is therefore recommended that Members note and endorse the contents of this report and the findings of the Endorsement Report concluding Step 1 of the project as well as the more general project update and indicative timeline.