

Cabinet

22 June 2021

Weymouth Harbour & Esplanade Flood and Coastal Risk Management Strategic Outline Case

For Decision

Portfolio Holder: Cllr R Bryan, Highways, Travel and Environment
Cllr T Ferrari, Economic Growth, Assets & Property

Local Councillor(s): Cllr Jon Orrell

Executive Director: J Sellgren, Executive Director of Place

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Report Status: Public

Recommendation: That Cabinet:

1. Agrees the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategic Outline Case (Appendix 1) for submission to the Environment Agency's Large Project Review Group.
2. Authorises officers to develop the Outline Business Case towards deliverable schemes for inclusion in Dorset Council's future capital programme.
3. Authorises use of existing capital budget to deliver Outline Business Case.

Reason for Recommendation:

Weymouth Town Centre and parts of the surrounding area are at risk of flooding and coastal erosion. With a projected acceleration in sea level rise and more intense weather events because of climate change, the problems facing Weymouth will increase significantly.

Without investment in managing this flood and erosion risk, Weymouth faces increasing direct losses through flooded assets and infrastructure and indirect impacts such as a failing property market due to blight and increasing social deprivation.

It is estimated that there are 400 businesses (based upon ONS figures) within the areas that are directly affected by future flood risk. The council are yet to

develop a permanent solution to the objection in principle that the Environment Agency (EA) have to development in the flood zones around Weymouth Town Centre. Future development could create jobs within Weymouth and previous estimates have suggested this could be over 1000.

Dorset Council as:

- (i) The principal asset owner of harbour and seafront infrastructure,
 - (ii) The Local Planning Authority,
 - (iii) The defined Lead Local Flood Authority, and
 - (iv) The Coast Protection Authority;
- needs to adopt a coherent plan for the long-term sustainable flood and coastal erosion risk management of Weymouth Harbour and the Esplanade.

1. Executive Summary

The Weymouth Harbour & Esplanade Flood and Coastal Risk Management (FCRM) Strategic Outline Case (SOC) document (Appendix 1) sets out the five business cases: strategic, economic, commercial, financial and management at a strategic level. They are based upon the Weymouth Harbour and Esplanade FCRM Strategy document (Appendix 2) which was approved by Cabinet in October 2020. The SOC sets out a holistic way of tackling all sources of flooding in Weymouth including fluvial, coastal (tidal inundation and wave overtopping), surface water and groundwater. The approach is to undertake a comprehensive programme of wall replacement and wall raising around both the Harbour and Esplanade frontages. This will both reduce flood risk and replace deteriorating walls, some of which are already at the end of their design life. It is a phased and adaptive approach which provides the opportunity to keep under review several factors including rates of climate change, asset deterioration and changes in spatial planning needs and requirements.

The project team are hoping to gain approval to submit the SOC to the EA's Large Project Review Group (LPRG), which looks at all projects which are projected to cost in excess of £10million, and to agree the funding process of the Outline Business Case (OBC) production. Table 1 below states the current programme to progress to OBC and then phase 1 of construction.

Activity	Date
Strategic Outline Case – Submit to LPRG	August 2021
Strategic Outline Case – LPRG Approval	September 2021
Outline Business Case development	2021 – 2023
Outline Business Case – Submit to LPRG	February 2023
Outline Business Case – Approval	March 2023

Activity	Date
Detailed Design & Consents	Spring 2023 – Summer 2024
Construction Start – 1 st Phase	Winter 2024/25
Construction End – 1 st Phase	2040

Table 1: Current programme

2. Financial Implications

The scale of engineering construction works is significant and will require investment from multiple funding sources in line with Government's Partnership Funding approach. Total investment in excess of £113million in cash cost terms will be required over the next one-hundred years. Funding and implementation of all phases of the Weymouth scheme over the next 100-years is estimated to be approximately (c.) £52m Present Value (PV), which will provide substantial flood and coast risk benefit estimated to be £470m PV with a Benefit Cost Ratio of 9 : 1. The wider financial benefits to Dorset and the South West Region will be several times greater. The predicted contribution from Dorset Council for the first two phases of scheme (2020-2059) is approximately £9m.

Cabinet agreement to the recommendations in this report will enable officers to submit the SOC to the EA's LPRG to gain their approval to progress to the next business case stage. We would also seek cabinet agreement to commence the OBC development in the autumn, including more detailed economic and design analysis. Funding for the OBC, estimated to be £1.6m, will be provided from the existing Weymouth harbour wall works budget within the approved capital programme for 2021/22.

3. Climate implications

Coastal management schemes must account for accelerated sea level rise caused by climate change. Sea level rise is expected to affect high water levels in Weymouth in comparison to the current level over the next 100 years. The target Standard of Protection (SoP) against coastal flooding at Weymouth is 1 in 200 years (0.5% annual probability of exceedance). Over the next 100 years, the 1 in 200-year level rises by 1.3m in the worst-case projections.

If a 1 in 200-year flood event were to occur with existing walls levels still in place, various technical reports (which include computer flood modelling simulations) have estimated the number of residential and non-residential properties around the harbour and behind The Esplanade to be at risk of flooding. In addition, the flood risk impacts from any failure of individual sections of harbour wall have been analysed. In the present day (2020), 985 households are at Intermediate risk of flooding, in turn rising to 1,369 households at Very Significant risk of

flooding by 2120. The terms 'Intermediate' and 'Very Significant' are defined in a technical footnote.

Within the area, coastal erosion risk is most prevalent to the northern part of the Weymouth seafront area, between the Pier Bandstand and the Greenhill Groyne. The risk would increase if the seawall were to fail as a result of being undermined, particularly during storm events. Once defences have failed and coupled with sea level rise, coastal erosion will occur. Coastal erosion at predicted rates of between 0.5-1.0m/year, which poses risk to properties, Greenhill Gardens and the B3155 which runs parallel to the shoreline. The narrowing or loss of the beach as sea levels rise would not only increase erosion risk but would also exacerbate flood risk through increased wave overtopping, particularly southwards of the Pier Bandstand.

Due to the high level nature of this SOC, greater analysis of the climate change impacts of the proposed works will be undertaken during the OBC process and the subsequent committee paper for that business case approval.

4. Other Implications

This SOC will have an impact defending Weymouth from the effects of climate change. It will also have an impact on the economic sustainability of the town centre and the ability for regeneration to take place within Weymouth.

5. Risk Assessment

Having considered the risks associated with this decision; the level of risk has been identified as:

Current Risk: MEDUIM

Residual Risk: LOW

6. Equalities Impact Assessment

Due to the high-level nature of this SOC an EQiA is not applicable at this time, this has been agreed with the Diversity and Inclusion officer. Design of specific works that are derived from the SOC will consider the impact and carry out an EQiA.

7. Appendices

Appendix 1 – Weymouth Harbour & Esplanade Flood and Coastal Risk Management Strategic Outline Case Final (WSP, April 2021).

Appendix 2 - Weymouth Harbour & Esplanade Flood and Coastal Risk Management Strategy (WSP, June 2020).

Appendix 3 – FCRM Strategy EA Support Letter (EA, July 2020).

Appendix 4 – Place and Resources Overview Committee Comments – 01/06/21

8. Background Papers

- Weymouth Harbour & Esplanade Flood and Coastal Risk Management Strategy (WSP, June 2020).

- Weymouth Bay Coastal Processes Study (Jackson-Hyder, 2015 to 2018).
- Weymouth Model Updates (JBA, August 2016)
- Weymouth Inundation Modelling Study (JBA, February 2019)
- Weymouth Harbour & Esplanade Flood & Coastal Risk Management Strategy Update (WSP, March 2019)
- Masonry Harbour Walls Condition Assessment (JBA, June 2019)
- Sheet Pile Harbour Walls Condition Assessment (JBA, June 2019)
- Weymouth Beach Management Plan (Jacobs, July 2019).
- Weymouth Flood Risk Management Strategy (Royal Haskoning, 2010)
- South Devon & Dorset Shoreline Management Plan (Halcrow, 2011).

9. Adaptive Pathway Approach

- 9.1 Dorset Council commissioned WSP UK to review a number of technical reports produced as part of the Weymouth Bay Coastal Processes Study, previously commissioned by Weymouth and Portland Borough Council (WPBC), in order to produce a 100-year strategy and subsequent SOC for Weymouth FCRM Scheme based on current and predicted flood & coastal erosion risk.
- 9.2 Based upon these reports and the latest sea level rise predictions WSP recommended an adaptive pathway approach to flood risk in Weymouth. The pathways included phased approaches to wall raising, wall replacements and the possible future inclusion of a tidal barrier.
- 9.3 The implementation of the pathway will help manage the risk of flooding and coastal erosion whilst providing the opportunity for other wider benefits to Weymouth such as commercial, amenity and recreation to be developed. The approach remains flexible and can be adjusted to manage future changes including sea level risk predictions. Full details can be found in Appendix 2 below.

Phase	Harbour Sea Defence Wall	Esplanade Sea Defence	Harbour Walls General	Costs (including risk)
Phase 1 2020 - 2039	Replace 7 sections of harbour walls and raise 9.	Repair Greenhill sea wall and continue beach management activities.	Replace sections of Peninsula walls.	£46m Capital Works £1m maintenance costs.
STRATEGIC REVIEW				
Phase 2 2040 - 2059	Replace 9 sections of harbour walls.	Consider further beach recharge.		£8m capital works £1m maintenance.
STRATEGIC REVIEW				

Phase 3 2060 - 2120	Choice of either a) Further wall raising or b) Tidal Barrier	Replace Pavilion to Brunswick sea wall + promenade works + set back walls.	Replace/major repairs to 8 walls in harbour.	£52m capital works (wall raising option) £5m maintenance.
STRATEGIC REVIEW				

Table 2: Adaptive pathway approach

10. Cost Assessment and Funding

- 10.1 The capital costs for each of the interventions to deliver the adaptive pathway were calculated using the rates provided in the EA's 'Long-Term Costing Tool'. This provides coastal defence construction cost estimates based on previously undertaken schemes.
- 10.2 Maintenance costs have been considered to ensure whole life costs are inclusive of routine repairs and inspections. In line with HM Treasury guidance and FCRM industry best practice, an 'Optimism Bias' uplift of 60% has been added to all costs.
- 10.3 At the present time, Department for Environment, Food & Rural Affairs (Defra) allocates funding to FCRM projects through the EA. Flood and coastal erosion resilience partnership funding aims to share the costs between national and local sources of funding. This approach allows any project where benefits are greater than costs to qualify for Flood Defence Grant-in-Aid (FDGiA). It is a condition from Defra that the Government's FDGiA funding settlement will realise a minimum of 15% 'Partnership Funding' contributions to its overall FCRM capital investment programme.
- 10.4 Dorset Council would be expected to be a significant contributor in the development and delivery of this strategic approach. For example, the harbour wall component have wider benefits for the Council (other than flood defence) and therefore Dorset Council's contribution should be at least equal or exceed the capital cost of the 'Harbour Walls – General' in addition to the routine maintenance costs that are usually incurred directly. The significant value of tourism and amenity benefit realised locally from harbour and esplanade works would also support the need for investment by Dorset Council or other major beneficences. The Council has recognised the need for flood defence investment and mechanisms are already in place for collecting and contributing to projects such as this. One such example is the Council's Community Infrastructure Levy (CIL) which collects money as a result of new development. We have received £485,931.52 of CIL money to fund construction during phase 1.
- 10.5 It is intended that the strategy be reviewed at least twelve months prior to the commencement of each future phase of the pathway. In addition, it is

anticipated that a light touch ‘refresh’ of the strategy be undertaken every five years.

- 10.6 EA officers have been involved with the delivery of the strategy and this SOC (& previous reports) from the outset as well as being on the project engagement group with regular progress meetings. The EA have helped steer the development of the strategy, and this SOC, and provided a letter to John Sellgren supporting the strategic approach of the council (Appendix 3). It should be noted that the current support provided by the EA does not commit their financial support at this stage. This SOC and the following OBC need to be developed and approved by Dorset Council cabinet for submission and review by the EA’s LPRG to help fund any scheme construction.

11. Outline Business Case Funding

- 11.1 The capital costs for each activity associated with OBC production have been calculated as part of the SOC financial case. This provides predicted costs for each activity based on previously undertaken schemes.
- 11.2 The capital costs to fund OBC production is typically funded by the local authority, however these costs can be fully recovered via FDGiA if the OBC is approved by the EA’s LPRG and progression to phase 1 construction is underway.

OBC Section	Assumptions	OBC Estimate (£k)
Flood Modelling	Collation of existing models and initial gap analysis. Improvements in representation of combined probabilities of all types of flooding. Application of latest UKCP 18 climate change scenarios and sensitivity testing for alternative FCRM scheme interventions (e.g. tidal barrier). Modelling should also look at optimised timing of scheme interventions. Potential modelling efficiency to link to Dorset’s SFRA Level 2 requirements.	£100k
Engineering Site Investigation & Surveys	Analysis to identify surveys sufficient for outline design.	£280k

OBC Section	Assumptions	OBC Estimate (£k)
	Prioritised surveys are likely to include ground investigation, topographic, bathymetric, statutory undertakers/utilities, UXO etc	
Reference design – flood & erosion measures	Options assessment and outline design of proposed Weymouth Harbour wall replacements, esplanade and sea wall interventions, preliminary barrier design considerations and other interventions including beach management and surface water drainage.	£200k
Reference design – public realm	To enhance from consentable scheme only, through to high value public realm with consideration of public use/ access requirements.	£30k
Early Supplier Engagement and Early Contractor Involvement	To enhance cost certainty	£25k
Stakeholder liaison	Significant engagement with Dorset Coast Forum to lead to strengthen support of the FCERM scheme.	£45k
Environmental assessment, investigation & surveys	Data reviewing, programming future surveys (eg benthic), statutory meetings, EIA Screening & Scoping, HRA, WFD, MMO, heritage development to inform proposed FCERM scheme option selections.	£160k
Funding strategy/ negotiations	Financial case development, liaison with funding partners, agreements, viability assessments etc to refine cost and delivery certainty.	£40k

OBC Section	Assumptions	OBC Estimate (£k)
Broader Economic Assessment	Economic case development to include refinement of Recreational Gains & Losses related to amenity/tourism valuations. In addition, consideration of wider economic consequence, supporting economic resilience, and the unlocking of Weymouth's economic potential.	£60k
Legal agreements	Harbour and landowners to gain FCERM scheme support.	£40k
Dorset Council Staff Costs	Cost of in-house resource.	£150k
OBC Production	Including supporting studies e.g. Carbon appraisal, residual uncertainty etc	£100k
Risk	30% Optimism Bias applied to lead-in costs.	£370k
	TOTAL	£1,600k

Table 4: Predicted OBC production costs

11.3 It is common for the local authority to cover the upfront costs of OBC production and then claim back the monies spent once the OBC has been approved by the EA's LPRG. There are other funding options available, local levy and FDGiA, which have both been considered. It is likely that both these options would only partially fund the required £1,600k to produce the OBC and Dorset Council would have to provide some of the upfront costs whichever option is chosen. It also has the potential to delay the start of OBC production if external funding is delayed.

11.3 The preferred option is to fund internally with the 'Weymouth Peninsula including Harbour Walls' budget within the approved capital programme. This allows officers to procure services as soon as the SOC has been approved and allows us to keep within our current programme in table 1.

12. Spatial Planning and Delivery

- 12.1 Following local government re-organisation in April 2019, Dorset Council has started work on preparing a new local plan which will replace those adopted local plans of the predecessor District and Borough Councils.
- 12.2 The Council intends to undertake a consultation on the emerging local plan in autumn/winter 2020, publish a pre-submission draft of the local plan in autumn/winter 2021 and adopt the new local plan in spring 2023. As part of preparations for the new local plan the Council will be undertaking a Level 1 Strategic Flood Risk Assessment (SFRA) that covers the entire Council area and a Level 2 SFRA for Weymouth.
- 12.3 The risks from flooding and coastal erosion around Weymouth Town Centre need to be effectively managed and mitigated in order to secure re-development of parts of the town, and to encourage regeneration and investment. The policies in the emerging local plan that relate to Weymouth will take account of both the Level 1 and 2 SFRA, in addition to this Harbour and Esplanade FCRM strategy.
- 12.4 The local plan is likely to;
- identify the parts of the town that need to be safeguarded to allow coastal and flood defences to be constructed,
 - require that the design of development adjacent to flood risk and coastal erosion defences should take account of future plans (as outlined in the SOC) to alter or replace these defences,
 - require that the Council or developers explore the opportunities to improve the quality of the public realm as part of any flood risk or coastal erosion defence works, and
 - require that the design of coastal and flood defences takes account of Weymouth's heritage assets (including conservation areas, listed buildings and scheduled monuments).
- 12.5 The Council has prepared an updated charging schedule for the Community Infrastructure Levy (CIL), and the priorities for spending on infrastructure. We have received £485,931.52 to help fund construction during phase 1.

13.0 Next Steps

- 13.1 The next steps in progressing Phase 1 of the pathway (2020-2039) should begin by progressing to cabinet for approval of the SOC, and then subsequently going to the EA's LPRG for their approval.
- 13.2 Once LPRG approval of the SOC is gained, development and production of an appropriate HM Treasury compliant OBC, a process that is programmed to be completed in March 2023.

13.2 Ambition and commitment from all stakeholders is required to ensure that this scheme is progressed. Dorset Council and the EA will continue to work together to give full support to the pathway and endorse its progression.

Footnote:

Issues relating to financial, legal, environmental, economic and equalities implications have been considered and any information relevant to the decision is included within the report.

Technical Footnote:

This footnote defines flood risk bands discussed in section 3.

Risk bands	Description
Very Significant	Greater than or equal to 5% Annual Exceedance Probability (AEP) >5% AEP (standard of protection less than or equal to 1 in 20)
Significant	Less than 5% AEP but greater than 2% AEP <5% to >2% AEP (standard of protection 1 in 21 to 1 in 49)
Intermediate	From 2% AEP but greater than 1% AEP 2% to >1% AEP (standard of protection 1 in 50 to 1 in 99)
Moderate	From 1% AEP but greater than 0.5% AEP 1% to >0.5% AEP (standard of protection 1 in 100 to 1 in 199)