

Outline Business Case Template for non EA Risk Management Authorities

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Dorset Council

Dorset Coastal Transition Accelerator Programme Outline Business Case



Black Ven, West Dorset. Eroding cliffs in front of Charmouth.

Recommendation

This document presents an Outline Business Case (OBC) to secure business case approval for the development of the CTAP programme project for Swanage North and Charmouth, Dorset.

The coastal communities of Swanage North and Charmouth are being challenged to adapt to a changing landscape due to sea level rise and weather pattern changes accelerating the risk of coastal erosion and cliff destabilisation. The Shoreline Management Plan preferred policy options for both of these

frontages is No Active Intervention / Managed Realignment from epoch 2 (2025) and beyond.

The Swanage and Charmouth CTAP programme will support the Government’s stated aim to manage down the risk to such coastal communities, and where they cannot be, support those communities to respond and adapt accordingly. The CTAP programme project will deliver a range of options at both Swanage and Charmouth to enable communities to adapt and thrive in the light of ongoing coastal change.

This report seeks FSoD approval for £3,000k of FCRM GiA funding to progress to the delivery stage of the Swanage North and Charmouth CTAP programme project. The £3,000k includes £125k sunk costs and 30% optimism bias contingency.

Version Control

Submission Rev 02

Version History

Version Number	Purpose	Date	Main Changes
01	Comment from Dorset Council and LPRG	03.09.24	
02	Submission to LPRG	13.09.24	
03	Updated following LPRG comments	12.11.24	

Assurance and Approval Record

RMA reference number: ???

EA reference number: DO004

Date of submission to EA: 13.09.2024

Assurance from Risk Management Authority

I confirm that this Outline Business Case meets our guidelines, quality assurance requirements, environmental obligations and Defra investment appraisal conditions. All internal approvals, including member approval, have been completed. I apply to the Environment Agency for capital grant and local levy in the sum of £3,000,000 (Grant Claim Value).

Name of RMA Project Executive: Matthew Penny, Service Manager FCERM

Approval from Risk Management Authority Council

Version approved: 03

Date:

Endorsement from Environment Agency Area Flood and Coastal Risk Manager

I confirm that the Outline Business Case is ready for assurance.

Applications up to £10million - I have consulted with the Director of Operations and the Deputy Director of Finance.

Name of Area Flood and Coastal Risk Manager:

Date:

Environment Agency Assurance and Technical Approval

I recommend that the application is granted technical approval. The record of assurance is appended to the business case.

Name of AFCRM or Lead Assurance Reviewer:

Date:

Financial Approval

Name of Approving Officer:

Date:

Name of Approving Officer:

Date:

Name of Approving Officer:

Date:

FSoD reference:

Date:

Financial Scheme of Delegation Co-ordinator

Notes

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1.0 Project Summary

This Outline Business Case builds upon the Coastal Transition Accelerator Programme (CTAP) Strategic Outline Business Case that was submitted to the Large Project Review Group (LPRG) in February 2022. The SOC, (FSoD ref TBC), set out the approach to the allocation of the £36m for the whole CTAP Programme.

East Riding of Yorkshire and North Norfolk were identified as the primary locations in need of support with £30m allocated to them. The SOC allocated the remaining £6m to 'other projects' to be selected based on the initial learning from the first two areas. Dorset and Cornwall have since been identified as the most suitable areas. This OBC is for £3m to fund the Dorset CTAP.

The Dorset CTAP OBC will focus on Swanage North and Charmouth where the proposed shoreline management plan (SMP) policies will challenge communities to adapt to an eroding coastline. The Dorset CTAP will undertake activities that raise awareness and deliver practical action related to the risks of coastal erosion and cliff retreat and support the communities in adapting to their changing coastlines. The sites are located on the south coast of England within the county of Dorset. Dorset Council is the Coast Protection Authority and manages the coastal path and rights of way that traverse each location.

The Dorset CTAP provides an opportunity to develop, test and implement innovative coastal transition actions that are outside the scope of what central government usually funds and what local authorities are required to do.

Total Value of Project £3,000,000

Flood risk type: Coastal erosion

Numbers of households at erosion risk

Swanage North

- Households at medium term risk (<=20 years) - 33
- Households at long term risk (>20 years) – 60 (50 year losses)

In total it is estimated that 116 households will be lost to coastal erosion and cliff loss over the next 100 years.

Charmouth

- Households at medium term risk (<=20 years) - 12
- Households at long term risk (>20 years) – 19 (50 year losses)

In total it is estimated that 118 households will be lost to coastal erosion and cliff loss over the next 100 years.

Infrastructure at risk by 2124

Swanage North

- Beach huts (approximately 130+)
- Beach side cafes and restaurants including Down the Beach and The Cabin
- Utilities infrastructure
- Hostelries including Grand Hotel, Pines Hotel, Avon House and The Rookery
- Sheps Hollow access steps
- Section of the South West Coast Path
- Public toilets
- OceanBay Watersports

Charmouth

- Charmouth Heritage Coast Centre and car park
- Seafront car park
- Utilities infrastructure
- Charmouth Primary School
- Businesses including 3+ Bed and Breakfasts
- Section of the South West Coast Path including bridge over River Char
- Seadown Holiday Park

Type, condition and residual life of existing defences

N/A – the proposal seeks to support communities to adapt to coastal erosion in areas of No Active Intervention or Managed Realignment.

Environmental designations

The following environmentally designated sites are on or adjacent to the Swanage North or Charmouth coast –

Swanage North

- Dorset AONB
- Jurassic Coast UNESCO World Heritage Site
- Purbeck Coast MCZ
- Isle of Portland to Studland Cliffs SAC
- St Albans Head to Durlston SAC
- Solent and Dorset Coast SPA
- Purbeck Ridge (East) SSSI

Charmouth

- Dorset AONB
- Jurassic Coast UNESCO World Heritage Site
- Sidmouth to West Bay SAC
- Lyme Bay and Torbay SAC
- West Dorset Coast SSSI

How is flood and erosion risk managed?

N/A – the proposal seeks to support communities to adapt to coastal erosion in areas of No Active Intervention or Managed Realignment.

Summarise the case for change

Swanage North

Coastal erosion of the cliff toe along Swanage Bay has been largely reduced since the early 20th century through construction of coastal defences. However, the section of cliff along the Swanage North study area is still subject to landslides, which is compounded by ground instability primarily caused by groundwater and poorly managed land drainage. A variety of slope stabilisation measures have been implemented by private landowners which has stabilised the cliffs in localised sections. During the extreme wet winter of 2012/13, various landslides and cliff falls affected this area and caused damage. Structural measures, drainage and re-profiling would be necessary to help stabilise the cliffs and slow further recession.

More than 120 residential and commercial premises are located in the project area of Swanage North Cliffs. Unless actions are taken to reduce cliff recession, significant loss of property and infrastructure will occur over the long term. These cliffs are actively unstable in some locations and without intervention, will continue to experience further instability and cliff-top recession.

Charmouth

As detailed within the Shoreline Management Plan (SMP) document, the coastline that Charmouth sits within is characterised by dramatic, geologically important cliffs which are subject to large-scale complex landsliding. These events are difficult to predict with any certainty, making management of this shoreline problematic. Sediment interlinkages along this frontage are relatively weak due to the interruptions caused by headlands and episodic landslide lobes extending across the beach and foreshore.

The nature of the erosion of these cliffs is integral to their designations and landscape value; however, the area is also important for tourism and Charmouth is also dependent upon this. The Heritage Coast Centre and seafront car park in particular will be under increased pressure as the adjacent cliffs recede further and maintenance to the seawall eventually stops.

The current policy for the SMP is hold the line but this will transition to a combination of No Active Intervention and Managed Realignment in the medium term (2025 onwards). Under this policy option it is estimated that over 120 residential and business properties will be lost within the next 100 years.

Selected option

The Swanage North and Charmouth CTAP aims to establish plans, policies and funding mechanisms to support long-term coastal transition based on the projected impacts of climate driven coastal change, while delivering the practical transition of community assets.

A number of options have been developed and discussed with the local communities and are presented to take forward for development at the next stage. The options cover the themes of Adaptation, Community, Resilience, Nature based solutions and Access.

Economic cost and benefit of selected option

- Costs – £3,000,000
 - Benefit to Cost Ratio – >1
-

Risk

- The total contingency amount is £656k.

Top three residual risks are:

- Local community resistance to project actions. Local communities may reject coastal transition actions on account of perceptions they will not be 'protected' from flooding and coastal change. This could lead to a lack of support and

potential objection from local leaders on behalf of their communities. Mitigation includes early and extensive community engagement.

- Coastal incident/weather event. A flood or erosion related incident that diverts coastal management expertise and resource away from CTAP. Mitigation includes recruitment of sufficient resources resulting in team capacity to plan and deliver. Such events may also affect risk one above if events overtake planned actions
 - Disruptive influences (individuals, social media, media, political). External parties influence and disrupt communications for other motives. Mitigation includes a robust Communications and Engagement Strategy as well as recruitment of sufficient resources resulting in team capacity to plan and deliver.
-

Schedule of critical milestone dates.

Milestone dates are:

- CTAP funding and work start: Nov 24
 - Option refinement: Nov 24 – May 25
 - Adaptation/ Access / Nature Based / Resilience solutions development: May 25 – March 26
 - Community solutions development: May 25 – Sept 25
 - Community solutions rollout: Oct 25 – March 27
 - Adaptation/ Access / Nature Based / Resilience solutions construction/delivery: Apr 26 – March 27
 - Adaptation plans: Apr 26 – March 27
 - Project completion: March 2027
-

2.0 Strategic Case

2.1 Introduction

This document presents an Outline Business Case (OBC) for activities to be completed for the Coastal Transition Acceleration Programme at two sites; Charmouth and Swanage North.

Charmouth is located on the Jurassic Coast in Dorset. It lies east of Lyme Regis and further east lies the small town of Seatown. The town of Charmouth is situated on high ground above the River Char. The Charmouth Heritage Coast Centre is situated on the coastal frontage and attracts many annual visitors. The Charmouth Heritage centre building was originally a cement factory constructed in the 1850s which closed shortly after in the 1870s. The building was bought in 1908 and in subsequent years used as a Scout facility amongst other uses. The building was reopened in the 1980s as the Heritage Coast Centre and was extended and redeveloped in 2005. In 2014 the building suffered severe storm

damage, and improvements to the seawall fronting the building followed in 2015/2016 including the addition of a stepped revetment. The Heritage Coast Centre is located on the first floor of the building with a café and shops located on the ground floor. The centre is a major focus for tourism in Charmouth as well as being an important community building.

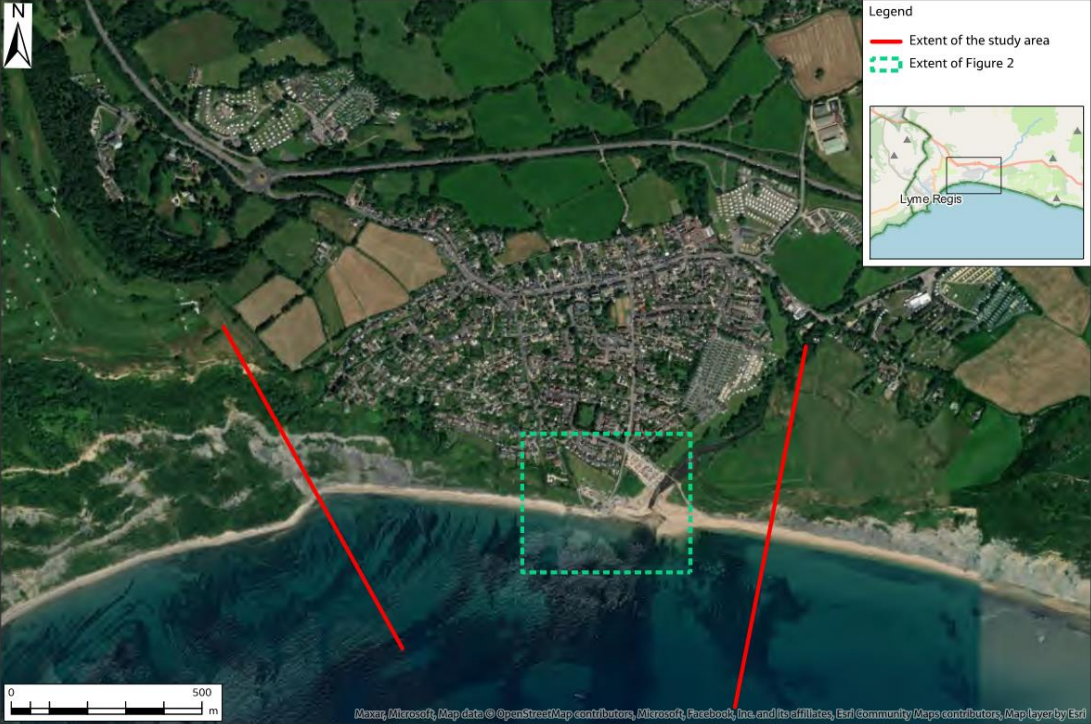


Figure 1 Charmouth study area



Figure 2 Charmouth study area

Swanage North is located in East Dorset within Swanage Bay framed by Studland in the north and Durlston in the south. The Swanage North study area runs from the junction of Ulwell Road and Shore Road to Sheps Hollow. This captures the lower end of the Ballard Cliff feature. South of Sheps Hollow the cliff line is not included in the environmental designated areas that include the active cliff areas to the north. As a consequence, the frontage along this section of coast is formed of open cliff line with a range of formal and informal cliff defences fronted along much of the southern stretch by beach huts, beach cafes and shops plus cliff top property including the Grand Hotel, Pines Hotel and other businesses.

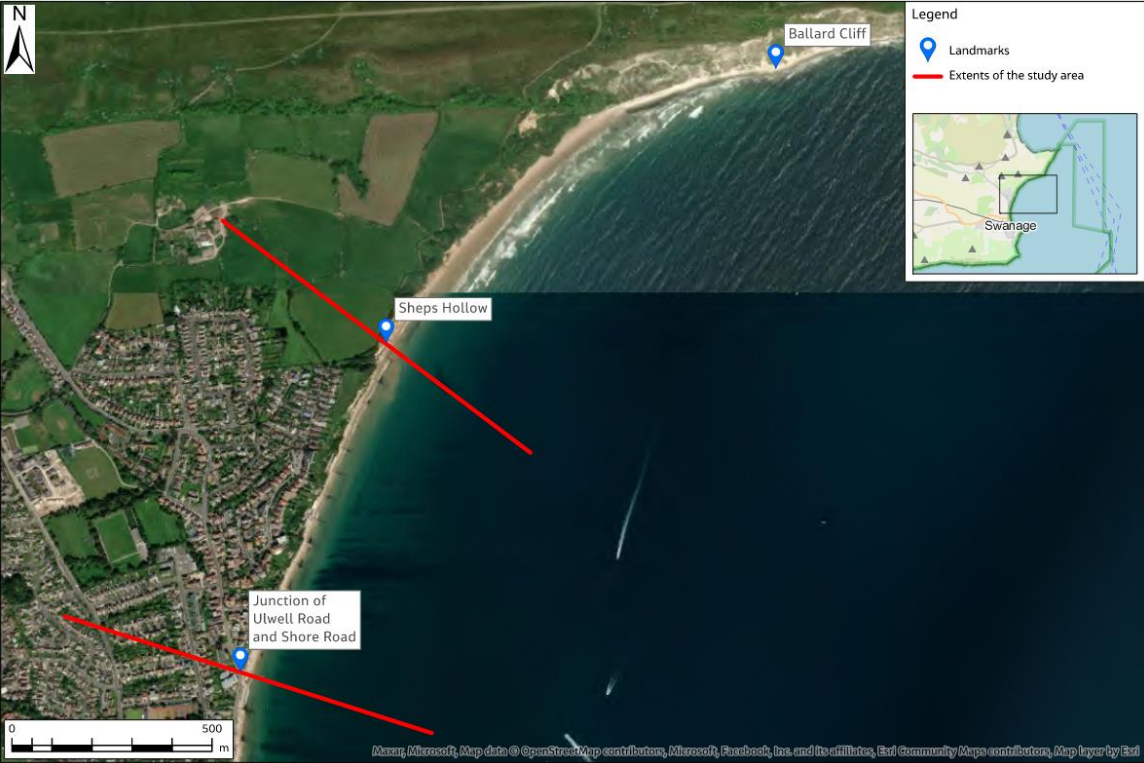


Figure 3 Swanage North study area

Photographs from both locations are included in Appendix A – Photos.

2.2 Strategic context

Coastal communities are at the forefront of a changing landscape due to sea level rise and weather pattern changes accelerating the risk of coastal erosion. This project supports the Government’s stated aim to manage down the risk to our communities, and where they cannot be, support those communities to respond and adapt accordingly.

The government sets the policy framework on flood and coastal erosion management. The Environment Agency (EA) is responsible for flooding from main rivers, sea flooding and has a strategic overview to ensure that decisions by local authorities and others on the coast are made in a joined-up manner. Under the Coast Protection Act 1949, general powers for managing coastal erosion risk

are given to coastal erosion risk management authorities ('CERMAs') and to coast protection authorities ('CPAs').

The government policy statement on flooding and coastal erosion, published on 14 July 2020, sets out the government's long-term ambition to create a nation more resilient to future flood and coastal erosion risk. Alongside the policy statement, the EA published its new National Flood and Coastal Erosion Risk Management Strategy for England, which is also focussed on improving overall resilience to flooding and coastal change, adapting to climate change and provides a framework to guide the activities of those involved in flood and coastal erosion risk management.

This project, as part of the Coastal Transition Accelerator Programme (CTAP) will make a significant contribution to the implementation of this wider resilience approach. The risks from flooding and coastal change are recognised in the UK Climate Change Risk Assessment and the National Risk Register. This Programme will contribute towards delivery of the Government's 25 Year Environment Plan and Single Departmental Plan outcome for floods and water by reduced risk of harm from flooding and in particular coastal change. CTAP funds projects to help communities on areas of the coast that cannot sustainably be defended from coastal erosion.

New innovative actions and mechanisms to accelerate the transition of homes, businesses and infrastructure away from eroding sections of coast will be tested and the learning will be shared with other coastal local authorities and communities across the country.

CTAP is being run in consecutive stages:

- Stage 0 – Project definition – selection of the coastal accelerator locations and defining the list of innovative actions (2021/22)
- Stage 1 - Individual studies and project development for East Riding of Yorkshire and North Norfolk (2021/22 – 2022/23)
- Stage 2 - Delivery of projects in East Riding of Yorkshire and North Norfolk (2023/24 – 2026/27)
- Stage 3 – Consideration and selection of coastal projects in Cornwall and Dorset (2023/24)
- Stage 4 – Strategic planning development of coastal projects in Cornwall and Dorset (2024/25)
- Stage 5 – Delivery of coastal projects in Cornwall and Dorset (2025/27)

2.2.1 Shoreline management plans

A Shoreline Management Plan (SMP) is a non-statutory, high level, long term strategic planning document. SMPs provide a framework for managing coastal flooding and erosion risks to people and the developed, historic and natural environment over a large area. They also take climate change into account in

planning long-term actions. SMPs are used to inform investment and planning decision on the coast. SMPs provide the latest information on coastal changes, including social, economic and environmental data. It will also contain suggested flood and coastal erosion risk management approaches (known as policies) for 20, 50 and 100 years to provide a 'route map' for coastal management into the future.

These are:

- Hold the existing line of defence: Covers situations where works or operations are undertaken to improve or maintain the standard of protection provided by an existing defence line. The type or method of coast protection may be changed to achieve this result. Also covers where a defence is maintained but not improved in pace with sea level rise, meaning the standard of protection decreases in real terms but the defence line remains. The SMP must make it clear which iteration of 'Hold the line' has been chosen. In any event, there is always a 'residual risk' of failure or overtopping of defences in extreme weather events.
- Advance the existing line of defence: Construct new defences seaward of the original defences – limited to areas where significant land reclamation is under consideration.
- Managed re-alignment: Identify a new alignment of the shoreline and, where appropriate, construct new defences seaward or landward of the original defences. Usually sets the shoreline back.
- No active intervention (NAI): Where there is to be no investment in coastal defence assets, and no other operations such as beach recharge. This policy denotes the 'direction of travel' for the authority responsible for a stretch of coastline, but it may be that third parties still wish to apply for permission to build or maintain defences. It may also be necessary to undertake emergency works (under the Coast Protection Act or health and Safety legislation) to sustainably and safely withdraw maintenance from an existing defence structure. Coastal transition through taking practical adaptation actions is essential in parts of the coast where there is a NAI policy.

The Charmouth frontage falls under Management Unit 6A18 of the Durlston Head to Rame Head shoreline management plan (SMP2, 2011). This unit runs approximately 150m from the western end of the seawall to the eastern side of the mouth of the River Char. The summary management approach here is to:

"Maintain the short length of sea wall and promenade until the end of their life, while developing adaptation measures to transition to No Active Intervention and the impacts of coastal change that will have on some parts of Charmouth. Within the River Char, a Managed Realignment approach will be adopted to allow defences to be realigned to provide protection against future flood risk to the area of Charmouth not directly impacted by coastal change. The 2011 Pathfinder Project together with the more recent Foreshore and Beach Management Plans

produced by Charmouth Parish Council should provide basis for planning and guiding community-led elements of transition and adaptation”.

The preferred policy option for this frontage is Hold the Line for the first epoch, followed by No Active Intervention.

East and west of this frontage the preferred policy option for all three epochs is No Active Intervention as the frontages consist of actively eroding cliffs.

The Swanage North frontage falls under subsection Handfast Point to Durlston Head 4 of the Hurst Spit to Durlston Head SMP (2011). The cliff section north of Sheps Hollow falls in the Handfast to Ballard Estate M.1 (SW4) section. The preferred policy option for this frontage is No Active Intervention for all three epochs.

The frontage from Sheps Hollow south is covered by New Swanage N1 (SWA3) where the preferred policy options are Hold the Line for epochs 1 and 2 with Managed Realignment from year 50 onwards. The summary management approach here is to:

“Maintain the viability and important heritage and community of Swanage whilst recognising the important landscape setting of the town and seafront, and the important geological value of the coast. The intent is to achieve this by maintaining the existing seawall/promenade and timber groynes, supported by periodic beach renourishment, to prevent erosion of the base of the cliffs in the short to medium term, whilst limiting further extension of defences, particularly further north along the shore in this unit. This will require use of risk management approaches which minimise landscape impact, whilst accepting some change and the potential requirement for adaptation measures where properties are affected. The approach in this area (north of the Tranville Ledges) is to provide suitable transition between the No Active Intervention approach in unit M.1 and the Hold the Line approach in units N.2 to N.4. The cliff top will continue to erode back due to drainage and weathering unless addressed by stabilisation measures that would need to be introduced by land owners.”

South of this frontage along Swanage Promenade the preferred policy options for all three epochs is Hold the Line.

2.2.2 Local context and previous work

In September 2009, Dorset County Council submitted a bid to DEFRA’s Coastal Change Pathfinder fund on behalf of a range of partners on the Jurassic Coast of Dorset and East Devon. £376,500 was awarded ‘to explore planning for, and managing, adaptation to coastal change on the Jurassic Coast’. The overall objective of the Jurassic Coast Pathfinder project was:

‘to ensure through meaningful engagement and participation that coastal communities are well-equipped to understand, debate and take part in decisions

about coastal change, adapting and becoming more resilient to those changes as a result, based on sound science and local knowledge’.

Charmouth and Swanage North were two out of six case study sites for the Jurassic Coast Coastal Change Pathfinder Project. Workshops were held with stakeholders to discuss plausible worst case storm scenarios, think about how impacts could be minimised and opportunities maximised, prioritise a short list of options and consider how they might be progressed further. While CTAP is a separate and distinct project to Pathfinder, the findings have been reviewed and built upon for this work.

At Charmouth, a Foreshore Management Plan was produced in 2016. This included a summary of a Charmouth Visitor Questionnaire (2014) which was a recommendation of the Pathfinder project. A strong theme was a wish for Charmouth to remain unspoilt and un-commercialised. Reasons for visiting included the beach, scenery, friendliness of locals, and fossils. The location and facilities were also key but difficulty of parking in the village was raised. The Plan also included a summary of a Charmouth Beach Management plan that acknowledged the SMP policy change from Hold The Line to No Active Intervention in the medium term. Some recommendations are no longer appropriate with the policy changing to NAI in 2025 (e.g. improved sea defences). Others, including a public access ramp to the beach are applicable to this OBC.

At Swanage, a Beach Management Plan was produced in 2020. This covers the central part of Swanage Bay from the Mowlem Theatre in the south up to Shep’s Hollow in the north. It advises how to manage the risk of coastal erosion and flooding to at least 2055 (the design life of the 2005/6 Swanage Beach Recharge Scheme). This includes periodic beach recharge, inspection driven maintenance of seawalls and replacement of timber groynes in 2040/41. A cliff management strategy is also currently in development.

The Swanage North cliff, beach and promenade is privately owned but provides access to the general public as part of the coastal path and right of way. Private landowners have constructed ad-hoc defences on the cliff with the aim of protecting their properties from land instability. The most recent intervention is the slope stabilisation scheme constructed by the owners of the Pines Hotel in between 2015 and 2017, following emergency slope stabilisation works in 2013. The complex nature of landownership, ad-hoc repairs, poor drainage, and numerous environmental designations has led Dorset Council to initiate a Cliff Management Strategy for the area (Swanage & Durlston Bays CMS) which will build upon several previous studies covering the area.

2.3 Environmental and other considerations

The key environmental designations for Charmouth and Swanage North are listed in Table 1 and Table 2 below. Designations relating to the active cliffs are underpinned by the continuing erosion of the cliffs.

The development of the OBC and consideration of options has considered a number of relevant environmental issues, regulatory requirements, legal and other obligations which require further consideration as the outcomes/schemes progress.

Table 1. Charmouth Environmental Designations

Designation Type	Name	Location	Link
Area of Outstanding Natural Beauty	Dorset AONB	Whole of Charmouth	National Landscapes – Dorset (national-landscapes.org.uk)
UNESCO World Heritage Site	Jurassic Coast	Active cliffs	Dorset and East Devon Coast – UNESCO World Site
Special Area of Conservation	Sidmouth to West Bay SAC	Active cliffs	Designated Sites View (naturalengland.org.uk)
	Lyme Bay and Torbay SAC	Intertidal area fronting Charmouth	Designated Sites View (naturalengland.org.uk)
Site of Special Scientific Interest	West Dorset Coast SSSI	Active cliffs	SSSI detail (naturalengland.org.uk)

The entire Charmouth area also forms part of the non-statutory Heritage Coasts designation and the footpath which passes down Axminster Road, Higher Sea Land and east past the Heritage Coast Centre forms part of the National Trail. There are also several grade 2 and 2* listed properties within Charmouth town.

Table 2. Swanage North Environmental Designations

Designation Type	Name	Location	Link
Area of Outstanding Natural Beauty	Dorset AONB	Whole of Swanage	National Landscapes – Dorset (national-landscapes.org.uk)
UNESCO World Heritage Site	Jurassic Coast	Active cliffs from Sheps Hollow to Ballard Cliff	Dorset and East Devon Coast – UNESCO World Site
Marine Conservation Zone	Purbeck Coast	Intertidal area fronting Swanage	Marine Conservation Zones: Purbeck Coast – GOV.UK (www.gov.uk)

Special Area of Conservation	Isle of Portland to Studland Cliffs SAC	Active cliffs north of Sheps Hollow	Designated Sites View (naturalengland.org.uk)
	St Albans Head to Durlston SAC	Intertidal area fronting Swanage	St Albans Head to Durlston Head – Special Areas of Conservation (incc.gov.uk)https://designatedsites.naturalengland.org.uk/SiteGeneralDetail.aspx?SiteCode=UK0030372&SiteName=&countyCode=&responsiblePerson=&SeaArea=Western%20Channel%20&IFCArea=
Special Protection Area	Solent and Dorset Coast SPA	Intertidal area fronting Swanage	Designated Sites View (naturalengland.org.uk)
Site of Special Scientific Interest	Purbeck Ridge (East) SSSI	Active cliffs north of Sheps Hollow	SSSI detail (naturalengland.org.uk)

The cliffs from Sheps Hollow to Durlston Bay form part of the non-statutory Heritage Coasts designation. The National Trail follows the cliff line footpath along the cliffs north of Swanage connecting Swanage to the Studland.

There are a great number of listed properties within Swanage town and a number scattered inland of the study area along northern Swanage.

Some of the CTAP proposals will require consents and licences from external parties. These will be applied for at the next stage and have been considered in the development of option costs and programme.

Plans showing the environmental designations for each site are included in Appendix B - Figures.

2.4 The case for change

The risks of erosion are expected to increase and accelerate as a result of sea level rise and climate change. We need to act now to explore how local authorities can best support those who live, work or play along coastal areas which cannot be defended in the future.

Bude in Cornwall and Charmouth and Swanage North in Dorset were selected to receive funding (circa £6 million) within CTAP after careful consideration of the concentration of coastal erosion risk over the next 20 years, where the Shoreline Management Plan identifies the need for coastal transition, project viability and readiness to proceed, in the context of the relatively short amount of time left to

deliver projects on the programme. After East Riding and North Norfolk, Dorset and Cornwall contain a large proportion of properties at risk of coastal erosion.

Both Cornwall and Dorset have projects (Bude, Charmouth and Swanage North) where significant engagement has already been undertaken with local communities on what actions need to be taken to adapt to an eroding coastline. This previous engagement means projects are ready to proceed.

In addition, both locations face social and economic/tourism challenges due to the location of essential infrastructure being at risk of coastal change. In Bude, local parking infrastructure which is significant part of the tourism offer in Bude, alongside the local RNLI lifeboat station are located in vulnerable locations. In Charmouth, a popular tourist entry point to the Jurassic Coast with local parking infrastructure, beach access and a visitor centre are at risk. While in Swanage North, at a point between two different SMP management approaches, there is a risk of coastal flooding of the town centre and beach access loss for local residents and tourists alike.

These two additional projects will support Defra's policy statement commitment to review national policy for Shoreline Management Plans (SMPs) to ensure local plans are transparent, continuously review outcomes and enable local authorities to make robust decisions for their areas. It will also inform the EAs National Strategy ambition and commitments to continuously review and refresh SMPs, ensuring the learning is embedded in future local plans and supporting communities to adapt to coastal change.

2.4.1 Swanage North

More than 120 residential and commercial premises are located in the project area of Swanage North Cliffs. Unless actions are taken to reduce cliff recession, significant loss of property and infrastructure will occur over the long term. These cliffs are actively unstable in some locations and without intervention, will continue to experience further instability and cliff-top recession.

Coastal erosion of the cliff toe along Swanage Bay has been largely reduced since the early 20th century through construction of coastal defences. However, the section of cliff along the Swanage North study area is still subject to landslides, which is compounded by ground instability primarily caused by groundwater and poorly managed land drainage. A variety of slope stabilisation measures have been implemented by private landowners which has stabilised the cliffs in localised sections. During the extreme wet winter of 2012/13, various landslides and cliff falls affected this area and caused damage. Structural measures, drainage and re-profiling would be necessary to help stabilise the cliffs and slow further recession.

The current SMP15 Action Plan has the following action to occur once the Swanage/Durlston Cliff Management Strategy is completed - Develop a coastal adaptation plan for Swanage North and Durlston Cliffs to manage property/infrastructure losses, ensuring this links to both the Dorset Local Plan and Swanage Neighbourhood Plan, and continues engagement with the

community, statutory stakeholders and private landowners developed during production of the Cliff Management Strategy.

The above transitional element noted for the Swanage North section of coastline will mean that this community will need to adapt to an ever-changing coastline and managed realignment in the longer term. The hinge point of this transition from HTL to NAI is yet unknown and needs to be established and communicated via the SMP action plan. This area is therefore a good candidate for the CTAP project and will allow plans and practical measures to be developed which will support the community through this process.

This area is noted in the previous Purbeck District Council Local Plan as an area indicatively designated CCMA, which includes a 400m buffer zone for new development to demonstrate adequate drainage and no new development within the SMP erosion zones. This policy and review of development on this section of coast will require further investigation and implementation into the new Dorset Local Plan, which the CTAP project can aid and develop.

2.4.2 Charmouth

As detailed within the Shoreline Management Plan (SMP) document, the coastline that Charmouth sits within is characterised by dramatic, geologically important cliffs which are subject to large-scale complex landsliding. These events are difficult to predict with any certainty, making management of this shoreline problematic. Sediment interlinkages along this frontage are relatively weak due to the interruptions caused by headlands and episodic landslide lobes extending across the beach and foreshore.

The nature of the erosion of these cliffs is integral to their designations and landscape value; however, the area is also important for tourism and Charmouth is also dependent upon this. A key driver of the current SMP policy is therefore to allow the continuation of natural coastline evolution whilst managing the risk of erosion and flooding to the key settlements. The Heritage Coast Centre and seafront car park in particular will be under increased pressure as the adjacent cliffs recede further and maintenance to the seawall eventually stops.

At Charmouth, there is a need to address the increasing risk of further recession of the landslide complexes causing outflanking or even loss of the presently defended areas. Climate change and sea level rise will require managed realignment to occur around the mouth of the River Char and new set back defences to be delivered to manage the flood risk here. Therefore, the risk in these areas may be managed in the short to medium term through either maintenance of existing defences or further improvements. However, the long-term defence of these areas will be determined by the extent and location of future cliff recession and so it is necessary to consider measures to enable assets to be relocated away from the areas at risk.

The current policy for the SMP is hold the line but this will transition to a combination of No Active Intervention and Managed Realignment in the medium term (2025

onwards). This is duplicated in the long-term plan where the flood and erosion risk is managed by realignment of the mouth of the River Char which fronts most of the developed parts of the Charmouth area. The progressive nature of the SMP policy within the Charmouth area means that the community will need to adapt to an ever-changing coastline. This area is therefore a good candidate for the CTAP project and will allow plans and practical measures to be developed which will support the community through this process.

2.5 Objectives

2.5.1 Programme objectives

CTAP will trial opportunities in a small number of coastal areas at significant risk of coastal erosion to transition and adapt to a changing climate.

There are four key Programme objectives:

- Produce long-term sustainable strategic plans, by 2027, aligned with the Shoreline Management Plan, and embedded in existing local policy frameworks. The plan will clearly set out the policies and actions to support the ongoing transition of affected communities in the areas at risk and that supports economic, social and environmental prosperity of the area as a whole.
- Between 2023 and 2027, test and demonstrate innovative practical coastal transition actions. Practical coastal transition actions will be implemented in locations at significant risk of coastal change.
- Between 2023 and 2027, the participating authorities will capture evidence, tools and learning from the implementation of innovative practical coastal transition actions and share this learning with other coastal authorities to support coastal transition activities in other locations across the country. Progress will be measured through project-level monitoring and evaluation frameworks and a Defra-led programme level evaluation.

By 2027, the participating authorities will have improved evidence on the effectiveness of innovative actions to achieve coastal transition, demonstrated by the embedding of learning and approaches in existing FCERM policy and investment decision-making, as well as local-development planning policies in the chosen locations.

2.5.2 Project actions, outputs and outcomes

Actions, Outputs and Outcomes

The following actions were captured in the project plan and are embedded within the proposed programme of work. These will be developed through the Dorset

CTAP programme of work by 2027, in appropriate locations to ensure the delivery of the programme outputs and outcomes.

Table 3. Actions, Outputs and Outcomes

Action	Outputs	Outcomes
Informing national and local policy strategies and plans for coastal management	Providing baselining, evidence, optioneering, integrated planning and practical experiences to inform future development of local and national policy and strategies for management of coastal transitioning, including local plans, DC planning guidance and CCMA development	Supporting delivery of actions to inform policy and strategy both locally and nationally.
Build capacity to deliver coastal transition within Dorset in the long-term	Staff resource will be secured to ensure an ability to deliver the programme. CTAP work will provide experience to existing staff and delivery partners to aid transition of other communities within Dorset.	Recruitment of officer(s). Readiness of project team and partners.
Community, business and partner engagement	Engagement with the communities to help develop the OBC and then regular engagement during the development of the respective outcomes. Regular engagement events are proposed from Early 2024 onwards – facilitated by Dorset Coast Forum. This will be ongoing throughout the project.	Engagement of local community with the CTAP process and development of understanding of the adaptation and transition requirements of their community. Updated and improved understanding of erosion risk in Swanage North and Charmouth.
Charmouth: Community infrastructure adaptive solutions	Improving resilience of the heritage centre to reduce damage and flooding impacts. Investigation into the long term viability of the Centre and proposals for longer term management.	Minor adaptation actions, including shutters on windows and flood boards. Other measures to be considered to make the building more resilient.
Charmouth: Community infrastructure adaptive solutions	Replacement or redesign of beach access.	Access ramp or more resilient beach access has full planning permission that was renewed in 2021. This provides the basis to achieve this objective.
Charmouth: Asset and Property Rollback	Undertake activities that support the rolling back of the Heritage Coast Centre car park, e.g., future relocation of car park	Includes land availability study, ground investigation and land purchase.
Charmouth: Adaptation planning mechanisms	Developing an adaptation plan, including rollback, for properties on Higher Sea Lane, at the top of cliffs under	Completion of adaptation plan and adoption by the LPA into the Local Plan (where possible).

	a NAI SMP management approach. Homes at risk due to land instability accelerated by cliff toe erosion.	Extensive engagement with affected properties.
Swanage North: Community infrastructure adaptive solutions	Replacement or redesign of beach access.	Replacing beach access point on the SW coastal path where the steps keep being destroyed and replaced. This is on the border of the HTL/NAI intervention zone.
Swanage North: Adaptation planning mechanisms	Developing an adaptation plan (including funding mechanisms) for the area of Swanage North, which is identified in the Local Plan as a CCMA	Completion of adaptation plan and adoption by the LPA. Extensive engagement with affected properties. Draw on local knowledge and experience from previous Pathfinder.
Swanage North Adaptation planning mechanisms	Support the delivery of the Swanage & Durlston Cliff Management Strategy (CMS)	Successful delivery of the CMS.

2.6 Current arrangements

2.6.1 Swanage North

Existing defences

Along the Swanage North frontage, the cliff line is at sections protected by formal defences, informal defences and no defences. As each section of cliff is owned by the property/landowner down to Mean High Water, each property/landowner is responsible for their small section which has resulted in an array of approaches to addressing potential health and safety risk and property damage risk from cliff fall.

A concrete seawall runs along the entire study area frontage to the Pines Hotel in the north. North of this, where property is generally set back further from the cliffs, the cliffs are unprotected.

Between Burlington Chine and the base of the cliff line at the junction of Ulwell Road and Shore Road, the toe of the cliffs has been heavily developed. A narrow promenade runs along the seawall along the entire length, and this is backed by runs of beach huts, cafes and shops sometimes situated on terraced sections above the promenade.

Areas of recent cliff fall are present. In some sections, it is noted that beach huts have been modified to attempt to protect the inhabitants from cliff fall.

Along this section there are a series of access steps, associated with each privately owned section of cliff.

A series of timber groynes are in place along the entire frontage which are in good condition and actively retain beach material. Indeed, as described in section 2.2.2, the Swanage Beach Management Plan sets out how the groynes and beach levels are to be maintained/replaced up to the year 2055.

Access to the beach at Sheps Hollow is via a rickety set of steps, the foundations for which have been undermined. Local residents have attempted to form a replacement set of steps at the bottom out of the fallen talus. But the access point does present a significant health and safety issue.

Coastal Processes and Cliffs

This section of coastline is sheltered from the dominant south-westerly storms and exposed to the less frequent and generally less severe easterly – south-easterly storms (although, these are thought to be occurring more frequently).

The relatively soft cliffs make them vulnerable to toe erosion (where exposed), particularly with rising sea levels and increased wave energy expected with climate change. Beach material originates from erosion during the historical formation of Swanage Bay and is therefore a finite resource. Cliff erosion at the northern end of the bay supplies sands and some flint gravels; however, most inputs are fine materials that are transported offshore in suspension so that only thin, narrow beaches remain with limited littoral sediment drift (generally from south to north). Beach recharge has been the only significant source of material in recent times. The Swanage Beach Management Plan intends to maintain beach levels until the year 2055 with the next recharge recommended in 2024/2025.

Erosion contour estimates and flood zones are shown for Swanage in Appendix C – Coastal Change Risk Maps.

The National Coastal Erosion Risk Management 2 project has recently updated the estimates of recession and the data will soon be available for use. This most recent data will be taken into account at the next stage of the CTAP project. A key consideration at Swanage North for future change management and adaptation, is the ownership arrangement of the active cliffs and beach. The property and landowners at the top of the cliff own the land seaward of the cliff line to Mean High Water. Therefore, to ensure a holistic approach to adaptation along the entire cliff line will require agreement from all landowners and potentially tenants as to future management.

2.6.2 Charmouth

Existing Defences

The existing defences were constructed in 1994 and comprise a stepped concrete seawall/revetment with steel sheet pile toe, rock groyne and rock

armour protection. The defences front the Heritage Coast Centre, car park and seafront beach huts.

Wave action has smoothed the stepped revetment such that the form of the steps has been lost in places and rebar is exposed in a few localised spots. The beach is so low that the top of the sheet pile toe is now exposed.

Rock armour has been placed around the steps and at the western end of the wall. The rock armour at the western end of the wall forms an informal terminal groyne, such that this holds a beach to the west in front of the cliffs but reduces feed to the east so that the beach fronting the seawall is heavily denuded.

A wooden bridge has been constructed across the rock armour at the western end to allow access from the seawall to the western beaches.

Two concrete groynes can still be seen in place at the eastern end of the car parks and projecting from the seawall although they do not currently seem to be retaining beach material to a significant degree.

Coastal Processes

This section of coast faces south and is therefore exposed to waves from the south-west to south-east. This results in a net west to east littoral transport, though frequent reversals occur. Due to the presence of headlands there is now a lack of alongshore input of sediment resulting in narrow beaches fronting the cliffs that offer little in the way of toe protection contributing to the ongoing instability of complex landslides. The adjacent cliffs are therefore retreating at a rapid rate. This produces some coarse material retained on the beach but much of it is fine clay and transported offshore in suspension.

The River Char

The River Char runs from Bettiscombe to Charmouth. Due to the movement of beach material from west to east, the mouth of the river is periodically closed by the formation of a barrier beach.

In periods of low flow, water draining from the River Char catchment becomes trapped and the river can “pond” for up to 300m upriver causing localized flooding upstream.

Large fluvial flows will force an opening through the barrier beach, but this will close again due to the ongoing sediment drift.

Historically the mouth of the river has naturally been located further east and over the years efforts have been made to artificially “cut” an opening, but these in time reseal.

Upstream of the river mouth, a wooden footbridge allows access to the east of the river. Some localised erosion of the banks is present.

Cliff Erosion

To the west of Charmouth lies the high clay-rich cliffs of The Spittles including Black Ven. These cliffs are fronted by a narrow shingle beach and rocky shore platforms. These cliffs are subject to complex landsliding processes driven by rainfall/groundwater and coastal erosion. Events are episodic with many decades between larger events and so difficult to predict.

The fronting beach protects the cliffs from toe erosion, but with reduced sediment feed replenishing the beaches and increasing climate change impacts the beaches are narrowing, reducing the protection they provide.

It is estimated that there is a 5% chance that within 50 years the cliff line to the east of Charmouth will have reached areas of housing at Higher Sea Lane and Hammonds Mead.

Erosion contour estimates and flood zones are shown for each site in Appendix C – Coastal Change Risk Maps.

Also included in Appendix C is a map of land instability. The map of land instability indicates that no properties lie in the worst zone but some in the second worst zone which will result in the imposition of considerable constraints on development and that many planning applications in these areas may have to be refused on the basis of ground stability. As noted, the National Coastal Erosion Risk Management 2 project has recently updated the estimates of recession and the data will soon be available for use. This most recent data will be taken into account at the next stage of the CTAP project.

2.7 Main benefits

The main benefits that the investment will provide include:

- Reduction in risk to life as a result of more proactive transition.
- Reduction in mental and physical health issues linked to residents staying in properties at high-risk from erosion.
- Increased health and wellbeing of coastal residents through retention of recreation and amenity assets.
- Retention and expansion of employment opportunities (direct and indirect) through preservation of businesses, particularly in the tourism sector.
- Increase in resident satisfaction as they are more able to stay in coastal village close to employment, education and support networks.
- Increased community cohesion and confidence through investment in community infrastructure and community-level placemaking discussions, rather than individual engagement.
- Increase in attractiveness in area due to reduction in derelict / run-down properties, unauthorised development and anti-social behaviour.
- Increase in natural capital of the coast through environmental enhancements.

- Increased recognition of the value of working with natural coastal processes.
- Increased clarity on the integration between coastal transition and coastal / flood risk management policies.
- Provides a model for collaborative working between Dorset Council and the Environment Agency on transition / adaptation to risk.

2.8 Strategic risks, assumptions, constraints and dependencies

2.8.1 Risks

A risk register has been developed to identify and manage risks, refer to Appendix F.

The strategic risks associated with the delivery of the programme are outlined in Table 4.

Table 4. Strategic Risks

Risk Theme	Strategic Risk
Resource	Skills Gaps - Technical Expertise Resource availability
	Lack of resources within project partners to engage in project inc. skills gaps/technical expertise
	Coastal incident/weather event which diverts on coastal management expertise and resource away from CTAP
Political	Lack of corporate / political buy-in.
	Changes to National Government and/or Priorities on flooding and coastal erosion risk management.
	Changes to local political party and priorities.
Social	Lack of engagement and understanding from communities, businesses, and other stakeholders. Community do not support adaptation options.
	Activities surrounding the project cause, or are perceived to cause, actual blight.
Economic	National economic event/crisis
Legal	Limitations and associated liabilities with CPA and LA Powers
	Existing legislation unfit to support CTAP activities

2.8.2 Constraints

A number of constraints need to be considered in the further development of the CTAP programme:

- Availability of and restrictions associated with partnership funding (FCRM GiA, Dorset Council)
- Working within Environmental Designated Sites
- Landowners and local businesses
- Land availability

2.8.3 Dependencies

To deliver the programme objectives, the following internal and external dependencies will need to be considered and actively managed by the client team:

- Political acceptability
- Available skills and resources
- Communities support and engagement
- Government policy and strategies
- Local and national planning policies frameworks/plans
- Funding availability, particularly within the OBC development stage

2.9 Monitoring and evaluation

Monitoring, evaluation, and learning will underpin the delivery of the Dorset CTAP and will be a key element in measuring success. Progress will be measured through project level monitoring and evaluation frameworks alongside a Defra led programme level evaluation steered by Theory of Change.

Work Packages will include:

- Monitoring –
 - Monitoring, capturing and quantifying the economic, carbon, social and environmental benefits of the Dorset CTAP as it progresses.
 - Capturing and recording the unquantifiable, intangible benefits of the Dorset CTAP as it progresses, for example impacts on community health and wellbeing, etc.
 - Establishment of targets and triggers where appropriate against which progress may be measured.
- Evaluation –
 - Determining the costs and returned benefits of each option/intervention.
 - Evaluating which actions work, and under what conditions.
- Learning-
 - Reviewing benefit cost implications of each option/intervention and reassessing business case for continuation, amendment or cessation.

- Disseminating findings to the wider CTAP programme to promote learning and development of the CTAP programme and to inform future capital spending Programmes.

A primary task under the Dorset CTAP programme is to develop these outlines into a Monitoring, Evaluation and Learning Framework (MEL) Strategy and to begin monitoring in the early phases of the project and embed good evaluative practice from the start.

Defra Flood Policy is leading the programme level evaluation and monitoring project (Risk & Policy Analysts Ltd (RPA)) for the entire £200m Flood & Coastal Resilience Innovation Programme, which is establishing 'Theories of Change' (TOCs) with each of the existing projects and will be used to highlight/recommend changes to policy and practice during and upon completion of the programme. It is intended that the Dorset CTAP MEL framework will complement the programme level evaluation. The Coastal Transition Accelerator Programme will be aligned with this same Evaluation project, given that governance arrangements are already in place. A total of £2.5m Capital Department Expenditure Limit (CDEL) has already been allocated to the Defra-led Evaluation project from the Flood and Coastal Resilience Innovation Programme.

RPA are currently developing a TOC for the Dorset CTAP programme. The TOC has not been made available during the development of this OBC but will be used to develop the MEL at the next stage.

3.0 Economic Case

The economic case in this section is based on application of the benefits framework for CTAP. The aim is to develop a high-level cost for each With-Project Option and to outline potential damages avoided, such as tangible '**value-at risk**' benefits where possible and qualitatively describe intangible '**value potential**' benefits.

The approach taken involves assessing the potential damages avoided and other benefits associated with each Option compared with the Business as Usual (BAU) baseline. BAU refers to the situation currently and the impacts on the local population if nothing changed. The With-Project Options refer to the actions implemented under CTAP and the associated benefits gained and damages avoided. Potential learning benefits are identified for each Option and will be developed throughout OBC delivery so future projects can draw on '**learning potential**' benefits following OBC delivery.

A key element of the economic case is to account for the effects of climate change. The appraisal of Options will consider how measures that reduce flood and cliff retreat risk today will become less effective over time due to climate effects that are predicted to augment flood and coastal retreat frequency and magnitude via increased rainfall intensity, sea level and wave energy.

A high-level cost for each Option has also been developed based on industry benchmarks and experience so that potential value for money of each Option can be assessed. The level of cost uncertainty has also been outlined and Options constraints and opportunities identified.

3.1 Business as usual baseline

As a Coast Protection Authority (CPA) under the 1949 Coast Protection Act, Dorset Council has permissive powers to provide flood and coastal erosion risk management measures. Maintenance of risk management assets are completed where affordable, practical and in line with Shoreline Management Policy utilising locally sourced funds. Larger scale investments in risk management infrastructure follow the FCERM guidance which includes Partnership Funding. Current and future Shoreline Management Policies at Charmouth and Swanage North Cliff mean that coastal change transition and adaptation needs are increasing.

In both Charmouth and Swanage North Cliff coastal erosion and cliff instability are likely to result in the permanent loss of residential and commercial properties, tourism infrastructure, highways, utilities infrastructure, community assets, public open spaces, car parks and landscape features. Some environmental habitats will also be impacted.

The BAU baseline is not a 'no cost option' and comprises planned activities such as beach recharge and decommissioning of derelict defences, and reactionary activities such as emergency repairs to defence structures, stabilisation measures and clearance of landslide debris.

Direct costs to the authority also include the officer time required to engage with residents and businesses to inform them of the level of risk and, in the future to facilitate relocation where necessary. Due to the urgency and sensitivity required in these discussions, which are undertaken on an individual basis, this form of engagement is intensive and prolonged, requiring a large amount of officer time. In addition, council officers play a coordinating role in responding to the impacts of erosion, liaising across different teams and organisations including the EA, NE, Jurassic Coast Forum (JCF) and the police to ensure that the coast is a safe and pleasant place to live, work and visit.

The bullet points below provide a list of direct costs incurred under the BAU baseline.

- Beach recharge
- Emergency repair to defences including stabilisation measures
- Repairs to beach access
- Security measures
- Debris removal from beach and promenade
- Demolition of property (e.g. damaged beach huts)
- Staff time – Dorset Council, Environment Agency and Specialists

- Staff time – emergency services
- Loss of Council revenue (e.g. tax and parking)
- Groyne maintenance
- Monitoring (e.g. beach levels)

There is also the potential to incur a range of intangible impacts including the following:

- Health and wellbeing costs – stress to residents, depression, mental wellbeing etc.
- Decrease in property values
- Negative press and reputational damage to the area (e.g. decreased tourism and booking numbers at caravan parks)
- Loss of other community activity i.e., lost opportunities because community effort is focused on coastal erosion issues
- Crime – arson and possible insurance fraud
- Area blight
- Lifeboat crew time
- Volunteer time
- Temporary loss of access

3.2 Value at risk damages

The BAU case described above is used as the basis for identifying the damages that are predicted to occur under BAU.

The value at risk damages described below take account of the SMP policies detailed in Section 2.2.1 so that coastal erosion estimates begin when the No Active Intervention policy comes into effect.

From the available coastal erosion estimates the following assets could be damaged or lost over the next 100-years (note that losses/damages avoided, or benefits, of investing in CTAP activities are described in Section 3.5.1):

Swanage North Damages:

- More than 120 residential and business properties (e.g., The Grand and Pines Hotels), services and the coastal footpath (at the northern end of the site only) are located close to actively unstable and eroding cliffs and will be damaged or lost in the future due to landslides, rockfalls, coastal erosion and cliff-top recession.
- The seawall, promenade, groynes, beach huts, a number of businesses (e.g., Down the Beach and The Cabin) and beach access at Shep's Hollow are located at the base of the actively unstable cliffs and will be

damaged or lost in the future due to coastal erosion, landslides and rockfalls.

Charmouth Damages:

- More than 120 residential and commercial properties, services, the Heritage Coast Centre, a primary school, a caravan park, various coastal defences, beach access, a section of the South West Coast Path and car parks are located adjacent to the beach or close to actively unstable cliffs and will be damaged or lost in the future due to coastal erosion, landslides and cliff-top recession.
- The caravan park, footbridge and a Wessex Water sewage pumping station are located within the tidal reach of the River Char and could be damaged or lost in the future due to rising water levels, increased storminess and rainfall and coastal and riverbank erosion.

Note that presently there is uncertainty of the scale and rate of coastal and cliff retreat and therefore the potential 100-year damages estimated above. Significantly reducing this uncertainty and improving quantification of benefits is a key area of focus for CTAP funding as detailed in Section 3.4.

In accordance with the Flood and Coastal Resilience Innovation Programme (FCRIP) Outline Business Case Guidance (May 2021), no detailed estimate of the damages under the BAU baseline is carried out. Instead, only the additional damages avoided over and above BAU that the proposed solution would deliver are estimated – see Section 3.5 Economic appraisal.

3.3 Critical success factors (CSF)

This section lists the attributes essential to the successful delivery of the scheme against which the available options can be assessed.

Table 5. Critical Success Factors

Critical Success Factor	Description/measurement	Priority (5 = high, 1 = low)
Strategic fit and meets business needs	How well the preferred way forward: <ul style="list-style-type: none"> • meets the agreed spending objectives, related business needs and service requirements • provides holistic fit and synergy with other strategies, programmes and projects 	5
Potential Value for Money	How well the preferred way forward:	5

	<ul style="list-style-type: none"> • optimises social value (social, economic and environmental), in terms of the potential costs, benefits and risks 	
Supplier capacity and capability	<p>How well the preferred way forward:</p> <ul style="list-style-type: none"> • matches the ability of potential suppliers to deliver the required services • appeals to the supply side 	4
Potential affordability	<p>How well the preferred way forward:</p> <ul style="list-style-type: none"> • can be financed from available funds • aligns with sourcing constraints 	4
Potential achievability	<p>How well the preferred way forward:</p> <ul style="list-style-type: none"> • is likely to be delivered given an organisation's ability to respond to the changes required • matches the level of available skills required for successful delivery 	3
Community support	<p>How well the preferred way forward:</p> <ul style="list-style-type: none"> • incorporates feedback received from the community following effective community engagement • effectively communicates this to the community. 	5
Sustainable and environmentally neutral options	<p>How well the preferred way forward:</p> <ul style="list-style-type: none"> • ensures no damage to adjacent designated sites • includes engagement with NE and consent holders as required 	5

3.4 Preferred Way Forward

This section introduces and evaluates the cost and benefit of the With-Project Options at Swanage North Cliff and Charmouth as part of identifying the preferred way forward.

Appendix D provides the full With-Project Options Appraisal which is summarised below and in Table 6 for Swanage North Cliff and Table 7 for Charmouth.

The With-Project Options were developed in collaborative workshops with the CTAP Steering Group, comprising Dorset Council, Jurassic Coast Forum, Environment Agency and Jacobs, and stakeholder engagement events with the local communities at Charmouth and Swanage North Cliff. The following bullet points list the workshop and event objectives:

- Improve stakeholder and community understanding of society impacts caused by adverse climate/environmental change.
- Understand the tolerable level of coastal erosion risk to stakeholders and the community.
- Understand the stakeholder and community expectations on coastal adaptation and transition.
- Understand what is currently valued by stakeholders and the community and what they would like to see improved.
- Gather stakeholder and community ideas on approaches to adaptation and transition.
- Present possible adaptation and transition themes/approaches and gather feedback.
- Present feedback ('Learning Benefits') provided by EA on existing CTAP projects in North Norfolk and East Riding.

The following bullet points list the various stakeholder and community engagement activities undertaken in development of the Preferred Options.

- A provisional long list of With-Project Options was developed in collaboration with the CTAP Steering Group.
- These provisional Options were shared with each community via the JCF for initial feedback.
- A workshop was hosted with each community to discuss and develop the provisional Options and identify further Option ideas.
- A final list of With-Project Options was developed and shared with each community who completed an online poll to identify Preferred Options.
- A meeting with LPRG was hosted to present With-Project Options and gather feedback.

The following bullet points list the LPRG sub group feedback on the With-Project Options:

- LPRG identified 'value potential' in all Options presented and made the recommendation that Options are only cut from the Preferred Options list following initial further research at the next delivery phase. As such the OBC will carry forward all Options presented in Table 6 and Table 7 into the Preferred Way Forward.
- LPRG were positive about the scale and range of stakeholder and community engagement undertaken in support of Options development noting the importance of engagement in mitigating community buy-in constraints during project delivery. Through this process a number of the With-Project Options (e.g. nature-based solutions: vegetated slopes) originated from the community.

- LPRG were positive that a number of the Options will involve the community in Option delivery. For example, the National Coast Science Wardens will engage the local communities to gather data on coastal change (e.g. photographs) and this will encourage wider community buy-in.

Table 6. Options Appraisal summary Swanage North Cliff. See Appendix D for full appraisal.

Option No.	Option Name / Option Theme	Option Aim
1	Cliff monitoring and behaviour assessments / Adaptation	Develop a geomorphological understanding of what will happen to the cliffs over a range of timescales. Develop a framework to understand and quantify the associated risks over 20, 50 and 100 years. Improve the granularity of change predictions over work such as NCERM. Provide a sound scientific basis for all subsequent options. Monitoring system also to provide long-term refinement of change and impacts. This option will be carefully coordinated with the ongoing Cliff Management Strategy at Swanage North Cliff which is in development between 2024-2026 to avoid duplication of work. The findings of this work will feed into a number of other options including the Planning and Building control mapping and guidance, and the Adaptation Plan.
2	Planning and building control mapping and guidance / Adaptation	Ensure planning and building control of future development is appropriate to the changes and level of risk. Outputs for this option would be based on cliff monitoring and behaviour assessments.
3	Adaptation plan / Adaptation	Development of plan to support transition and resilience including programme of adaptation and implementation of adaptation measures based on understanding of coastal and cliff change. Outputs for this option would be based on cliff monitoring and behaviour assessments.
4	Flood and cliff retreat warning system, emergency response plan and an awareness campaign / Adaptation	Improve communities understanding of risk in relation to recent coastal and cliff changes and weather impacts and developing community plans for reacting to increasing risk. Reduce risk to life. Improve stakeholder awareness and acceptance of other options. The flood and cliff retreat warning system elements will tie into similar research being undertaken by Bournemouth University.
5	Access improvements: Sheps Hollow / Access	<i>N/A note this option is no longer required because the steps have been replaced at Sheps Hollow whilst this OBC was in process</i>
6	Vegetated slopes / Nature based solutions	Research the potential benefit of vegetation to mitigate shallow slope instability on the north side of Swanage. CTAP could potentially pay for some trials.
7	Surface and groundwater management / Resilience	Assessment of the viability of surface water and groundwater drainage to improve the stability of the cliffs. Ensure Wessex water minimise surface and groundwater impacts on the cliff.
8	National Coast Science Wardens / Community	Citizen science – community engaged to gather data of coastal change (e.g. photographs) to be collated in an app and interpreted. Development of data management system for longer term. Partnerships with local university for data management and can tie in with an early warning system. <i>Explore Coast Net – fixed photo positions for phones.</i>
9	Environmental and heritage reports / Adaptation	Development of baseline environmental and heritage reports to assist in planning developments and for private drainage-based cliff stabilisation schemes. With the new BNG requirements this could generate a new eco baseline via citizen science support and will

		simplify the pathway for private property owners to protect their assets within planning rules and environmental constraints.
10	Stakeholder steering group (e.g., coastal change or cliff management committee) / Community	Establish a stakeholder steering group to promote coordinated actions such as drainage schemes across multiple properties. The committee would be coordinated by the Council including various statutory stakeholders (by invitation and agenda) and coastal wardens.
11	Examination of alternative tourism revenues / Adaptation	Research on alternative tourism revenues Work to research alternative interests/activities for tourism where coastal and cliff change impacts areas of tourism interest. Significant losses to local revenue may arise from the impacts of the changing coastline. Review of potential options to diversify interests to support local revenue streams and local jobs.

Table 7. Options Appraisal summary Charmouth. See Appendix D for full appraisal.

Option No.	Option Name / Option Theme	Option Aim
1	Beach, river, cliff monitoring and behaviour assessments / Adaptation	Develop a geomorphological understanding of what will happen to the beach, river mouth, and cliff over a range of timescales. Develop a framework to understand and quantify the associated risks over 20, 50 and 100 years. Improve the granularity of change predictions over work such as NCERM. Provide a sound scientific basis for all subsequent options. Monitoring system also to provide long-term refinement of change and impacts. The findings of this work will feed into a number of other options including the Planning and Building control mapping and guidance, and the Adaptation Plan.
2	Planning and building control mapping and guidance / Adaptation	Ensure planning and building control of future development is appropriate to the changes and level of risk. Outputs for this option would be based on beach, river, cliff monitoring and behaviour assessments.
3	Adaptation plan / Adaptation	Development of plan to support transition and resilience including programme of adaptation and implementation of adaptation measures based on understanding of coastal and cliff change. Outputs for this option would be based on beach, river, cliff monitoring and behaviour assessments
4	Flood and cliff retreat warning system, emergency response plan and an awareness campaign / Adaptation	Improve communities understanding of risk in relation to recent coastal and cliff changes and weather impacts and developing community plans for reacting to increasing risk. Reduce risk to life. Improve stakeholder awareness and acceptance of other options. The flood and cliff retreat warning system elements will tie into similar research being undertaken by Bournemouth University.
5	Access improvements: West Beach / Access	Upgrade/replace access to west beach (either via stairs to the beach or a ramp to the west). The aim of this option is to go beyond the BAU approach (like for like replacement of damaged stairs) and research, design and build a novel solution which is resilient to wave attack and coastal retreat.
6	River flooding / Nature based solutions	Assessment of potentially re-opening natural flood zones to reduce flash flooding in the town.
7	Vegetated slopes / Nature based solutions	Research the potential benefit of vegetation on shallow slope instability on the west side of town. CTAP could potentially pay for some trials.
8	Heritage Coast Centre (HCC) and carpark rollback and pop-up / Rollback	Research on moving the HCC and carpark to the primary school, grass carpark behind the Centre or out of town. Research replacing beach front facility with a popup centre that can be moved to avoid significant storms. HCC upstairs only with popup catering.

		Install Park and Ride for HCC. Research repurposing the HCC building and land with something that is appropriate given the level of risk. Note this option doesn't deliver the rollback itself, rather just the research to identify a viable location and the planning elements.
9	Defence adaptation study / Resilience	Research adaptation of current defences such as moving rock already on site to augment defences at vulnerable sites. Research returning the coastline to a natural system to build beach and reduce coastal erosion.
10	Surface and groundwater management / Resilience	Assessment of the viability of surface and groundwater management and its impact on stability of the slopes above the cliffs.
11	Improve HCC flood and erosion resilience / Resilience	Augment HCC with shutters, flood bunds etc. to prevent or limit the impact of floods and erosion.
12	Assess the risk to the sewage pumping station / Resilience	Review the impact of high-water levels on the pumping station and potential solutions. The aim of this option is to work in partnership with Wessex Water to determine the risk to the sewage pumping station and identify a solution. CTAP funding will not be used for delivery of the solution which should be paid for by Wessex Water.
13	National Coast Science Wardens / Community	Citizen science. Community engaged to gather data of coastal change (e.g. photographs) to be collated in an app and interpreted. Development of data management system for longer term. Partnerships with local University for data management. Data could tie in with the early warning system. <i>Explore Coast Net – fixed photo positions for phones.</i>
14	Environmental and heritage reports / Adaptation	Development of baseline environmental and heritage reports to assist in planning developments and for private drainage-based cliff stabilisation schemes. With the new BNG requirements this could generate a new eco baseline via citizen science support and will simplify the pathway for private property owners to protect their assets within planning rules and environmental constraints.
15	Stakeholder steering group (e.g., coastal change or cliff management committee) / Community	Establish a stakeholder steering group to promote coordinated actions such as drainage schemes across multiple properties. The committee would be coordinated by the Council including various statutory stakeholders (by invitation and agenda) and coastal wardens.
16	Examination of alternative tourism revenues / Adaptation	Research on alternatives to the HCC to encourage tourism and generate revenue. Work to research alternative interests/activities for tourism where coastal and cliff change impacts areas of tourism interest. Significant losses to local revenue may arise from the impacts of the changing coastline. Review of potential options to diversify interests to support local revenue streams and local jobs. This option is linked adaptation planning for the HCC to avoid lost revenue.
17	Riverside path / Access	Re-establish the access path along the eastern side of the River Char and combine with access to the HCC and beach to potentially develop a wider adaptation pathway.

3.4.1 Investment scale and phasing

A suite of actions are proposed, ranging in scale from the development of an adaption plan to rollback and relocation of the Heritage Coast Centre at Charmouth. The study areas of Charmouth and Swanage North are relatively small and well-defined. Therefore, some of the proposed actions are well-understood and have well-defined locations (e.g. access improvements at Sheps Hollow); others will require further data and stakeholder engagement to optimise their phasing.

3.4.2 Investment measures

The project proposes a broad range of activities that are designed to be delivered in combination. The actions seek to address different areas of coastal transition, ranging from improving knowledge of the active cliff behaviour processes in the project area to increasing community preparedness and physical interventions to improve public access to the beach.

Combining actions to deliver a range of different benefits will help to develop communities who are better informed and better able to transition away from areas of risk.

3.4.3 Wider ambitions for regeneration and growth

The project has started to identify potential benefits (see Section 3.5.1) which will continue to be explored and refined as the project progresses. These benefits cover economic growth, natural capital, ecosystem services, social values and outcomes, flood risk and erosion risk, and learning benefits.

Studies to better understand alternative tourism revenue are included in the suite of proposed actions. The project also seeks to increase the knowledge and skills of the local communities through the proposed National Coast Wardens initiative.

3.4.4 Stakeholder and community

Stakeholder and community engagement are key themes of the Dorset CTAP project. Working in partnership with the Charmouth and Swanage North communities to develop action plans will also enhance their understanding of coastal change and increase community preparedness and resilience. During the OBC development, collaborative workshops with the CTAP Steering Group, comprising Dorset Council, Jurassic Coast Forum, Environment Agency and Jacobs have been held, in addition to stakeholder engagement events with the local communities at Charmouth and Swanage North Cliff.

A critical partner in the engagement of the community is the Dorset Coast Forum; this is an independent coastal partnership that brings together individuals and organisations for the betterment of the Dorset Coast and has a strong public engagement presence.

3.4.5 Evidence and learning

The proposed cliff monitoring activities will increase evidence which may be able to help other RMAs develop future business cases and support stakeholder engagement.

The proposed National Coast Warden could be adopted by other coastal communities. The learning benefit could be assessed through surveying wardens at the beginning and during their time as wardens to track increased knowledge/understanding and ownership of coastal processes and the level of understanding in the wider coastal community.

3.5 Economic appraisal

3.5.1 Assessment of benefits

The provision of benefits both potentially economic and intangible, expected from the Preferred Way Forward options, are presented against the benefits categories listed below:

- **Value at Risk**, defining the potential losses avoided by:
 - Damage to properties
 - Damage to infrastructure.

This is a quantitative evaluation drawing asset values where data are available.

- **Value Potential**, defining intangible benefits including:
 - Enhanced community assets
 - Enhanced well-being
 - Enhanced resilience, response and recovery
 - Improved service reliability
 - Environmental impacts, enhancements and opportunities.

This is a qualitative evaluation of intangible benefits which cannot be costed.

- **Learning Potential Benefits**, defining the benefits that future projects can draw on. This is a qualitative evaluation to identify potentially successful options that could provide benefits at other coastal locations in the UK.
- **Stakeholder Acceptability**, defining the level of acceptability and support for each Option from the local community and asset owners. This metric is based on the stakeholder engagement detailed in Section 3.4 and summarised below:
 - Initial Longlist Options ideas emailed to stakeholders to inform them of preliminary ideas and stimulate stakeholder feedback and ideas.
 - Options workshop held to present possible adaptation themes/approaches, garner feedback on initial Options and gather additional options ideas from stakeholders.
 - Online Options poll to define stakeholder options preferences.
- **Is the option innovative**, defining the level of innovation involved in each option. This qualitative evaluation takes account of CTAPs central tenet that options must be innovative and not represent a 'business as usual' approach.
- **Local constraints evaluation** to identify any issues which may restrict the feasibility and success of an option or may inflate the initial cost estimates. Preliminary constraint mitigation suggestions have also been made to identify where constraints could be avoided or reduced.

Due to uncertainty on the scale and extent of future coastal erosion, landslide and river flooding impacts it is presently not possible to quantify the losses avoided for all scheme Options without potentially creating significant issues for OBC delivery due to speculative and unrealistically high benefits targets. To demonstrate value for money whilst avoiding these issues the following approach has been taken:

- The CTAP project options have been grouped under the following themes:
 - **Adaptation** - measures that help the community to adapt to coastal change.
 - **Resilience** - measures that help the community be more resilient to coastal change.
 - **Community** - measures which promote society benefits through community engagement, awareness and volunteering activities.
 - **Nature based** - measures which work with natural processes to reduce coastal change risks.
 - **Access** - measures which improve access to the coast and associated benefits such as tourism.
- The objective within each themed group of Options is to achieve a BCR of 1 to demonstrate value for money.
- Where possible, the economic value of losses avoided by investing in an Option have been quantified.
- Where it is not possible to estimate the value of losses avoided by investing in an Option, estimates have been made on the duration of time over which the option would have to delay damage losses to achieve a BCR of 1.

Table 8 and Table 9 summarise the appraisal of Option benefits at Swanage North Cliff and Charmouth respectively.

Appendix I provides the value of losses avoided by investing in the Options and the methods used to make these estimates.

As introduced in Section 3.4, preferred way forward, all potential Options will be carried forward to the next phase of delivery where the geomorphological terrain and behaviour assessment will be undertaken. This activity provides accurate and up-to-date predictions on coastal change, including the range of uncertainty, which are critical in defining the most beneficial Options to deliver under the CTAP criteria and then to ensure selected Options are developed to best address identified issues and deliver CTAP benefits.

The geomorphological assessment will define the following:

- The scale and extent of future hazards including coastal erosion, cliff retreat, land instability riverbank erosion and flooding. This work will build on NCERM2 coastal change predictions and other relevant work and

literature to provide an improved and more granular appreciation of coastal change and associated risks at each study site.

- The scale and extent of the consequences including loss of properties and infrastructure and intangible damages to the community. With this work it will be possible to quantify the value of losses and benefits (both tangible and intangible) on a more localised scale.

Table 8. Option Benefits summary Swanage North Cliff. See Appendix D for Options Summary Tables and Appendix I for Losses and Benefits Assessment

Option No.	Option Name / Option Theme	Benefit <ol style="list-style-type: none"> 1. Value at risk 2. Value potential 3. Learning benefits 4. Stakeholder acceptability 5. Innovation
1	Cliff monitoring and behaviour assessments / Adaptation	<ol style="list-style-type: none"> 1. Provides a better understanding of what assets are at risk and when. This work will feed into delivery of options 2, 3, 4, 6, 7 and 8 below which have the potential to reduce future losses. This work is required to determine the extent and scale of future cliff retreat and reduce uncertainty in value at risk estimates. <i>Losses avoided of £50.3k for Swanage and Charmouth (see Table 9) combined have been estimated based on the mental health cost of erosion (See Appendix I). Losses avoided are achieved in combination so shared with Options 3 and 4 below.</i> 2. Potential to reduce economic impacts (emergency costs, infrastructure and transport), environmental impacts (regulating services and biodiversity) and social impacts (political systems, health and well-being, fears, and aspirations). 3. Approach and lessons learnt would be applicable to other coastal sites. 4. Acceptable to the community as they understand the need for and benefit of this work. 5. Moderately innovative. A geomorphological approach is not new, but it isn't widely used in a coordinated wider approach that enhances planning and building control and provides an adaptation plan, a flood and cliff retreat warning system, an emergency response plan, and an awareness campaign.
2	Planning and building control mapping and guidance / Adaptation	<ol style="list-style-type: none"> 1. Helps reduce the risk of damage/loss of future investments in assets in potentially unsuitable locations but doesn't reduce losses to existing property. <i>Appendix I demonstrates that prevention of the development and loss of 1 new average home or 3 new average property extensions to erosion or landsliding in the future would make this option value for money.</i> 2. Appropriate planning enabling building in low-risk areas and preventing it in high-risk areas reduces future risk exposure and negative impacts on well-being. 3. Appropriate planning and building control are applicable to all urban coastal sites. 4. The community understand the need for and benefit of this work however some individuals have concern that this will prevent some investments they might want to make in the future. 5. Moderately innovative. Planning and building control aren't new but is seldom based on a sound geomorphological understanding and within a coordinated wider approach providing an adaptation plan, a flood and cliff retreat warning system, an emergency response plan, and an awareness campaign.
3	Adaptation plan / Adaptation	<ol style="list-style-type: none"> 1. Helps the local authority plan for future changes and adaptation measures and to potentially move assets out of the risk zone or make them more resilient. <i>Losses avoided of £50.3k for Swanage and Charmouth (see Table 9) combined have been estimated based on the mental health cost of erosion (See Appendix I). Losses avoided are achieved in combination so shared with Options 1 and 4.</i>

		<ol style="list-style-type: none"> 2. Good potential to enhance assets, well-being and resilience. 3. Elements of a sound adaptation plan could be applicable to other coastal sites. 4. The community understand the need for and benefit of this work however some individuals have concern that they will be encouraged to adapt away from the coast. 5. Moderately innovative. Adaptation plans aren't new but are not always based on a sound geomorphological understanding and used as part of a co-ordinated wider approach including provision of planning and building control mapping and guidance, a flood and cliff retreat warning system, an emergency response plan, and an awareness campaign.
4	Flood and cliff retreat warning system, emergency response plan and an awareness campaign / Adaptation	<ol style="list-style-type: none"> 1. Improved awareness, warning of and response to coastal erosion and cliff retreat events has the potential to reduce damage losses and improve response. Losses avoided of £50.3k for Swanage and Charmouth (see Table 9) combined have been estimated based on the mental health cost of erosion (See Appendix I). Losses avoided are achieved in combination so shared with Options 1 and 3. 2. Good potential for enhanced well-being and resilience. 3. Potential to demonstrate the value of long-term monitoring and planning to other coastal sites, as well as highlighting the value of improved awareness in the community. 4. The community understand the need for and benefit of this work. 5. Moderately innovative. The overall ideas are not new but have previously not always been based on a sound geomorphological understanding and used as part of a co-ordinated wider approach including provision of an adaptation plan and planning and building control mapping and guidance.
5	Access improvements: Sheps Hollow / Access	N/A note this option is no longer required because the steps have been replaced at Sheps Hollow whilst this OBC was in process
6	Vegetated slopes / Nature based solutions	<ol style="list-style-type: none"> 1. Reasonable potential to reduce the risk of landslides. Appendix I demonstrates that a vegetated slopes scheme would have to delay landslide impacts by 2 years to be deemed value for money. 2. Enhances community assets and well-being. 3. Approach could be applicable at similar coastal cliff/slope environments. 4. Highly acceptable idea put forward by the community and has no obvious negative impacts. 5. Moderately innovative. This is a well-known concept but would have to be made site specific e.g. what is the impact of local plant assemblages' impact on stability?
7	Surface and groundwater management / Resilience	<ol style="list-style-type: none"> 1. This option has good potential to reduce the risk of landslides which, at present with the seawall and promenade at the base of the cliff, are driven by weathering and surface and groundwater triggers. The potential to reduce damage losses due to landslides by investing in drainage research is estimated in Appendix I. It shows that a drainage scheme would be value for money if it achieved a 13 year delay in landslides. 2. Provides reasonable enhancements to local assets and well-being and potentially a good improvement on mudslide resilience. 3. Approach could be applicable to similar coastal cliff/slope sites. 4. Highly acceptable to the community as it is a tangible improvement on stability. 5. Some potential for innovation though this could be viewed as a standard industry approach.
8	National Coast Science Wardens / Community	<ol style="list-style-type: none"> 1. Potential to augment data which could be used to understand what is at risk and reduce damage losses. This work, along with monitoring undertaken in option 1 will continually improve understanding of property at risk. Appendix I demonstrates that between both sites £131k of losses could be avoided through the social benefits of volunteering, avoided costs of paid employment and educational trips. 2. Good potential for enhanced response, assets, well-being and resilience.

		<ol style="list-style-type: none"> 3. If successful, this could be implemented at other sites. 4. Highly acceptable to the community as this is a community idea. 5. Highly innovative to involve the community in such a scheme.
9	Environmental and heritage reports / Adaptation	<ol style="list-style-type: none"> 1. Potentially smooths the route to private stabilisation/drainage schemes. 2. Reasonable potential for enhanced assets, well-being and resilience. 3. If successful, the approach could be implemented at other sites. 4. This is a community idea that they are moderately keen to support. 5. Highly innovative.
10	Stakeholder steering group (e.g., coastal change or cliff management committee) / Community	<ol style="list-style-type: none"> 1. Encourages cooperation and potentially smooths the route to private stabilisation/drainage schemes. <i>Although it is currently not possible to quantify benefits of the steering group, this option would have to achieve £69k losses avoided for the community themed Options to be value for money (see Appendix I)</i> 2. Reasonable potential for enhanced assets, well-being and resilience. 3. If successful, the approach could be implemented at other sites. 4. Highly acceptable to the community. 5. Moderately innovative.
11	Examination of alternative tourism revenues / Adaptation	<ol style="list-style-type: none"> 1. N/A value at risk damages are not reduced by this option. 2. Reasonable potential for enhanced community assets and well-being. 3. If successful, the approach could be implemented at other sites. 4. Moderately acceptable to the community. 5. Moderately innovative.

Table 9. Option Benefits summary Charmouth. See Appendix D for Options Summary Tables and Appendix I for losses and benefits assessment.

Option No.	Option Name / Option Theme	Benefit <ol style="list-style-type: none"> 1. Value at risk 2. Value potential 3. Learning benefits 4. Acceptability 5. Innovation
1	Beach, river, cliff monitoring and behaviour assessments / Adaptation	<ol style="list-style-type: none"> 1. Provides a better understanding of what assets are at risk and when. This work will feed into delivery of options 2, 3, 4, 6, 7, 8, 9, 10, 11 and 12 below which have the potential to reduce future losses. This work is required to determine the extent and scale of future cliff retreat and reduce uncertainty in value at risk estimates. <i>Losses avoided of £50.3k for Swanage (see Table 8) and Charmouth combined have been estimated based on the mental health cost of erosion (See Appendix I). Losses avoided are achieved in combination so shared with Options 3 and 4 below.</i> 2. Potential to reduce economic impacts (emergency costs, infrastructure and transport), environmental impacts (regulating services and biodiversity) and social impacts (political systems, health and well-being, fears, and aspirations). 3. Approach and lessons learnt would be applicable to other coastal sites. 4. Acceptable to the community as they understand the need for and benefit of this work. 5. Moderately innovative. A geomorphological approach is not new, but it isn't widely used in a coordinated wider approach that enhances planning and building control and provides an adaptation plan, a flood and cliff retreat warning system, an emergency response plan, and an awareness campaign.
2	Planning and building control mapping and guidance / Adaptation	<ol style="list-style-type: none"> 1. Helps reduce the risk of damage/loss of future investments in assets, in potentially unsuitable locations but doesn't reduce losses to existing property. <i>Appendix I demonstrates that prevention of the development and loss of 1 new average home or 3 new average property extensions to erosion or landsliding in the future would make this option value for money.</i> 2. Appropriate planning enabling building in low-risk areas and preventing it in high-risk areas reduces future risk exposure and negative impacts on well-being.

		<ol style="list-style-type: none"> 3. Appropriate planning and building control are applicable to all urban coastal sites. 4. The community understand the need for and benefit of this work however some individuals have concern that this will prevent some investments they might want to make in the future. 5. Moderately innovative. Planning and building control aren't new but is seldom based on a sound geomorphological understanding and within a coordinated wider approach providing an adaptation plan, a flood and cliff retreat warning system, an emergency response plan, and an awareness campaign.
3	Adaptation plan / Adaptation	<ol style="list-style-type: none"> 1. Helps the local authority plan for future changes and adaptation measures and to potentially move assets out of the risk zone or make them more resilient. Losses avoided of £50.3k for Swanage (see Table 8) and Charmouth combined have been estimated based on the mental health cost of erosion (See Appendix I). Losses avoided are achieved in combination so shared with Options 1 and 4. 2. Good potential for enhanced assets, well-being and resilience. 3. Elements of a sound adaptation plan could be applicable to other coastal sites. 4. The community understand the need for and benefit of this work however some individuals have concern that they will be encouraged to adapt away from the coast. 5. Moderately innovative. Adaptation plans aren't new but are not always based on a sound geomorphological understanding and used as part of a co-ordinated wider approach including provision of planning and building control mapping and guidance, a flood and cliff retreat warning system, an emergency response plan, and an awareness campaign.
4	Flood and cliff retreat warning system, emergency response plan and an awareness campaign / Adaptation	<ol style="list-style-type: none"> 1. Improved awareness, warning of and response to coastal erosion and cliff retreat events has the potential to reduce damage losses and improve response. Losses avoided of £50.3k for Swanage (see Table 8) and Charmouth combined have been estimated based on the mental health cost of erosion (See Appendix I). Losses avoided are achieved in combination so shared with Options 1 and 3. 2. Good potential for enhanced well-being and resilience. 3. Potential to demonstrate the value of long-term monitoring and planning to other coastal sites, as well as highlighting the value of improved awareness in the community. 4. The community understand the need for and benefit of this work. 5. Moderately innovative. The overall ideas are not new but have previously not always been based on a sound geomorphological understanding and used as part of a co-ordinated wider approach including provision of an adaptation plan and planning and building control mapping and guidance.
5	Access improvements: West Beach / Access	<ol style="list-style-type: none"> 1. Value at risk damages such as those to tourism and recreational visits could be reduced by this option if access is lost to the cliff on the west side of the River Char without intervention. Appendix I demonstrates that £1.49m of losses due to displaced tourism and loss of beach access could be avoided. 2. Good potential to provide social, health and well-being benefits by improving recreation and reducing the disruption to local economy. 3. Potential to research innovative/adaptable access approach/design which may be applicable elsewhere. 4. This is the most popular option with the local community. 5. Potentially highly innovative. This option presents the chance for innovative research into adaptable access approach/design.
6	River flooding / Nature based solutions	<ol style="list-style-type: none"> 1. Reasonable potential to reduce river flood and erosion risks and damages if natural flood areas are identified and available for use. Appendix I demonstrates that this option would have to delay flood impacts by 7 years to be deemed value for money. 2. Enhances community assets and well-being. 3. Approach could be applicable at similar coastal/river environments.

		<ol style="list-style-type: none"> Acceptability is potentially good if the flood risk can be reduced, however land-use change to floodplains may be unpopular. Moderately innovative. This is a well-known concept but would have to be made site specific.
7	Vegetated slopes / Nature based solutions	<ol style="list-style-type: none"> Reasonable potential to reduce the risk of mudslides in the meadow below the west side of town though it is unlikely to impact a deep-seated Black Ven-type failure. <i>Appendix I demonstrates that a vegetated slopes scheme would have to delay landslide impacts by 2 years to be deemed value for money.</i> Enhances community assets and well-being. Approach could be applicable at similar coastal cliff/slope environments. Highly acceptable idea put forward by the community and has no obvious negative impacts. Moderately innovative. This is a well-known concept but would have to be made site specific e.g. what is the impact of local plant assemblages' impact on stability?
8	Heritage Coast Centre (HCC) and carpark rollback and pop-up / Adaptation	<ol style="list-style-type: none"> This option aims to preserve the function of the HCC and carpark and the revenue they produce for the council and local tourism. <i>Appendix I demonstrates losses avoided are based on the benefit of early planning so that the CHCC can be moved before it is lost to flood/erosion impacts. This means that closure of the Centre would be minimised during planning and undertaking the move.</i> Potential to enhance the HCC asset and well-being as a result. There are other coastal communities based around similar centrepiece assets at risk so the solution developed could be applicable elsewhere. Highly acceptable to the local community. The HCC is vital to the survival of Charmouth as a coastal resort. It is the primary asset in Charmouth and a key concern to the community. Potentially highly innovative, particularly a pop-up HCC.
9	Defence adaptation study / Resilience	<ol style="list-style-type: none"> Rock armour may be moved to benefit other frontages and reduce value at risk at other locations. Withdrawal/adaptation of defences assists in managing return of coastline to natural state with potential environmental and societal benefits. Proactive withdrawal of defences reduces health and safety risks. Defence adaptation will be site specific and so applicability will have to be considered on a site-by-site basis. The community is split on investing in defences. The EA is also unlikely to fund a 'hold the line' or 'business as usual' scheme. Potential for innovation is moderate. Defences often left to fail and removed when become a health and safety issue. Proactive withdrawal of defences is not standard industry practice.
10	Surface and groundwater management / Resilience	<ol style="list-style-type: none"> This option has good potential to reduce the risk of shallow landslide and mudslides between the current cliff crest and assets landward. <i>The potential to reduce damage losses due to landslides by investing in drainage research is estimated in Appendix I. It shows that a drainage scheme would be value for money if it achieved a 13 year delay in landslides.</i> Provides reasonable enhancements to local assets and well-being and potentially a good improvement on mudslide resilience. Approach could be applicable to similar coastal cliff/slope sites. Highly acceptable to the community as it is a tangible improvement on stability. Some potential for innovation though this could be viewed a standard industry approach.
11	Improve HCC flood and erosion resilience / Resilience	<ol style="list-style-type: none"> <i>Appendix I evaluates historical annual repair costs and economic impacts caused by flood and storm damage to the HCC. Over a 20 year period it is demonstrated that £60.7k of repairs and revenue losses could be avoided.</i> Reasonable potential to enhance well-being and resilience. The approach will not be applicable to other sites. Highly acceptable to the community as would be a tangible improvement to the HCC resilience.

		5. This is not an innovative approach.
12	Assess the risk to the sewage pumping station / Resilience	<ol style="list-style-type: none"> 1. This assessment is critical in reducing/managing pollution and the associated damage/clear up costs. 2. Good potential for enhanced assets, well-being and resilience. 3. The approach will not be applicable to other sites. 4. Highly acceptable to the community as there have been previous concerns around this infrastructure. 5. Depending on the solution that is ultimately developed, this may or may not be innovative.
13	National Coast Science Wardens / Community	<ol style="list-style-type: none"> 1. Potential to augment data which could be used to understand what is at risk and reduce damage losses. This work, along with monitoring undertaken in option 1 will continually improve understanding of property at risk. <i>Appendix I demonstrates that between both sites £131k of losses could be avoided through the social benefits of volunteering, avoided costs of paid employment and educational trips.</i> 2. Good potential for enhanced response, assets, well-being and resilience. 3. If successful, this could be implemented at other sites. 4. Highly acceptable to the community as this is a community idea. 5. Highly innovative to involve the community in such a scheme.
14	Environmental and heritage reports / Adaptation	<ol style="list-style-type: none"> 1. Potentially smooths the route to private stabilisation/drainage schemes. 2. Reasonable potential for enhanced assets, well-being and resilience. 3. If successful, the approach could be implemented at other sites. 4. This is a community idea that they are moderately keen to support. 5. Highly innovative.
15	Stakeholder steering group (e.g., coastal change or cliff management committee) / Community	<ol style="list-style-type: none"> 1. Encourages cooperation and potentially smooths the route to private stabilisation/drainage schemes. <i>Although it is currently not possible to quantify benefits of the steering group, this option would have to achieve £69k losses avoided for the community themed Options to be value for money (see Appendix I)</i> 2. Reasonable potential for enhanced assets, well-being and resilience. 3. If successful, the approach could be implemented at other sites. 4. Highly acceptable to the community. 5. Moderately innovative.
16	Examination of alternative tourism revenues / Adaptation	<ol style="list-style-type: none"> 1. N/A value at risk damages are not reduced by this option. 2. Reasonable potential for enhanced community assets and well-being. 3. If successful, the approach could be implemented at other sites. 4. Moderately acceptable to the community. 5. Moderately innovative.
17	Riverside path / Access	<ol style="list-style-type: none"> 1. N/A value at risk damages are not reduced by this option. 2. Reasonable potential for enhanced community assets and well-being. 3. Potentially not applicable elsewhere. 4. Moderately acceptable to the community. 5. Moderately innovative

3.5.2 Assessment of costs

A high-level **cost estimate** has been provided for each Option in order to understand the number and range of options that can be supported by CTAP funding. The high-level cost estimates have been developed from consideration of similar projects/schemes undertaken in recent years in the UK. An estimate of cost uncertainty has also been made to identify and avoid the potential for significant cost escalation. This can also allow options with greater cost certainty to be prioritised as needed.

Table 10. Options Cost summary Swanage North Cliff.

Option No.	Option Name	Cost Estimate (£k)	Cost uncertainty
1	Cliff monitoring and behaviour assessments.	150	Moderate (but potential to be low at OBC delivery)
2	Planning and building control mapping and guidance.	50	Moderate (but potential to be low at OBC delivery)
3	Adaptation plan.	100	Moderate (but potential to be low at OBC delivery)
4	Flood and cliff retreat warning system, emergency response plan and an awareness campaign.	100	Moderate (but potential to be low at OBC delivery)
5	Access improvements: Sheps Hollow.	N/A steps replaced	na steps replaced
6	Nature based solutions: Vegetated slopes.	50	Moderate (but potential to be low at OBC delivery)
7	Surface and groundwater management.	250	High
8	National Coast Science Wardens.	50	Moderate (but potential to be low at OBC delivery)
9	Environmental and heritage reports.	100	High (but potential to be moderate at OBC delivery)
10	Stakeholder steering group.	50	Moderate (but potential to be low at OBC delivery)
11	Examination of alternative tourism revenues.	50	Moderate (but potential to be low at OBC delivery)

Table 11. Options Cost summary Charmouth.

Option No.	Option Name	Cost Estimate (£k)	Cost uncertainty
1	Beach, river, cliff monitoring and behaviour assessments.	150	Moderate (but potential to be low at OBC delivery)
2	Planning and building control mapping and guidance.	50	Moderate (but potential to be low at OBC delivery)
3	Adaptation plan.	100	Moderate (but potential to be low at OBC delivery)
4	Flood and cliff retreat warning system, emergency response plan and an awareness campaign.	100	Moderate (but potential to be low at OBC delivery)
5	Access improvements: West Beach.	300	High
6	Nature based solutions: River flooding.	150	Moderate (but potential to be low at OBC delivery)
7	Nature based solutions: Vegetated slopes.	50	Moderate (but potential to be low at OBC delivery)
8	Heritage Coast Centre (HCC) rollback and pop-up.	100	Moderate (but potential to be low at OBC delivery)
9	Defence adaptation.	100	High
10	Surface and groundwater management.	250	High
11	Improve HCC flood and erosion resilience.	150	High
12	Assess the risk to the sewage pumping station.	100	Moderate (but potential to be low at OBC delivery)
13	National Coast Science Wardens.	50	Moderate (but potential to be low at OBC delivery)
14	Environmental and heritage reports.	100	High (but potential to be moderate at OBC delivery)
15	Stakeholder steering group.	50	Moderate (but potential to be low at OBC delivery)
16	Examination of alternative tourism revenues.	50	Moderate (but potential to be low at OBC delivery)

17	Riverside path.	200	Moderate
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A wide range of options has been presented with high level costs. This is due to the level of uncertainty at this stage with options dependent upon investigations and community support. The potential budget available for this project, subject to approval, is £3M. It may not be possible within this budget to carry forward all of the options presented. However, given the uncertainties mentioned, the preferred way forward is to keep all options on the table for further consideration during the next phase of delivery and then prioritise those which are determined to provide the greatest benefits within budget. A general summary of cost breakdown by programme activity is provided in Table 12 (cash costs) and Table 13 (PV costs).

Table 12. Summary of cost breakdown by programme activity (cash costs)

Element	Total Budget Estimate (k)	23/24 (k)	24/25 (k)	25/26 (k)	26/27 (k)
Pre-OBC	125	25	100	-	-
Preferred way forward options package	1,996	-	246	830	920
Project Management and Governance	190		38	76	76
Optimism Bias Contingency (30%)	656		85	272	299
Total	2,967	25	469	1,178	1,295

Table 13. Summary of cost breakdown by programme activity (PV costs)

Element	Total Budget Estimate (k)	23/24 (k)	24/25 (k)	25/26 (k)	26/27 (k)
Pre-OBC	125	25	100	-	-
Preferred way forward options package	1,907	-	246	802	859
Project Management and Governance	182	-	38	73	71
Optimism Bias Contingency (30%)	627	-	85.2	263	279

Total	2,841	25	469	1,138	1,209
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3.5.3 Value at risk losses and losses avoided, and value potential benefits

Where it is possible to do so the value at risk losses and losses avoided have been estimated. Appendix I provides a detailed account of the methods used to make these estimates.

3.5.4 Benefit-Cost Ratio

The assessment of losses avoided groups Options into adaptation, resilience, community, nature based and access themes. The objective within each themed group of Options is to achieve a BCR of 1 to demonstrate value for money. Where possible, the economic value of losses avoided by investing in an Option have been quantified. Where it is not possible to estimate the value of losses avoided by investing in an Option, estimates have been made on the duration of time over which the option would have to delay damage losses to achieve a BCR of 1. Table 14 summarises the losses avoided results.

Table 14. Summary of losses avoided and costs of each Option. BCR of themed groups of Options is presented and how any shortfall to a target of BCR=1 is achieved. Full results and methods are provided in Appendix I.

Option Theme	Option	Losses avoided value (£)	Option cost (£)
Adaptation	Beach, river, cliff monitoring and behaviour assessments	£50,268	£300,000
	Adaptation plan		£200,000
	Flood and cliff retreat warning system, emergency response plan, awareness campaign		£200,000
	Planning and building control mapping and guidance	£0.00	£100,000
	Heritage Centre rollback and popup	£1,955,909	£100,000
	Environmental and heritage reports	£0.00	£200,000
	Examination of alternative tourism revenues	£0.00	£100,000
	Total	£2,006,177	£1,200,000
	BCR		1.7
	Shortfall to BCR =1		£0
Resilience	Defence adaptation	£0	£100,000

	Surface and groundwater management research	£0	£500,000
	Improve HC flood and erosion resilience	£60,701	£150,000
	Assess the risk to sewage pumping station	£0	£100,000
	Total	£60,701	£850,000
	BCR		0.1
	Shortfall to BCR =1		£789,299
	The shortfall to BCR=1 is made up by estimating that a surface and groundwater management scheme would have to delay landsliding by 13 years to avoid £816k of losses (see Appendix I).		
Access	Access improvements: West Beach	£1,491,159	£300,000
	Riverside path	£0	£150,000
	Total	£1,491,159	£450,000
	BCR		3.3
	Shortfall to BCR =1		£0
Community	National Coast Science Wardens	£131,156	£100,000
	Stakeholder steering group	£0	£100,000
	Total	£131,156	£200,000
	BCR		0.7
	Shortfall to BCR =1		£68,844
	The shortfall to BCR=1 could be made up by the steering group option which would have to achieve a £69k losses avoided for the community themed options to be value for money (see Appendix I).		
Nature based	Nature based solutions: River flooding	£0.00	£150,000
	Nature based solutions: Vegetated slopes	£0.00	£100,000
	Total	£0.00	£250,000
	BCR		0

Shortfall to BCR =1	£250,000
<p>The shortfall to BCR=1 is made up by estimating that reopening natural flood zones would have to delay flooding by 7 years to avoid half of the £250k of losses and that vegetated slopes would have to delay landsliding by 2 years to avoid half of the £250k of losses (see Appendix I).</p>	

Value potential and learning potential benefits are described qualitatively for each Option in Table 8 and Table 9.

3.6 Description of Invest more

As noted in 3.5.2, it may not be possible within the available budget to deliver all options identified. Prioritisation will likely be required; however, under a scenario of 50% more funding being available to Dorset CTAP, the following improvements could be delivered:

- A wider selection of the activities could be progressed during the OBC delivery phase.
- Increased scope for community engagement and development of options.
- Increased monitoring and evaluation to share learning more effectively with other coastal communities.

3.7 Other appraisals

3.7.1 Carbon appraisal

A range of carbon tools for the assessment of carbon costs and benefits have been developed and include the Environment Agency's range of existing tools such as ERIC used for the assessment of carbon in FCERM schemes. The application of these tools is focussed primarily on physical works with a focus on the sourcing of materials and construction impacts. Assessment of the types of options currently included in the proposed Dorset CTAP programme are currently not accommodated in these tools.

Therefore, carbon costs and benefits have not been appraised for this OBC.

However, Dorset Council understand that an early understanding of carbon impacts from proposed works is necessary to be able to drive carbon reduction throughout the development of the programme. Dorset Council will seek to develop systems of working and actions to minimise, avoid, capture and offset carbon. Once approval of the OBC has been received, a carbon baseline will be undertaken and ongoing assessment will be carried out as the project progresses to ensure carbon emissions are reduced where possible.

Learning from local authority projects has identified that carbon reduction must be incorporated into the beginning of projects in order to ensure all carbon minimisation and capture pathways are open and that carbon does not become locked into proposals or carbon mitigation becoming a latter 'add on'.

3.8 Option Selection

Table 15 shows how well each option meets the appraisal criteria and the derivation of the selected option.

Table 15. Preferred option

Criteria	BAU	Preferred option	Do more	Do less
Question: Meets the Objectives?	N	Y	Y	Y
Question: Meets critical success factors?	N	Y	Y	Y
Technical matters:	4	2	1	3
Environmental impact:	4	2	1	3
Economic:	4	1	2	3
Carbon:	TBC	TBC	TBC	TBC
Operational	4	2	1	3
Local preference	4	2	1	3
Conclusion and selection	4	1	2	3

4.0 Commercial Case

4.1 Procurement strategy and timescales

4.1.1 Introduction and Procurement Strategy

The nature of the CTAP is that it is innovative and is seeking new approaches and knowledge generation to assist with informing future local and national activities, policy and funding mechanisms. The nature of CTAP is that it will, through its initiation, development and delivery, need to be flexible in order to procure numerous goods and services, with a variety of contract values, all while utilising differing contract types. As such, there will be a number of different routes to market, contract type or risk allocation preference to provide all the needs of the programme. Consequently, as the programme progresses, the project team will identify the most efficient and effective procurement route according to the principles and options below. The potential to jointly procure goods and services and to bundle work packages where appropriate, will be explored. Should any procurement routes change during the delivery period, or if new opportunities are identified, these will also be considered.

Procurement processes will comply with all those required by local government. This also includes European Union directives and regulations (and any successive changes), Public Contract Regulations 2015 – or updated regulations (Procurement Act 2023) when introduced, individual local authority financial and contract procedures (including fraud and corruption policies, whistleblowing policies, and employee codes of conduct). Procurement at all stages will be carried out in partnership with the Dorset Council Commercial and Procurement team and will follow the Dorset Council scheme of delegation as outlined in the council's constitution.

Work packages will be managed using NEC4 short form contracts using the option most appropriate to the task. If appropriate, Dorset Council Terms & Conditions may be used. The appropriate form of contract will be informed by Dorset Councils legal and procurement teams.

It is considered that Dorset Council's contracting approach will include the use of in-house arrangements when they are fit for purpose as well as the procurement of external resource through the use of established frameworks where possible. Utilising Dorset Council's existing relationships with contractors allows an informed decision on the cost/quality and will enable the securing of services that balance optimum outcomes and cost.

4.1.2 Procurement Routes and Timeline

The following procurement options are open for the use of Dorset Council in the delivery of CTAP. These have been utilised successfully by the Council and its partners in recent operations and projects:

- Existing frameworks, for example we are already signed up to the following;
 - the Crown Commercial Services framework for Construction Professional Services (Framework Ref RM6165),
 - Southern Coastal Group Professional Services Framework
 - Southern Coastal Group Minor Works Framework (Construction)
 - Dorset Council's Transport & Engineering Professional Services Contract
 - Dorset Council's Managed Services Contract for Specialist Professional Services
 - Open tender or competitive flexible procedure, as described in the anticipated Procurement Act 2023.
 - Public Sector Cooperation Agreement with Bournemouth, Christchurch and Poole Council.

Dorset Council have access to any Public Sector framework that has been set up for access to Local Authorities regionally or nationally. There is therefore also opportunity for exploring other frameworks and sign up to these where appropriate and possible; and where there are no limitations on Dorset Council to do so. The FCERM service has been successful in doing so for past projects.

In addition, there maybe opportunities for partnering, for example with other local authorities, universities, volunteering organisations or charities, e.g., Bournemouth University, Jurassic Coast Trust, etc. In such instances partnering / bespoke agreements maybe used.

There may also be opportunities to distribute additional grants and loans (for example, through private third parties and environmental bonds). This additional financing will be explored in the programme. Where funds are distributed through loan and grants schemes, further legal advice as to terms and conditions will be sought to supplement existing knowledge.

It is anticipated that the first works associated with the delivery of the CTAP programme will be awarded in 2024.

4.2 Efficiencies and commercial arrangements

4.2.1 Partnership Working

Dorset Council will continue to work with external partners as well as other internal Dorset Council departments to act on any additional partnership opportunities for contributions or delivery of efficiencies. This will include maximising opportunities to deliver parts of CTAP work/activities jointly with Cornwall District Council and other FCRIP and CTAP projects and potentially Wessex Water. The potential scope of this work is still being established.

Other opportunities may also exist with Bournemouth University who we are currently working closely with on a 5G cliff monitoring study, and the SCOPAC (Southern Coastal Group) research programme which we have utilised before and relationships are established.

Working with the Jurassic Coast Trust may also be beneficial, given their expertise along the World Heritage Site and we intend to work closely with our partners at Dorset Coast Forum who are the current comms and engagement leads for the project.

This will produce benefits in terms of value for money, efficiency and learning.

4.2.2 Project Efficiencies

The project will seek to generate efficiencies at each stage to ensure best value is achieved for the public purse.

Efficiencies arising from this CTAP programme will be recorded in a programme efficiency register to record efficiency made and value added. Potential efficiencies are expected to arise from the following:

- Pooling resources through the organisations involved in the project and the wider CTAP Programme, including council's and their contractors;
- Bundling the procurement of work packages, where appropriate;
- Data sharing;
- Adopting information/working practices from pioneering activities successfully developed under other CTAP or FCRIP projects and wider FCRIP programme ,(and conversely passing on efficiencies by providing information from pioneering projects undertaken under the Swanage North and Charmouth programme that have potential for national roll out);
- Capturing expertise and experience from other CTAP projects into a Lessons Learnt Register and build on findings to avoid repeating mistakes;
- Partnering with Universities/Colleges to support degree, masters or PhD projects whilst gaining free resource and data analysis services;
- Third party funding opportunities;
- Use of new technology to raise awareness and understanding among stakeholders and communities.

5.0 Financial Case

5.1 Summary of financial appraisal

Table 16 shows the Whole Life Cash Cost.

Table 16. Whole Life Cash Cost

Cost Heading	Whole-life (£K) cash cost See note 1
Cost up to OBC. See note 3	125
Preferred way forward options package	1,996
Project Management and Governance	190
Optimism Bias Contingency (30%)	656
Total	2,967

Table 17 shows the Total Value of the Project.

Table 17. Total Value of the Project

Cost Heading	Total value of project See note 2 (For approval)
Cost up to OBC. See note 3	Exclude previous applications
Preferred way forward options package	1,996
Project Management and Governance	190
Optimism Bias Contingency (30%)	656
Inflation (based on GDP deflator future rates)	158
Total	3,000

[Notes]

1. This column shows the cash, i.e., undiscounted, values and includes all future costs over the design life including study costs approved under an [FCERM7](#).
2. The costs in this column are cash values.
3. The whole life cash cost includes any study costs approved under an FCERM7 and the development cost of the OBC. The Total value of project does not

include study costs as these have already been approved under an FCERM7. It does include the OBC development cost.

4. The cost of environmental enhancement is contained within the other cost elements and not shown separately.

5. Add further rows as necessary for individual headings. A cumulative miscellaneous cost should not be more than 5% of the total.

6. Note that the allowance for risk and/or optimism bias is part of the project approval but must be claimed separately when needed using the [FCERM4](#) application. See supporting information for further explanation and refer to section 12 of the [Grant Memorandum](#) found on Gov.uk page: Flood and coastal defence: develop a project business case.

7. The allowance for risk and optimism bias applicable to future construction and maintenance is shown separately from current risk and optimism bias to account for uncertainty.

8. This is the total estimated costs shown in section A6 of the FCERM2. It is also the Total value of project referred to in section A4 of the Financial Scheme of Delegation.]

5.2 Funding sources

Table 18. Sources of funding

Source of Funding	£k
EA contribution (Grant in Aid)	£3,000 k
EA contribution (Grant in Aid) contingency (30%)	£900 k
Total funding	£3,000 k

5.3 Expenditure and income profile

Table 19. Income and Expenditure Profile

Income and Expenditure streams £k	23/24	24/25	25/26	26/27	Total
Cost less contingency	25	384	906	996	2,311
Contingency	0	85	272	299	656

Income and Expenditure streams £k	23/24	24/25	25/26	26/27	Total
Total cost	25	469	1,178	1,295	2,967
Grant in aid	25	469	1,178	1,295	2,967
Total income	25	469	1,178	1,295	2,967

6.0 Management Case

6.1 Project management

6.1.1 Project Structure and Governance

The development of the CTAP OBC is being led by Dorset Council and they will continue to act as lead during the development of the CTAP project working closely with wider community groups.

The project's governance structure is shown in Figure 4 below.

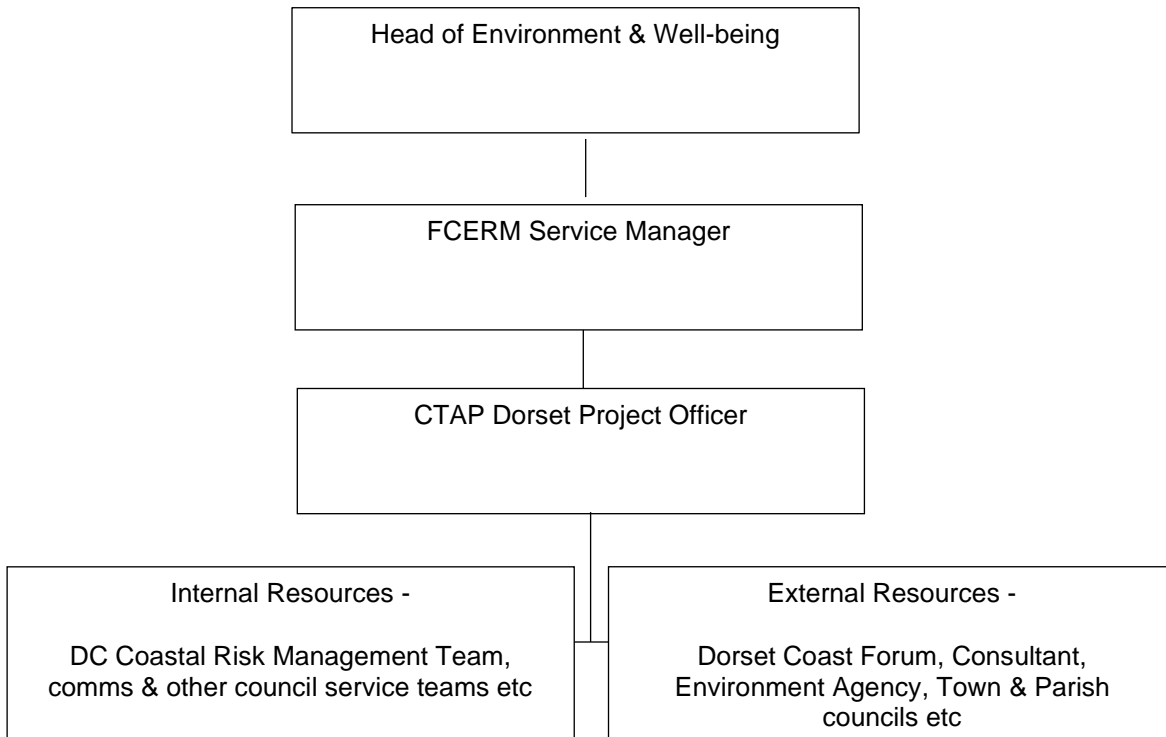


Figure 4. Swanage North & Charmouth CTAP Organogram

Head of Environment & Well-being:

Will provide a strategic oversight and act as project sponsor from the Council's perspective. This will ensure that the project is fully reflected within the Council's corporate reporting programme, and project progress is discussed at a senior level and with council members. This officer will chair the CTAP Dorset Steering Group Meetings.

FCERM Service Manager:

This officer will line manage the CTAP Project Officer and support the development of the project. They will ensure that adequate resources are committed to delivery of the proposed OBC outcomes and sit upon the CTAP Dorset Steering Group. This officer will also have overall responsibility for programme, budget management and internal assurance.

CTAP Dorset Project Officer:

Principle Duties include:

- Lead, drive and deliver Dorset Council's Coastal Transition Accelerator project.
- To liaise, engage and consult with coastal communities, businesses and commerce to help improve their ability to adapt to / mitigate the impacts of coastal change to achieve greater resilience and economic security, in accordance with current best practice.
- To monitor, review and report on the project , budget and associated action plans.

They are:

- Accountable to the FCERM Service Manager & Project Steering Group
- Prepares project management documents and reports, and ensures they are agreed by the Steering Group.
- Establish, manage, and maintain the project's risk management documents, issue and change control measures, information management and communication processes.
- Overseeing work required to progress the project in line with direction from, and within tolerances identified by the steering group.
- Commissioning work from council teams and external suppliers & ensuring that work is delivered within appropriate tolerances.
- Establishing and managing monitoring and reporting processes feeding into both Council lead project reporting as well as CTAP programme level reporting and the Defra Flood and Coastal Innovation Programme (FCIP) programme level evaluation
- Advising the steering group of any deviations from the project plans and recommending remedial action.

- Identifying opportunities for efficiencies within the program, either with time and/or cost saving.

CTAP Dorset Steering Group:

Chaired and led by Dorset Council's Head of Environment & Well-being, this group will provide advice, support & critical-friend analysis to the CTAP Dorset Programme Manager. Made-up of officers from organisations including Dorset Council and the Environment Agency, the group will help support delivery of the project outputs and achievement of the project outcomes by facilitation within respective organisations.

The Project Steering Group will include the following representatives:

Ken Buchan:	Head of Environment & Well Being, Dorset Council - Chair
Matthew Penny:	FCERM Service Manager, Dorset Council
Toni Powell:	Dorset Coast Forum Coordinator
Giles Nicholson:	Coast and Greenspace Service Manager, Dorset Council
Dave Picksley:	Senior Advisor, Environment Agency
Dan Williams:	Dorset Coast Forum Project Officer (comms lead Char-mouth)
Sara Parker:	Dorset Coast Forum Project Officer (comms lead Swanage)
Esmari Steenkamp:	Coastal Risk Manager, Dorset Council
Steve Boyt:	Senior Planning Policy Officer, Dorset Council
Bridget Betts:	Environment Policy Partnership Manager, Dorset Council
Alan Frampton:	SMP15 & 16 lead officer and FCERM Strategy, Policy & Environment Manager, BCP Council

In support of the CTAP Dorset Programme Manager, it is anticipated that additional specific expertise for the delivery of the programme will be drawn from teams across the Council including coastal engineering, flood and coastal risk management, forward planning and communications. Where specific work packages may require prolonged and intensive involvement from particular teams, service level agreements may be set up to ensure this resource is available when required.

To support project development and delivery it is essential that the project team also engages, interacts and collaborates with a broad range of partners and stakeholders. In order to achieve this effectively and efficiently it is expected that a number of existing groups and partnerships will be engaged, and where there are gaps in coverage it may be necessary to establish new ones.

For individual work packages, discrete project partners such as academic institutions and commercial operators, will be engaged to add value and expertise to the delivery of the Dorset CTAP.

We will also continue to engage with the national CTAP programme team to share resources and learning where possible and feed in to programme reporting requirements.

Funding for this project will be administered via the EA, using established grant-in-aid to draw down process (with any necessary and relevant adaptations to be agreed with Defra).

Any financial and political decisions will be made in line with the scheme of delegation as per the council's constitution.

6.2 Schedule

The project funding for Swanage North and Charmouth CTAP is expected to run from Nov 2024 to March 2027 although it is recognised that the realisation of some outcomes will extend beyond the funded work as learning is incorporated into discussions about improvements to policy and process.

The outline project programme is available in Appendix H. The outline programme is indicative at this stage, and will be dependent on third parties and stakeholder engagement. Primary focus has been given to early activities in the programme.

Table 20. Main Event Dates

Event	Date
CTAP funding awarded and commencement of work activities	Nov 24
Community Engagement and MEL	Throughout
Option Refinement	Nov 24 – May 25
Adaptation/ Access / Nature Based / Resilience solutions development	May 25 – March 26
Community solutions development	May 25 – Sept 25
Community solutions rollout	Oct 25 – March 27
Adaptation/ Access / Nature Based / Resilience solutions construction/delivery	Apr 26 - March 27
Adaptation Plans	Apr 26 – March 27
Project Completion	March 27

6.3 Risk, assumptions, issues and dependencies management

6.3.1 Risks

A risk register has been developed to identify and manage risks, refer to Appendix E. The top six key risks identified are included in Table 21.

Table 21. Top six key risks

Key Risk	Owner	Mitigation
Lack of engagement and understanding from communities, businesses, and other stakeholders. Community do not support adaptation options.	Dorset Council / Environment Agency	<p>Communication and engagement plans in place - Coordinated message from DC, Defra and EA as to the need for adaptation. Adequate time built in for regular, open, honest and transparent communication with stakeholders using a range of traditional and digital methods. Consider engagement methods to minimise disruption from individuals. Community Steering Groups. Public consultations. Keep records of who is making contact with us in regard to which subject matters.</p> <p>Explanation of the risks posed by climate-driven coastal erosion and the need for coastal transition.</p> <p>Detailed member briefings.</p> <p>Respond to social media comments appropriately where necessary and include social media crisis plan as part of social media strategy. Updating social media ahead of time to keep everyone up to date with what is planned.</p> <p>Utilisation of local knowledge to identify key local contacts. Involvement of community in local decision making and identification of preferred transition options.</p> <p>Listen to individuals/pressure groups at the first instance to maintain an amicable relationship if possible. Attempt to understand the values and drivers of pressure groups to change opinion/stance.</p>
Skills Gaps - Technical	Dorset Council	Ensure training is provided to upskill new and existing staff.

Expertise Resource availability		Considered resourcing approach. Utilisation of available routes to market. Further recruitment of resource where possible. Use of external suppliers/consultants. Use the expertise of associates to meet the deadlines and fill the gaps. Examine completing certain tasks through alternative routes to create efficiencies. Having an understanding of project timelines and requirements.
Lack of corporate / political buy-in.	Dorset Council	Regular contact with MPs and elected members to update them on the CTAP and to reinforce the need for the project. Involvement of members in decision making. Early engagement with MPs and elected members?
Lack of available land/unwillingness to sell land/unaffordable for rollback/relocation.	Dorset Council	Early assessment of land availability, identification, land allocation and acquisition options explored. Flexibility within project plan. Appropriate budget allocation and contingency within budgets.
Limitations and associated liabilities with CPA and LA Powers	Dorset Council	Legal and professional advice to work around and overcome challenges if faced.
Existing legislation unfit to support CTAP activities	Dorset Council / Environment Agency / other partners	Maintaining and updating any understanding of published guidance and legislation.

6.3.2 Assumptions

The following assumptions and their proposed management actions have been identified.

Table 22. Project Assumptions

Assumption	Proposed Management Action
Communities will engage with us	<ul style="list-style-type: none"> Stakeholder engagement strategy and communications plan. Dedicated communications and engagement leads within Dorset Coastal Forum.

	<ul style="list-style-type: none"> • Ensure early and ongoing consultation. Ensure adequate time for open, honest, and transparent communication. Provision of opportunities for ongoing discussion. • Use innovative engagement techniques and materials, supported by independent engagement specialists.
Funding is approved	<ul style="list-style-type: none"> • Collaborative authorship between Dorset Council and EA, and early draft submission for comments. • Ensure prompt response to LPRG comments to minimise LPRG review period. • Council members kept updated for required cabinet approval following LPRG assurance.
Correct resource is available to support the CTAP programme	<ul style="list-style-type: none"> • Early identification of skills gaps in CTAP team and with suppliers. • Proactive recruitment and resourcing, outsourcing and use of framework contractors if required.
Continued government support for coastal transition and the CTAP programme	<ul style="list-style-type: none"> • Raise the profile and the benefits delivered of the project at a national level, through existing mechanisms, such as FCRIP reporting, LGA Coastal SIG, National Coastal Networks Group. • Regular discussions with EA and DEFRA teams. • Positive engagement with communities, creating advocacy. • Proactive representation at national conferences. • Engagement with local MPs and all-party parliamentary group for the coast.
Continued local political support for coastal transition and the CTAP programme	<ul style="list-style-type: none"> • Raise the profile and the benefits delivered of the project at a local level. • Regular updates and briefings to elected members including relevant portfolio holder, ward members and the Environment and Regeneration Overview & Scrutiny Committee. • Site visits to relevant locations offered to support inauguration. • Monitor issues / potential changes to programme and manage expectations through open, honest, and transparent communications.

6.3.3 Issues

The following issues, their impacts and proposed mitigation actions have been identified.

Table 23. Project Issues

Issue	Proposed Action
Critical event, e.g., cliff collapse or erosion protection asset failure	<ul style="list-style-type: none"> • Ongoing regular inspections of assets and active cliffs. • Resource ongoing operations and incident response within Dorset Council.
Practical transition actions become economically or technically unfeasible, e.g., no room for roll back	<ul style="list-style-type: none"> • Early identification of projects constraints and limitations. • Open and honest engagement about unknowns and limitations.
Rates of erosion more rapid than planned for.	<ul style="list-style-type: none"> • Ensure flexibility in options for adapting to change in data and projections. • Flexibility in programme and spend budget.
Lack of community support	<ul style="list-style-type: none"> • Involvement of community in CTAP programme development and decision making. • Ensure early, ongoing, open and honest discussions with the community.
Loss of skills and resource	<ul style="list-style-type: none"> • Ensure diverse and multiskilled team through recruitment and partnership working. • Limit reliance of works on one or two key resources only.
External consents required for delivery of options., e.g., landowner permission, natural England consent.	<ul style="list-style-type: none"> • Early consultation with landowners and statutory consultees, thorough appraisal of options.

6.3.4 Dependencies

The following dependencies and their impacts on this project have been identified.

Table 24. Project Dependencies

Dependency	Project Impact
Political acceptability	<ul style="list-style-type: none"> • Key decisions are not supported. • Delays to approval

	<ul style="list-style-type: none"> • Inability to deliver CTAP
Available skills and resources	<ul style="list-style-type: none"> • Delays to delivery of project due to unavailability of correct resource or time required to recruit and train new staff. • Scope of CTAP could have to be scaled back.
Communities willing to engage and make decisions	<ul style="list-style-type: none"> • Delay to programme and increased costs due to further time required to engage with community and provide additional information to support decision making. • Lack of buy-in for coastal transition in community. • Community expectations are not met. • Risk of reputational damage.

6.4 Assurance

During the development of this OBC, interim feedback from the CTAP national programme team and members of the LPRG sub group on drafted sections of the document has been received and comments addressed. All steering group members have had the opportunity to comment upon the OBC document.

Cabinet approval by Dorset Council will be sought in October 2024 after submission of the OBC to NPAB.

No external approvals are needed to support the OBC. A review of the requirement for consents and licences related to the preferred options has been included as part of the proposed work programme for the next stage.

This project will follow the LPRG project assurance route (total project costs >£10m).

6.5 Engagement with Stakeholders and compliance with the Equality Act 2010

To ensure the smooth delivery of this project, consultation with key parties and engagement has been undertaken and will continue to be as the project progresses.

Dorset Coast Forum (DCF) have been the project's engagement lead and delivery partner organisation throughout the OBC process and will continue to lead engagement through future stages. DCF have extensive experience of engagement with both Swanage North and Charmouth communities and have

already established a rigorous engagement programme throughout the OBC and they will continue to help facilitate all the engagement requirements of the project. DCF's work will be overseen by the Dorset CTAP Project Officer.

A record of the community events and online engagement activities is summarised in Appendix G – Engagement Log. Also included is Appendix F – Dorset Coastal Forum Stakeholder Engagement and Communications Plan developed to inform the OBC engagement activities. This identifies relevant stakeholders, and an outline of the frequency and form of communications.

An Equality Impact Assessment to consider protected characteristics under the Equality Act 2010 will be completed at the next phase. It is considered different assessments may be required for different options. However, at this stage, no specific impacts have been identified. Further opportunities to explore the data available regarding project characteristics can be considered later to help inform detailed engagement planning.

7. List of Appendices.

A – Photos

B – Figures (including designation plans)

C – Coastal Change Risk Maps

D – Options Summary Tables

E – Risk Register

F – Dorset Coastal Forum Stakeholder Engagement and Communication Plan

G - Engagement Log

H - Programme

I – Assessment of losses and benefits
