

Business Case

Title:	Cambridgeshire Flood Resilience & Mitigation		
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1. Outline / Summary

There was significant and widespread flooding across Cambridgeshire in December 2020 which had not previously been experienced in scale for over 20 years. The flooding demonstrated the existing vulnerability of the county to flooding from all sources. It is recognised that climate change is likely to increase the risk of flooding with more frequent and intensive events experienced in the future. With the County Council's Lead Local Flood Authority (LLFA) role this will mean more pressure on our service as we experience more of these events. In December 2020 alone, the County Council received over 300 reports of properties flooded internally and a further 496 externally (garages, gardens, outbuildings, roads etc.). Whilst the exact cost to those flooded residents is unknown, the Association of British Insurers (ABI) calculate that flooding events incur an average claim per household of £32,000¹ which would equate to a cost approaching £10m. This does not consider the other disruption (and associated costs) caused by flooding such as threats to infrastructure, hospitals, care homes etc.

Cambridgeshire County Council already recognises the risks associated with climate change and in May 2019 declared a climate emergency and approved the Climate Change and Environment Strategy. The recently adopted Local Flood Risk Management Strategy commits to an action plan to understand flood risk in Cambridgeshire and manage the likelihood and impact of flooding between now and 2027.

In order to successfully deliver actions within the strategy we are requesting funding from the Just Transition fund to combine with partnership funding from other risk management authorities including the Environment Agency, Anglian Water and District/City Councils. We anticipate 3 parts to the work including the following associated costs:

1. Options Development

- Undertake assessments of surface water flood risk / ordinary water course flood risk at locations across Cambridgeshire (as listed in the action plan of the strategy) including a review of all available information, investigations, and surveys
- Engage with stakeholders including partner agencies, community flood groups and farmers/landowners for input into optioneering
- Identify a range of options for future management of flood risk from surface water and ordinary watercourses at each location

¹ <https://www.abi.org.uk/news/news-articles/2020/03/insurance-pay-outs-to-help-customers-recover-from-storms-ciara-and-dennis-set-to-top-360-million/>

- Work to establish a long-term action plan to influence capital investment, maintenance, public engagement and land-use planning
- Identify partner agencies and determine maximum return (number of properties/business protected etc.) and develop priority list for projects
- Funding requirement of **£400,000** to develop options at 16 locations as specified in the Local Flood Risk Management Strategy action plan.

2. Detailed Solutions

- Develop ‘shovel-ready’ detailed designs for highest priority areas to enable rapid movement should other funding become available. This allows us to present design solutions to partners to secure funding – funding requirement of **£100,000**

3. Implementation / Construction of Schemes

- Delivery of schemes identified through stage 1 where funding has already been secured through ongoing work with partners
- Work with organisations such as Natural England to provide advice and support to farmers on catchment sensitive farming (starting with tenant farmers of Cambridgeshire County Council) to reduce flood risk
- Some elements of stage 3 could run in parallel with stage 1 where the LLFA or partners have already identified opportunities for flood resilience schemes but lacked the funding for implementation. The Environment Agency is especially keen on the use of Natural Flood Management (NFM) and is already funding up to £25,000 to identify locations for NFM techniques. We would look to support this work by funding monitoring equipment, implementation of NFM techniques and to support the engagement with landowners. We have previous experience of a NFM scheme in the Alconbury catchment including techniques such as leaky woody dams, check dams, new ponds and enhancement for water quality of farmyard runoff which we would want to replicate elsewhere across the county.
- Funding requirement **£500,000**

2. Driver(s)

As already outlined, climate change is likely to worsen the risk of flooding across the county. Met Office data shows that in Cambridgeshire a 4-degree Celsius rise in temperatures could mean 12% more rainfall on the wettest day of the year compared to the last 30 years and global temperatures are already 1.2 degrees warmer than the end of the 19th Century. Cambridgeshire faces a unique vulnerability to flooding with large areas of flat, low-lying land which in many locations requires artificial pumped drainage networks.

The Flood and Water Management Act 2010 made Cambridgeshire County Council a Lead Local Flood Authority (LLFA) with a responsibility for developing, maintaining, and applying a local flood risk management strategy. The most recent strategy for Cambridgeshire was adopted in 2022 and contains an action plan for understanding and managing flood risk across the county between now and 2027. Actions for which Cambridgeshire County Council is the lead partner include:

- Investigations into flood risk and exploring opportunities for flood resilience schemes in Brampton, Offords, Swavesey, Broughton, Godmanchester, Ramsey, Sawtry, Buckden, Wimblington, Chatteris, St Neots, St Ives, Cambridge, March, Alconbury/Alconbury Weston, Linton and Cottenham
- Exploring opportunities for nature-based solutions across Cambridgeshire including Natural Flood Risk Management (NFM) and Sustainable Drainage Systems (SuDS).

Given the County Council’s status as a LLFA it is a legal duty to apply the adopted strategy which includes delivering our actions. Many of these actions will be delivered in partnership with other bodies including the Environment Agency, Anglian Water, Cambridgeshire Highways, District/City Councils and Internal Drainage Boards (IDBs). The existing Cambridgeshire and Peterborough Flood and Water Partnership chaired by the County Council will help facilitate delivery of these actions by bringing partners together on a regular basis.

The County Council’s ‘Cambridgeshire Flood Action Programme’ (CFAP) which supports communities to manage and respond to flooding is now in its second year and has been successful in creating and supporting community flood action groups, improving mapping of watercourses, and offering financial support towards remedial watercourse works where they meet defined criteria. These flood action groups have led to greater community awareness of flooding and a will to engage well with the County Council to reduce risk in their areas. We need to harness this interest at a time we have optimum community buy-in.

We have recently submitted bids for Flood Defence Grant in Aid (GiA) and local levy to support the work identified in this paper which have received ‘in-principle’ support from the Environment Agency. The granting of any such funds from GiA or local levy are partly dependent on partnership funding from the County Council.

Partner organisations across the county have expressed interest in working with the County Council to deliver flood studies and resilience schemes, with the offer of partnership funding.

3. Outcome(s)

Outcome	CCC Priorities
Measurable progression against the actions set out in Cambridgeshire’s adopted Flood Risk Management Strategy	Environment and Sustainability – <i>Build climate resilience into our service delivery and infrastructure</i>
The LLFA will have a better understanding of flood risk across the County including the causes and options for mitigation	It is recognised that the climate is changing and flood risk is likely to increase, potentially significantly. Studies into flood resilience/management options will provide the LLFA with details of what can be done and where to enhance resilience of communities to a changing climate. The installation of schemes such as Natural Flood Risk Management (NFM) provides climate resilience by allowing high river flows to be stored on agricultural land to reduce flood risk whilst also providing availability of water for irrigation, thus reducing reliance on potable sources. The installation of SuDS in/adjacent to the highway will increase the resilience of the County’s road network to flooding whilst providing dual benefits of shading during periods of hot weather.
A reduced risk of flooding at locations where resilience schemes are implemented such as natural flood management, SuDS, flood plain restoration and watercourse improvements	
A pipeline of ‘shovel-ready’ flood scheme projects will be produced which will improve the Council’s ability to unlock partnership funding in the future	
Increased awareness of flood risk and the wider water environment through educational events and provision of resources for those at risk of flooding	Places and Communities – <i>Enable communities to work creatively and collaboratively to address their local needs</i>

	<p>It is important to harness the enthusiasm and engagement we currently have with community flood groups across the county, utilising their local knowledge to inform and deliver resilience /flood risk reduction in their areas.</p>
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4. Benefits

Benefit	Measurement & Evaluation
A county that is better prepared for flooding and has better managed flood assets will see savings generally. Residents and businesses will benefit from reduced costs and problems created by flooding such as business interruption, staff absences, damage to perishable goods and crops, damage to property and assets, decrease in serviceable areas, impacts on reputation etc.	Number of reported flood incidents (evaluated internally). Baseline measured using previous flood risk management strategy period compared annually over current strategy period (2022 to 2027).
Development of evidence base / designs for flood projects across the county to inform priorities, unlock funding opportunities and deliver flood resilience to our communities	Number of schemes designed and implemented (evaluated internally). Measured against actions and timescales set out in adopted flood strategy
Increased engagement with local communities who will in turn be better informed about flood risk management in their area.	Engagement levels with community flood groups (evaluated internally). Monitored through the Community Flood Action Programme.
Delivery of several actions with the adopted Cambridgeshire Flood Risk Management Strategy	Number of actions successfully delivered within timescales (evaluated internally). Measured against actions and timescales set out in adopted flood strategy.

5. Impact Assessments

- Equality, Diversity & Inclusion (EDI) and Socio-economic inequalities:
An Equality Impact Assessment has already been undertaken for the Local Flood Risk Management Strategy. This business case relates to the action plan of that strategy and as such a further EQIA is not required. Irrespective, an updated form has been submitted via the online Equality form.
- Environmental:
This project will have positive impacts for the environment. The aim of the project is to reduce the risk of flooding at locations across the county and natural Flood Management techniques will utilise natural processes to reduce the risk of flooding including:
 - Planting trees to absorb water and slow the flow
 - Reconnecting floodplains and creating ponds to store water
 - Altering agricultural practices to reduce soil compaction
- Social:
Several options for social value in this project have been identified:

- Improve outcomes for Cambridgeshire residents regarding climate change and vulnerability to flooding
- Co-production of flood resilience measures with community flood groups, drawing on local knowledge and experience of flooding to ensure their needs are met, and to ensure the community engage in the project.
- Utilise local contractors/landowners from within the flood risk area to deliver resilience measures where possible
- Utilise and develop existing natural assets to better cope with and manage flooding
- Improve community resilience to climate change across Cambridgeshire through the implementation of local scale flood risk management measures

6. Financial Assessment

Options Development / Detailed Design (i.e Part 1 and 2)

	One off or Permanent	2022-23 £000	2023-24 £000	2024-25 £000	2025-26 £000	2026-27 £000	2027-28 £000
Saving							
Income							
Investment	One-off	150	200	150	-500		
Pressure							
Total	One-off	150	200	150	-500		

Implementation (i.e Part 3)

	One off or Permanent	2022-23 £000	2023-24 £000	2024-25 £000	2025-26 £000	2026-27 £000	2027-28 £000
Saving							
Income							
Investment				250	250	-500	
Pressure							
Total				250	250	-500	

6.1 For pressures / investments only, please provide further details regarding:

In addition to funding from Cambridgeshire County Council, partnership funding is available and is expected to be utilised from a variety of sources (this has already been explored). Sources include:

- Anglian Water's partnership funding scheme
- Local Levy (secured through the Regional Flood and Coastal Committee)

- Flood Defence Grant in Aid (secured through Regional Flood and Coastal Committee)
- National Highways Designated Funds (Environmental)
- District Council (including contribution in kind of land for flood storage, officer time etc.)
- Department for Education (Flood Risk funding)
- Water Environment Investment Fund (WEIF)
- Defra (Pathfinder funds and agricultural payments)
- Development related funding (CIL, Section 106 etc.)

Availability of funding from each partner is dependent on benefit to that party and development of business case. Engagement has already commenced with several partners with high-level agreement to part fund opportunities in several locations.

Work to implement the actions of the Local Flood Risk Management Strategy cannot be met by the existing team's budget.

7. Resources and support to deliver

The project will be managed and supported internally by existing officers in the flood team. Due to the highly technical resource required to deliver the project we propose to utilise a specialist consultancy to undertake the options development and detailed design stages of the project. These will be experienced in delivering similar work and will be procured through the Council's existing frameworks.

Role	Length of time required	Effort required (% of time needed)	Named resources	Internal or recruit
Project Manager	48 months	0.5 FTE	Flood Risk Team	Internal
Officer support	48 months	0.5 FTE spread between various existing officers depending on requirements	Flood Risk Team	Internal
Highways input	48 months	This will vary depending on the stage of the project but is not expected to exceed a maximum of 0.1 FTE	Highways	Internal
County Farms input	48 months	This will vary depending on the stage of the project but is not expected to exceed a maximum of 0.1 FTE	County Farms and Rural Estates	Internal
Community engagement	36 months	External voluntary organisations – Would seek to engage with these groups for duration of project – time unknown	Community Flood Action Groups	External (no cost to CCC)

7.1 Resource cost

As already outlined due to the highly technical resource required to deliver the project we propose to utilise a specialist consultancy to undertake the options development and detailed design stages of the project. These will be experienced in delivering similar work and will be procured through the Council's existing frameworks. In addition to consultancy we anticipate the following resource requirement from the County Council. The costs outlined in the table below are not expected to be funded by the Just Transition fund but will instead be absorbed by team's annual budgets through existing staffing arrangements.

Role	Length of time required	Effort required / days per week	Daily Cost (£)	Internal or Recruit	Included in Financial Assessment	Total cost (£)
Project Manager	48 months	0.5 FTE		Internal	N (existing resource)	£100,000 (£25,000 per year)
Officer support	48 months	0.5 FTE spread between various existing officers depending on requirements		Internal	N (existing resource)	£100,000 (£25,000 per year)
Highways input	48 months	This will vary depending on the stage of the project but is not expected to exceed a maximum of 0.1 FTE		Internal	N (existing resource)	£20,000 (£5,000 per year)
County Farms input	48 months	This will vary depending on the stage of the project but is not expected to exceed a maximum of 0.1 FTE		Internal	N (existing resource)	£20,000 (£5,000 per year)
Community engagement	36 months	External voluntary organisations – Would seek to engage with these groups for duration of project – time unknown		Internal	N (no cost to CCC)	0

8. Timescale for delivery

It is anticipated that the options development and detailed design stages of the project will run for 3 years (commencing this year). This timescale will allow engagement with a wide range of stakeholders including partner agencies, landowners, local communities, internal teams, and community flood groups. A period of 3 years will also work around the pre-set timescales for partnership funding bids. (e.g. bidding for funding from local levy or flood defence grant in aid is determined by nationally/regionally set timescales).

The implementation/construction stage would be phased over a period of 4 years, commencing this year as a number of smaller works have already been identified that can reduce flood risk and these could be undertaken quickly upon receipt of funding.

9. Out of scope

- The long-term maintenance of any constructed flood resilience schemes
- Delivery of schemes without flood risk benefits from surface water or ordinary watercourses
- Delivery of LLFA statutory functions already delivered by the flood team

10. RAID – Risks, Issues, Assumptions, Dependencies

10.1 High-level Risk

Description (Event → Cause →	Impact Description → Impact)	Mitigation / Resolution Plan	Very High/ High / Medium/ Low / Negligible
Availability of suitable consultants to carry out options development and design work	Disruption to delivery	Follow formal procurement process, asking appropriate questions around previous experience of similar work etc. Build in allowance of time to procure as required with contingencies in the time plan to allow for changes in resource. Investigate options to utilise partner agencies and charities/universities to deliver some aspects of the work	Medium to High
Availability of partnership funding (including withdrawal of funding)	Disruption to delivery of some elements of work	Work with relevant teams at partner agencies to gain initial understanding as to availability of funding and relevant requirements so we can focus on gathering	Low to medium

		evidence and developing projects in areas which are most likely to secure funding.	
Timing of partnership funding	Disruption to timescales of delivery	Work with partner organisations to confirm the likely timescales involved in funding bids and programming our work around those timescales where possible.	Low
Lack of capital funding available to deliver schemes identified through project	May not deliver actions with local flood risk management strategy – also reputational impact	Manage expectations that investigations may lead to the identification of options which are beyond existing partnership funding capabilities. Identification and high-level development of these options can then help us be ready to respond to future national or regional funding opportunities.	Medium
Lack of community or partner 'buy-in' to schemes	Disruption to delivery of schemes and reduction in confidence of community	Engage with partners from the beginning of the project and work with the established network of community flood groups developed through the team's own work on the community flood action programme	Low
Restricted supply of labour, tools and materials to implement schemes	Disruption to delivery of schemes and reduction in confidence of community flood groups	Follow formal procurement process, identify multiple suppliers where possible as delivery partners (e.g. Internal Drainage Boards, District Councils, farmers etc.)	Medium
Significant flooding occurs during the project	Reduction in officer availability due to statutory investigation work and likely reduced input from affected communities during recovery phase	Monitor forecasts and appropriately plan officer time wherever possible to ensure break-points are reached ahead of flooding.	Medium to High

10.2 Issues

Issue (Event → Cause →	Impact Description → Impact)	Mitigation / Resolution Plan	Exposure High/Medium/Low
No existing issues identified that would impact successful delivery of the project			

10.3 Assumptions

- Existing procurement frameworks can be utilised to secure consultants and contractors within the timescales of the projects
- Existing officers will be sufficiently available for the duration of the project
- There will be buy-in from communities and partners and any potential resistance can be overcome through engagement
- There will be no significant changes to partnership funding criteria and application process for the duration of the project

10.4 Dependencies (or interdependencies)

- Successful achievement of the Local Flood Risk Management Objectives and actions are partially dependent on this business case
- Availability of partnership funding is dependent on this business case and demonstrable benefits to other agencies and the communities which will be identified through options development
- Creation of a catchment plan for the Granta which can be used to inform priority interventions of Natural Flood Risk Management anticipated for delivery in 2022/23
- Delivery of joint flood management schemes with partner agencies who have undertaken initial feasibility work

11. Governance & approvals

Approval board/group:	Approval or oversight?	Date for approval
Project Board	Approval	
Strategy and Resources committee	Approval	
Environment and Green Investment Committee	Approval / Oversight	Dependent on dates of meeting

Cambridgeshire and Peterborough Flood and Water Partnership (CPFloW)	The group represents all flood management partners in Cambridgeshire so would be reported to throughout duration (oversight)	NA
As we would be working with external partners this may be dependent on external approval boards such as Regional Flood and Coastal Committee, Anglian Water, National Highways etc.	Approval / Oversight	Dependent on timescales of external partner meetings

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