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Joint Scrutiny Panel of Somerset Rivers Authority (virtual meetings)

Friday 8 July 2022

10.00 am Virtual meeting

To: The Members of the Joint Scrutiny Panel of Somerset Rivers Authority (virtual meetings)

Cllr Cllr S Coles (Chair), Cllr J Cousins (Vice-Chair), Cllr J Nash, Cllr Smedley, Cllr Betty, Cllr L Lisgo, Cllr R Pailthorpe, Cllr P Maxwell, D Vigar, W Welland and Cllr Cllr H Munt

All Somerset County Council Members are invited to attend meetings of the Cabinet and Scrutiny Committees.

Issued By Scott Wooldridge, Strategic Manager - Governance and Risk and Monitoring Officer – 30th June 2022

For further information about the meeting, please contact Jamie Jackson on 01823 357628 or Email: jajackson@somerset.gov.uk or

Guidance about procedures at the meeting follows the printed agenda.

This meeting will be open to the public and press, subject to the passing of any resolution under Regulation 4 of the Local Authorities (Executive Arrangements) (Meetings and Access to Information) (England) Regulations 2012.

This agenda and the attached reports and background papers are available on request prior to the meeting in large print, Braille, audio tape & disc and can be translated into different languages. They can also be accessed via the council's website on www.somerset.gov.uk/agendasandpapers

AGENDA

Item Joint Scrutiny Panel of Somerset Rivers Authority (virtual meetings) - 10.00 am Friday 8 July 2022

****Public Guidance notes contained in agenda annexe****

1 **Apologies for absence**

2 **Declarations of Interest**

Details of all Members' interests in District, Town and Parish Councils can be viewed on the Council Website at
County Councillors membership of Town, City, Parish or District Councils and this will be displayed in the meeting room (Where relevant).

The Statutory Register of Member's Interests can be inspected via request to the Democratic Service Team.

3 **Minutes from the previous meeting held on 28th February 2022** (Pages 5 - 10)

The Committee is asked to confirm the minutes are accurate**.**

4 **Public Question Time**

The Chair will allow members of the public to ask a question or make a statement about any matter on the agenda for this meeting. **These questions may be taken during the meeting, when the relevant agenda item is considered, at the Chair's discretion**.

5 **Changes to Membership of the SRA Scrutiny Committee (verbal update)**

6 **Annual Report** (Pages 11 - 40)

7 **Finance Update** (Pages 41 - 46)

8 **Flood Action Plan Update** (Pages 47 - 74)

Please note the Somerset Flood 20 year action plan has been included for reference as additional information.

9 **Local Government Reorganisation (verbal update)**

10 **Any other urgent items of business**

The Chair may raise any items of urgent business.

Guidance notes for the meeting

1. Inspection of Papers

Any person wishing to inspect Minutes, reports, or the background papers for any item on the Agenda should contact the Committee Administrator for the meeting – Andrew Randell on 01823 359500 or email ARandell@somerset.gov.uk They can also be accessed via the council's website on www.somerset.gov.uk/agendasandpapers

2. Members' Code of Conduct requirements

When considering the declaration of interests and their actions as a councillor, Members are reminded of the requirements of the Members' Code of Conduct and the underpinning Principles of Public Life: Honesty; Integrity; Selflessness; Objectivity; Accountability; Openness; Leadership. The Code of Conduct can be viewed at: http://www.somerset.gov.uk/organisation/key-documents/the-councils-constitution/

3. Minutes of the Meeting

Details of the issues discussed and recommendations made at the meeting will be set out in the Minutes, which the Committee will be asked to approve as a correct record at its next meeting.

4. Public Question Time

If you wish to speak, please tell Andrew Randell the Committee's Administrator - by 12 noon the (working) day before the meeting.

At the Chair's invitation you may ask questions and/or make statements or comments about any matter on the Committee's agenda – providing you have given the required notice. You may also present a petition on any matter within the Committee's remit. The length of public question time will be no more than 30 minutes in total.

A slot for Public Question Time is set aside near the beginning of the meeting, after the minutes of the previous meeting have been signed. However, questions or statements about any matter on the Agenda for this meeting may be taken at the time when each matter is considered.

You must direct your questions and comments through the Chair. You may not take direct part in the debate. The Chair will decide when public participation is to finish.

If there are many people present at the meeting for one particular item, the Chair may adjourn the meeting to allow views to be expressed more freely. If an item on the Agenda is contentious, with a large number of people attending the meeting, a representative should be nominated to present the views of a group.

An issue will not be deferred just because you cannot be present for the meeting. Remember that the amount of time you speak will be restricted, normally to two minutes only.

5. Exclusion of Press & Public

If when considering an item on the Agenda, the Committee may consider it appropriate to pass a resolution under Section 100A (4) Schedule 12A of the Local Government Act 1972 that the press and public be excluded from the meeting on the basis that if they were present during the business to be transacted there would be a likelihood of disclosure of exempt information, as defined under the terms of the Act.

6. Recording of meetings

The Council supports the principles of openness and transparency. It allows filming, recording and taking photographs at its meetings that are open to the public - providing this is done in a non-disruptive manner. Members of the public may use Facebook and Twitter or other forms of social media to report on proceedings and a designated area will be provided for anyone wishing to film part or all of the proceedings. No filming or recording may take place when the press and public are excluded for that part of the meeting. As a matter of courtesy to the public, anyone wishing to film or record proceedings is asked to provide reasonable notice to the Committee Administrator so that the relevant Chair can inform those present at the start of the meeting.

We would ask that, as far as possible, members of the public aren't filmed unless they are playing an active role such as speaking within a meeting and there may be occasions when speaking members of the public request not to be filmed.

The Council will be undertaking audio recording of some of its meetings in County Hall as part of its investigation into a business case for the recording and potential webcasting of meetings in the future.

A copy of the Council's Recording of Meetings Protocol should be on display at the meeting for inspection, alternatively contact the Committee Administrator for the meeting in advance.

JOINT SCRUTINY PANEL OF SOMERSET RIVERS AUTHORITY

Minutes of a Meeting of the Joint Scrutiny Panel of Somerset Rivers Authority held virtually on **Friday 28th February 2022** at **10.00 am**

Present: Cllr S Coles (Chair Somerset West & Taunton), Cllr J Cousins (Mendip), Cllr J Nash (Mendip), Cllr Smedley (Sedgemoor), Cllr A Betty (Sedgemoor), Cllr A Groskop (Somerset CC), Cllr L Lisgo (Somerset West & Taunton), Cllr R Pailthorpe (South Somerset) and D Vigar (Parrett Internal Drainage Board).

In attendance: Cllr C Paul.

1 **Membership update and Terms of Reference of the Panel** - Agenda Item 1

The Scrutiny Manager updated the Panel in relation to the membership since the previous meeting. The Committee were asked to endorse the appointment of Councillor Jon Cousins as Vice-Chair.

That the SRA Scrutiny Panel noted the changes in membership and the Terms of Reference of the Scrutiny Panel.

2 **Apologies for absence: -** Agenda Item 2

Apologies had been received by Councillors Hunt (SWT) and Maxwell (SSDC) and W Welland (Axe Brue Internal Drainage Board)

3 **Declarations of Interest** - Agenda Item 3

There were no additional declarations of interest made.

4 **Minutes of the meeting held on Friday 2 July 2021** - Agenda Item 4

The minutes of the meeting held on Friday 2nd July 2021 were confirmed as a correct record.

5 **Public Question Time** - Agenda Item 5

There were no public questions.

6 **Draft SRA Annual Report** - Agenda Item 6

The Panel received a report and PowerPoint presentation from Neil McWilliams, Service Manager for Area Highways, which invited the Panel to review and comment on the SRA Funded Enhanced Maintenance Programme.

The following questions / comments were made: -

- This was a valued service in the areas of Bruton and Wincanton.
- Where possible enhanced provision was encouraged to allow gully emptying in additional areas where flooding is identified as an increased risk. The Highways Service Manager welcomed contact from Councillors in relation to areas at risk to be included in this schedule where possible.
- Areas that are an issue could be reviewed to ensure at risk areas could be added to the schedule. Regular cleaning and maintenance had a significant impact on the communities.
- Important enhanced gully work continued which was undertaken as a risk based approach is in line with national well managed highways.
- Jetting process can help with gullys and drains but can cause problems with road wear, although there was no immediate risk to propereties, works undertaken under an SRA budget needed to be to tackle flood risk, and would need to be reported to the area highways office.
- Maintenance and repair of drainage systems in Ilminster and chard were questioned.
- The scrutiny panel could be provided detailed responses to anything specific following the meeting, although the Chard and Illminster work had been managed at other levels following a report to the Scrutiny for Policies and Place Committee.

The Panel: -

NOTED:- The Highways Enhanced Maintenance Programme.

7 **Update on SRA Community Resilience Activities** - Agenda Item 7

The Panel considered a report from Emma Gifford, SRA Community Engagement Officer, which provided an update on Community Resilience Activities since the last Scrutiny Panel meeting.

The following questions / comments were made: -

- EU funding for SRA projects and the impact of Brexit was questioned.
- The UK had 3 EU projects that had a somerset footprint, £2.1 million had been funded for these projects.
- Part of the project outputs was a regional transition roadmap looking at future options to ensure decisions taken now aren't closing off future options.
- This approach was used by London Thames 2100 to plan to protect London for up at 4 metre sea level rise due to climate change

- Having a future conversation around how this could fit into existing plans and the flood action plan.
- Dawn, Caroline and Emma were congratulated for all their hard work undertaken with Langport flood group which filtered down to all outlying communities. It was questioned what Councillors can do to encourage these groups across the whole of Somerset.
- Involvement for members of local communities was important for attendance and ensuring communities feel like they are having their voices heard.
- Proactive enquiries had been received from Parish Councils to ensure there are more established flood groups in communities at risk of flooding. Flood groups play a critical role in raising awareness about vulnerable people who may need help during a flooding event.
- Keeping community members reminded of the at risk and vulnerable groups that need to be best prepared for flood eventualities.
- The Panel were reminded that the town of Taunton is unparished sso may suffer from a lack of representation as there is no town or parish council to work with. Encouraging flood groups in Taunton may need a different approach..
- David Vigar welcomed the presentations being sent out to Parish Councils.

The Panel:-

NOTED: - The progress on delivery of workstream 5 (Community Resilience Activities)

8 **Quarter 2 21-22 Finance Report** - Agenda Item 8

The Panel considered a report from David Mitchell, Senior Manager, SRA, which provided an update on the Quarter 2 21-22 Finance Report.

Mr Mitchell highlighted that the he total available funds at the start of the year were £10,388k. Of this amount £7,446k was carried forward from 2020-21 and £2,942k was raised in the 2021-22 precept.

As at the end of Quarter Two:
• 3% of funds are forecast to be spent on the administration and staffing of the SRA.
• 2% will be spent on SRA core work and development. • 8% is held as contingency.
• 87% is allocated to specific projects and activities within the Enhanced Programme.

The following questions / comments were made: -

- Concerns were expressed in relation to the reported carry over of budgets. It was clarified that those budgets can be carried over into future years.

The Panel NOTED: -

The Financial performance as at the end of quarter two of 2021-22.

9 **2022-23 Enhanced Programme and Budget** - Agenda Item 9

The Panel received a presentation from David Mitchell, which updated the Panel in relation to the Enhanced Programme and Budget.

The following questions / comments were made: -

- The panel were positive to include the contingency to manage increased requests.
- The panel considered the importance to keep momentum on project funding especially around funding timetables and match funding criteria.
- A recent scheme undertaken with Wessex water was praised, other partners needed to ensure routine maintenance so that combined investments are preserved and not lose the benefit of work being done on existing projects and investments.
- The panel encouraged greater contact with landowners and emphasising rights and responsibilities for landowners that have waterways adjacent to or running through their property.
- Requirements of developers, planners and drainage board encouraged so that they were aware of their responsibilities.
- It was acknowledged that this the riparian responsibilities project hadn't worked as well as wanted to, the secondment has now come to an end.
- This had been reported to the Elected member of the drainage board with responsibility in the geographical area to report back to the drainage board.
- Questioning took place in relation to communications with farming communities maintaining hedges between sept and January. DEFRA were due to promote information around this area.
- Mr Mitchell and the SRA team were thanked for all their hard work

The Scrutiny Panel NOTED:-

1. The draft 2022-23 Enhanced Programme proposals and budget.
2. Considered any recommendations they wish to make to the SRA Board in relation to the 2022-23 Enhanced Programme.

3. SRA Scrutiny request that riparian owners are contacted to emphasise their rights and responsibilities in relation to watercourse maintenance to ensure, where appropriate, necessary maintenance is undertaken resulting in reduced flood risk with less call on public funds.

10 **Flood Action Plan Review** - Agenda Item 10

The Panel considered a report from Mr Mitchell, Senior Manager, SRA, which provided information on the update on the progress of the Flood Action Plan Review.

It was reported that work on preparing a new plan was now underway with the consultancy firm WSP awarded the commission to undertake the project. WSP will be managed by the Somerset Rivers Authority team. Regular updates will be given to SRA Management Group and the SRA Board.

An overview of the process was set out with the Timescale of the draft plan published by December 2022, Joint Scrutiny Panel January 2023 and adoption by SRA Board March 2023.

The following questions / comments were made: -

- The Panel were reminded that the action plan remained a living document.
- The Panel thanked Mr Mitchell for the update and welcomed the report for consideration in July.

The Panel NOTED: -

The proposed approach to preparing, and scope of, a new Flood Action Plan.

11 **Any other urgent items of business** - Agenda Item 11

There were no other items of business raised.

12 **Date of next Meeting** - Agenda Item 12

The Panel AGREED the following meeting dates: -

- Friday 8th July 2022 10.00 – 13.00

The meetings will continue to take place virtually, via MS Teams.

(The meeting ended at 12.10 pm)
CHAIR

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Somerset Rivers Authority Joint Scrutiny Panel

About the draft Somerset Rivers Authority (SRA) Annual Report 2021-22

RECOMMENDATIONS

The Somerset Rivers Authority Joint Scrutiny Panel is asked to:

- Review the draft annual report so that questions can be asked and comments made about progress achieved by the SRA and its partners over the course of 2021-22.
- Review the draft annual report so that suggestions can be made about the format of the report itself to influence future reports.

Purpose of the item

The draft Somerset Rivers Authority (SRA) Annual Report 2021-22 gives SRA Joint Scrutiny Panel members detailed information about activities funded by the SRA and delivered by SRA partners between the start of April 2021 and the end of March 2022.

A recurring purpose of the Panel's July meeting is to review SRA activity over the course of the previous financial year. Panel members are therefore asked to study the draft annual report before this year's 'look back' meeting on 8 July so that thorough conversations can be had about its contents and format.

Members are asked to note that until the report is formally approved for publication by the SRA Board all versions are essentially a snapshot, as the report is a work in progress and changes may still be made. So, although the version supplied is an advanced draft, members will see, for example, that the contents page has not yet been compiled, and the penultimate page is blank. It will also be noted that a few captions remain to be added, though in at least one case members should definitely recognise the person featured in a photo.

RECOMMENDATIONS

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Date: 29 June 2022
Author: Jonathan Hudston, Communications Manager, Somerset Rivers Authority

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Somerset Rivers Authority

Annual Report 2021–22

Contents

ACKNOWLEDGEMENTS: Thanks to all SRA partners and contractors who contributed to this report. All images are copyright © 2022 by Somerset Rivers Authority and its constituent members and partners (specifically, for this report, ...

Front cover image: River Sowy-KSD enhancements (see pages 6-7).

At a glance

KEY POINTS FROM 2021-22

£2.831m EXTRA

spent in Somerset by Somerset Rivers Authority on flood risk reduction and greater resilience

100s

of places benefit across Somerset

of the River Parrett between Saltmoor Pumping Station and Andersea

Bank raising begun and seven ecological enhancements completed for the River Sowy-King's Sedgemoor Drain Enhancements Scheme

hills TO levels

Natural Flood Management schemes and activities at more than 70 places countywide, including 14,000 trees and shrubs planted

More than 40 inspections of Sustainable Drainage Systems (SuDS) at new developments, works progress in Rode near Frome, Minehead study begins

Major drainage improvements in Carhampton along A39, B3191 Eastbury Road and Hill Lane to protect key West Somerset routes from flooding

More than 13,000

highways structures get extra maintenance to reduce flood risks, drains upgraded in eight places, Rimpton and Marson Magna study completed

Support for communities affected by flooding, Somerset Trails app developed, Down by the River film produced and shown in 10 places

Somerset Rivers Authority Partners & Structure

SOMERSET RIVERS AUTHORITY BOARD was made up of the following during 2021-22:

Environment Agency

Sedgemoor Creating Opportunity

NATURAL ENGLAND

MENDIP DISTRICT COUNCIL

SOMERSET County Council

South Somerset District Council

Somerset West and Taunton

Wessex Regional Flood and Coastal Committee

each represented | by **one member**

SOMERSET DRAINAGE BOARDS CONSORTIUM

Axe Brue Internal Drainage Board and **Parrett IDB** each represented by **two members**

The Board meets quarterly. Main functions: set strategy and priorities, approve budgets and programmes of work, ensure progress and encourage partnership working, be publicly accountable.

SRA MANAGEMENT GROUP

Senior officers from SRA partners meet every six weeks.
Main functions: support Board, develop policy, oversee SRA Technical Group.

SRA TECHNICAL GROUP

Officers from SRA partners and bodies such as Wessex Water, Somerset Catchment Partnership and the Farming & Wildlife Advisory Group SouthWest meet every six weeks.
Main functions: identify and assess flooding problems, provide advice and guidance, prepare proposals, manage and deliver SRA initiatives.

SRA JOINT SCRUTINY PANEL

The Panel meets twice a year. Each council has two representatives, the IDBs one each. Main function: scrutiny.

Somerset's 20 Year Flood Action Plan and the SRA

The Somerset Levels & Moors Flood Action Plan was published in March 2014, at the end of that winter's devastating floods.

Those floods brought misery and devastation to many, they closed 81 roads and cost Somerset an estimated £148 million.

Directly or indirectly, everybody in Somerset was affected.

When Somerset Rivers Authority (SRA) was launched on 31 January 2015 the Flood Action Plan was widened to include the whole of Somerset. The SRA oversees the Flood Action Plan. It has six main objectives, over 20 years:

1. Reduce the frequency, depth and duration of flooding.
2. Maintain access for communities and business.
3. Increase resilience to flooding for families, agriculture, businesses, communities, and wildlife.
4. Make the most of the special characteristics of Somerset (with internationally important biodiversity, environment and cultural heritage).
5. Ensure strategic road and rail connectivity, both within Somerset and through the county to the South West peninsula.
6. Promote business confidence and growth.

All actions in the SRA's annual Enhanced Programmes are scored against these objectives.

Activities in 2021-22

Somerset Rivers Authority is leading a revamp of Somerset's 20 Year Flood Action Plan, working with consultants WSP.

The point of drawing up a Flood Action Plan in 2014 was to bring different organisations and people together, so together they could do more. More to reduce local flood risks, more to make local communities stronger, more to respond to local priorities in ways they could not otherwise do.

Since 2014, a lot has been achieved. A lot has also changed. For example, dealing with climate change is more of a priority for many people than it was eight years ago. More places have flooded. Next year a new Somerset Council starts.

The time is therefore right to discuss what needs doing next. In 2021-22 the SRA began consulting partners and stakeholders about future local priorities, for example in March 2022 an all-day SRA Board workshop was held in North Petherton. In autumn 2022 people across Somerset will be asked for their views about what should be done to give Somerset more protection from flooding and greater resilience. A revamped plan will be approved by the SRA Board and published in March 2023.

W1 DREDGING & RIVER MANAGEMENT

Somerset Rivers Authority spends more on Dredging and River Management than it does on any other workstream. Some projects are designed and delivered for the SRA by a variety of partners and contractors. Some projects are led by SRA partners - or other bodies such as the National Trust - and the SRA helps to pay for them. Most of the projects in this section are complex, which means they generally take more than a year to deliver. It is often said that if some things were easy, somebody else would already have done them.

Baldr and Havik

DREDGING

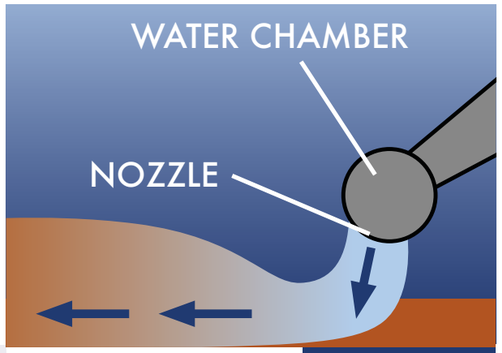
Maintenance dredging in January 2022 covered 3.75km (2.33miles) of the River Parrett between Saltmoor Pumping Station and Andersea. It was organised for Somerset Rivers Authority (SRA) by the Parrett Internal Drainage Board (IDB), working as a partner in the SRA. The Parrett IDB liaised closely with the Environment Agency and Natural England, and again deployed water injection dredging specialists Van Oord.

Between 2017 and 2021, the Parrett was dredged by Van Oord's vessel Borr. In 2022, Baldr was used instead.

Baldr is a newer and smaller craft than Borr, built specially by Van Oord to serve places like the River Parrett. Baldr does not have its own propulsion system. Instead, it is driven and manoeuvred by the tug boat Havik. Three advantages of this arrangement are that Baldr can access places Borr cannot; it can operate at lower water levels; and at the start and finish of jobs, it can be lifted in and out of the water by a smaller – and therefore cheaper – crane.

Craning at Dunball

MAJOR PROJECTS
1. Dredging and silt monitoring



WID principle

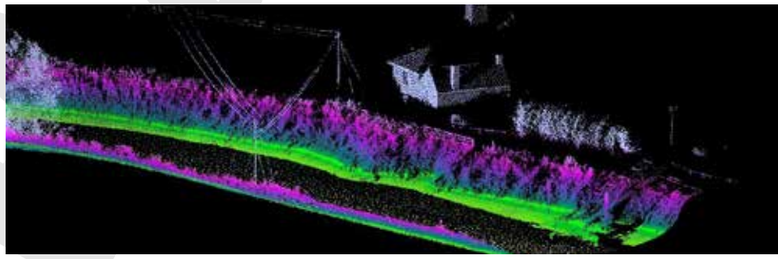

Combwich

In the water, Baldr operates in a similar way to Borr. It has a dredging bar with nozzles through which a high volume of water is pumped out, so it forces sediments off the river bed and they disperse through natural processes, downstream as the tide goes out.

The Parrett IDB watched Baldr working on the Parrett in summer 2021, clearing silt from around Combwich Wharf for EDF. As part of a continuous push for operational improvements, they decided to see how Baldr would fare doing maintenance dredging for the SRA.

The exercise was successful. More than 20,000m^3 of consolidated silt deposits were removed from the Parrett. However, while Baldr is lighter and nimbler than Borr, it is also less powerful, so which vessel will return for maintenance dredging this coming winter has not yet been decided. A lot depends on water levels in the river.

The purpose of water injection dredging is to help maintain the benefits of all the dredging that has been done along the Parrett since the floods of 2013-14. Parrett maintenance dredging reduces flood risks for properties, and helps to reduce the risks of agricultural damages, which tend to be worst from spring and summer floods (as seen in 2012).



SILT MONITORING

The Parrett IDB has continued silt monitoring along 12.15 kilometres (7.55 miles) of the Parrett and 3.35 kilometres (2.08 miles) of the Tone to help shape the SRA's dredging programme. Since 2016, surveys have been carried out twice a year, at the end of summer when silt deposition tends to have reached its annual peak, and at the end of winter when silt levels are low because of natural processes of scouring. Through building up a detailed picture of seasonal and year-on-year trends in siltation, the SRA and its partners' long-term ambition is to get a better understanding than anybody has ever had before of how the tidal River Parrett-River Tone system really works.

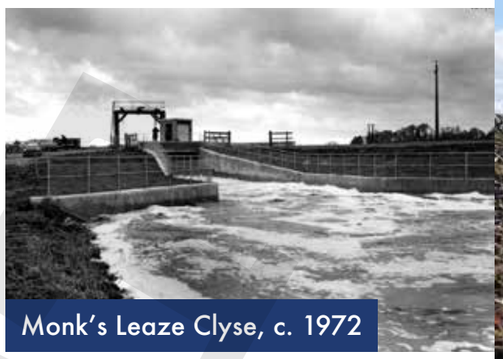
MAJOR PROJECTS
2. River Sowy/King's Sedgemoor Drain enchancements

A major project to increase the capacity of key parts of the River Sowy and King's Sedgemoor Drain (KSD) through work in these rivers' channels and on their banks. Sowy-KSD works have been delivered for Somerset Rivers Authority (SRA) by the Environment Agency, as a partner in the SRA, since 2015.

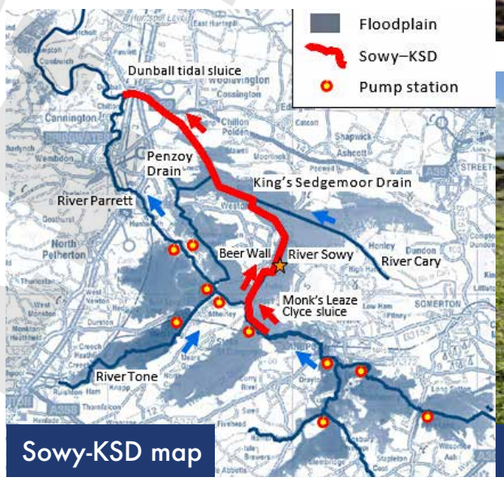
The SRA has used Growth Deal funding from the Heart of the South West Local Enterprise Partnership to pay for these works, supplemented with money raised directly for the SRA through council tax.

The River Sowy was created in 1969-72 as a River Parrett Flood Relief Channel. It branches off the Parrett through Monk's Leaze Clyse sluice near Aller, down to the KSD near Greylake, which then rejoins the Parrett through Dunball Sluice north of Bridgwater. Monk's Leaze Clyse and Dunball Sluice are owned and operated by the Environment Agency.

The ultimate aim of all the Sowy-KSD enhancements of the last few years has been to increase the amount of water that can flow down through the system, under conditions managed by the Environment Agency, working with local partners, and thereby help to reduce flood risks across 150 square miles.



Monk's Leaze Clyse, c. 1972



Sowy-KSD map

Sowy ecological enhancement

Activities in 2021-22

Following a successful public consultation in summer 2021 on additions to the Sowy-KSD's scheme's Environmental Statement, works were carried out in September and October. Sowy-KSD earth-moving works can generally only be done in late summer or autumn. One big reason is to avoid disturbing legally-protected birds which breed in the spring or early summer, and feed over the winter on local wetlands. Another reason is that wet winter weather can make it almost impossible to work in soft peaty ground with heavy machinery.

Works in September and October included filling low spots in the banks of the upper Sowy, upstream of Beer Wall on the A372 near Othery, and raising 1.32km of the right bank of the lower Sowy, downstream of Beer Wall. The eventual aim of these activities is to increase the river's capacity to carry water.

(Photos above right): tracked dumper trucks move material across soft, peaty ground; tracked dumper trucks running in clay for bank core; filling peat soil over clay core; completed embankment.

Five out of seven planned ecological enhancements were also excavated. These enhancements consist of features such as different shelves along parts of the riverbank and smaller parallel channels, to create an enlivening variety of flows and more diverse habitats for wildlife.

The SRA Board was told in December 2021 that progress had been delayed by a range of problems, such as Covid-19, wet weather and especially a shortage of skilled plant drivers.

In March 2022, the last two ecological enhancements were excavated and planting was done around the five previously excavated.

Other works across different times of year consisted of vegetation clearance and the installation of temporary fencing, to keep livestock away from areas being improved.

Bank-raising is due to resume in July 2022 and finish by the end of October.

Important side-stream structures at Parchey, Cossington and Chilton will also be upgraded in the autumn to match the increased capacity of the KSD and provide the same relative level of flood defence as before..

ADDITIONAL WORKS

In March 2022, the SRA Board agreed to allocate up to £200,000 for 'design and preparation' work on three outfalls into King's Sedgemoor Drain downstream of Parchey Bridge, namely Chedzoy Tilting Weir, KSD Back Ditch, and Level Rhyne. The Board's move followed discussions between the Environment Agency and the Parrett Internal Drainage Board (IDB) about the need to make modifications to these outfalls an extra part of the current phase of Sowy-KSD works. The concern is that if more water comes down through the Sowy-KSD system, then water will flow back out through these outfalls, as they are currently constituted, instead of being kept in the main river channel. SRA Board members will be asked to take more decisions about the outfalls at their meeting in July 2022.

MAJOR PROJECTS
3. Strategic Approach to Mitigation

Surveying Functionally Linked Land

To help Somerset Rivers Authority (SRA) and its partners streamline flood risk management projects on the Somerset Levels and Moors, Natural England is developing a Strategic Approach to Mitigation.

Mitigation means actions that must be taken – by law – to offset any unavoidably negative effects that projects will have, considered individually and in combination.

A Strategic Approach to Mitigation will help to:

- reduce costs and risks
- enable projects to go ahead
- secure environmental benefits
- support local community, farming, business and tourism interests
- satisfy local and national policies

Activities in 2021-22

In March 2021, the SRA Board approved a bid from Natural England for two years' funding for developing and implementing a Strategic Approach to Mitigation for the SRA, with four main interlocking strands:

1. Developing a methodology for mapping wider wetland areas, especially Functionally Linked Land (FLL) of critical importance to wintering birds

This project is nearly finished. After a third round of winter habitat and wetland bird surveys in February 2022, most key areas have been covered. Natural England's Geographic Information System (GIS) team have produced maps and tables that show the quantity and quality of areas of land that are functionally linked to the Somerset Levels and Moors Special Protection Area (SPA). A forthcoming report will be shared with SRA partners so its contents can be used to help improve water level management in areas of Functionally Linked Land.

2. Developing a protocol for monitoring the condition of the Somerset wetlands

Natural England has begun examining ways in which water level telemetry data could be better used, with a view to discussing findings with the Environment Agency and Somerset Drainage Boards Consortium (SDBC). It has secured support in principle from the Environment Agency, SDBC and RSPB for this project. A joint working group is to be set up to help pinpoint and solve problems with water level management and habitat condition for the benefit of the Special Protection Area. Bird data analysis work is also due to be commissioned from the British Trust for Ornithology to ensure that a monitoring programme is based on the most accurate and up-to-date bird data.

The purpose of moves 1 and 2 is to establish a baseline against which it will be easier to detect environmental changes. Several important benefits will result from this endeavour. For example, more accurate and up to date information about sensitive locations will help the SRA and its partners to produce legally compliant schemes more quickly, at a lower cost. Critically important works could also be fast-tracked, because with the right kinds of understanding, mitigation activities could be agreed more swiftly and done upfront.

3. Initiating the updating of Water Level Management Plans and establishing operational protocols including a set of Environmental Trigger points across Somerset.

Natural England has been working with SDBC on a brief for the production of a research report contextualising water level management on the Somerset Levels and Moors. The aim is to ensure that Water Level Management Plans are updated in ways that take into account all relevant factors, such as flood water storage, climate change, water quality, peat restoration, requirements for protected sites and agri-environment schemes.

4. Developing alternative solutions to the current suite of Raised Water Level Areas.

Natural England has held positive discussions about this project with Somerset Rivers Authority, the Environment Agency, Somerset Drainage Boards Consortium, the RSPB and Somerset Wildlife Trust. Following a group meeting at Moorlinch in October 2021, recommendations for action are being developed. The results of research commissioned by the RSPB into alternative water level management scenarios for Moorlinch SSSI and West Moor SSSI are also being analysed.

The purpose of moves 3 and 4 is to ensure that the Somerset Levels and Moors Special Protection Area is in a better condition, and therefore more resilient to any potential impacts of future schemes.

Constructive conversations are being held about land being used for several functions and how this could be organised and paid for. Somerset Rivers Authority as a partnership is helping various initiatives to bear fruit. See, for example, the increasing number and vigour of the Moor Associations described in the W5 section of this report.

MAJOR PROJECTS
4. Bridgwater Tidal Barrier

Artist's impression of the Bridgwater Tidal Barrier

Bridgwater Tidal Barrier is a major project led by the Environment Agency and Sedgemoor District Council, with support from Somerset Rivers Authority (SRA). Its purpose is to reduce flood risks to more than 11,300 homes and 1,500 businesses.

The project has three main elements: a tidal barrier across the River Parrett between Express Park and Chilton Trinity; 4.3 kilometres (2.67 miles) of new flood defence banks and 2.8 kilometres (1.74 miles) of raised banks downstream at Chilton Trinity, Combwich and Pawlett; and fish and eel passage improvements at 12 sites upstream of the barrier.

The SRA put £2million of Growth Deal money from the Heart of the South West Local Enterprise Partnership towards project costs, up to the application for the Transport and Works Act Order (TWAO) needed to build all the project's main elements. A TWAO application was submitted to the Department for Environment, Food and Rural Affairs (Defra) in December 2019.

Activities in 2021-22

In January 2022, it was announced that the Secretary of State at Defra had approved the TWAO for the Bridgwater Tidal Barrier project.

The Environment Agency now has the necessary legal powers to proceed, although before each element of the project can be built many complex planning conditions have to be met.

The £100 million Barrier project will be funded by central government and by local partnership funding. In March 2022, the SRA Board agreed to put a further £490,000 towards the local funding required, on top of £300,000 given in March 2021.

The Environment Agency has appointed Atkins as consultants, Kier as contractors to complete detailed designs.

It is hoped to start preliminary works at the Barrier site in 2022-23, so it is ready for use in 2026. All project elements are due to completed by 2029.

Ongoing investigations

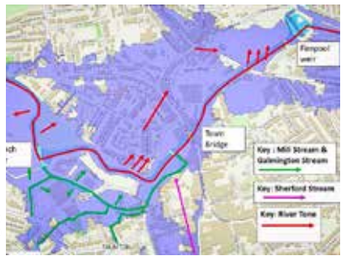
In January 2022, the Environment Agency investigated ground and archaeological features near Chilton Trinity on the western bank of the Parrett, where an old brickworks will be affected by Barrier construction. New information was acquired about underground voids that will need to be tackled. Archaeological open days at the site attracted many enthusiastic visitors.

Other activities have included topgraphical surveys on foot and by drone; discussions with local landowners; early ecological surveys; and fun and informative sessions with local schools about the Barrier, flooding and climate change. The Barrier will directly reduce flood risks for four schools.

The Environment Agency has been striving to reduce the carbon impact of this project, and seeing extra funds for landscaping and environmental improvements.

A farthing

Map of Taunton showing flooding extent in 2019



Map of Taunton showing flooding extent in 2119

The main purpose of Taunton Strategic Flood Alleviation Improvements Scheme (TSFAIS) is to reduce flood risks from the River Tone and its complex network of tributaries, particularly the Galmington, Sherford and Mill streams.

The scheme is led by Somerset West and Taunton Council (SWTC) and the Environment Agency. It has been part-funded since 2016 by Somerset Rivers Authority (SRA). In 2016-17, the SRA contributed Growth Deal funding from the Heart of the South West Local Enterprise Partnership.

SWTC estimates that a single major flood could cost Taunton's economy up to £50million. 1,031 properties in Taunton are currently at risk, including homes, health centres, emergency services, North Town Primary School, electricity substations, sports facilities and much more. By 2118, because of climate change, the number is expected to rise to 2,548.

Activities in 2021-22

The current TSFAIS priority is to improve Taunton's short and medium-term capacity to manage flooding. Two initial schemes have been progressing:

1. River Tone Left Bank Flood Defences – raising low spots from Frieze Hill to Town Bridge. This will benefit 508 homes, businesses and facilities such as the police station and council offices, BT exchange and French Weir surgery, plus the A3027 and A3088.

A Collaborative Agreement between SWTC and the Environment Agency has been signed and contractors Binnies have been appointed to work on detailed designs, consents, and permissions. It is hoped to submit a planning application in summer 2023 and start construction in 2023-24.

2. Firepool Lock gates and bund. The plan is to raise Firepool Lock gates and the area around them, and create a 750-metre earth bund between the River Tone and the Bridgwater to Taunton Canal, from Firepool Lock to the A358 Obridge Viaduct. The aim is to prevent Tone floodwater from entering the Canal, because that will reduce the risks of floodwater overtopping into Maiden Brook and then Allen Brook in Bathpool, and that will benefit 219 properties (Priorswood and Crown Industrial Estates and Bathpool).

A contract for work on detailed designs, consents and permissions was let to WSP in August 2021. Studies into matters such as ecology, heritage and landscape have been progressing, initial concept designs have been produced and early meetings with stakeholders have been held. It is hoped to secure planning permission in 2022 and start building in 2023.

RIVER BRUE MODELLING

The aim of this project is to get a better understanding of flood risks associated with the River Brue, by studying how much water it conveys, and the ways in which water moves – and is moved – around its lowland catchment. Existing Brue modelling is judged by SRA partners to be out of date.

In December 2021, the SRA Board therefore agreed to fund an update. Local contractor Andy Wallis of AW Water Engineering Ltd has been commissioned to manage Brue modelling activities for the SRA, using consultants WSP. WSP are working with a project steering group, which includes representatives from the SRA, the Environment Agency, Somerset Drainage Boards Consortium and Somerset Catchment Partnership.

Other stakeholders will be involved from October 2022, once some draft outputs are available. Discussions will be held about flood-related issues such as conveyance, maintenance, resilience and adaptation, with a view to establishing a set of preferred outcomes for the River Brue catchment.

It is estimated that fresh modelling will be completed by January 2023. Once it has been completed, an updated river model will be a valuable asset that could be used by any organisation wishing to develop plans for the River Brue.

SAMPFORD BRETT FLOOD ALLEVIATION CULVERT WORKS

A long culvert goes through the centre of Sampford Brett, under the main road, past the church and village hall, and down to the Doniford Stream. The culvert takes excess water from a small but fast-flowing village stream.

The culvert was built in 1992 in response to numerous cases of flooding and it has reduced historic flood risks. However, various incidents in the 2010s prompted concerns about its maintenance and capacity. In 2019-20 – as a special one-off case – the culvert was desilted for the SRA, to restore its capacity to carry water.

In 2021-22, the SRA funded several improvements around the culvert's outfall pipe into the Doniford Stream, where there were problems with silting-up, backflow and erosion.

SMALLER PROJECTS

DE-SILTING OF STRUCTURES

Works were carried out in 2021-22 at four locations, led by Somerset County Council as a partner in the SRA.

Sedgemoor

Cheddar, on a culverted watercourse which goes under Labourham Way off the A371. Work began towards the end of the 2020-21 financial year and was finished in 2021-22.

Chilton Trinity, where Reedmoor Rhyne goes under Saltlands Lane, between the A39 and the sewage works.

South Somerset

Perry Street before

Perry Street after

Perry Street, under the B3167 a short distance south-west of Holway (pictured above).

East Stoke, where Wellhams Brook goes under Marsh Lane, not far from the busy A3088.

East Stoke before

East Stoke after

RIVER ALLER 'STAGE ZERO'

On its Holnicote estate in West Somerset, the National Trust has set aside land at Selworthy Farm for the trial of an innovative approach to river restoration and habitat improvement. The Trust wants part of the River Aller to flow more naturally, through branching out from being just a single channel to becoming a more complex and dynamic system. It's an ambition inspired by the success of so-called 'Stage Zero' techniques in the US state of Oregon. The River Aller scheme will be the first time that such techniques have been tried on a main river in England. The scheme is part-funded by the SRA, and follows on from more than a dozen earlier activities also part-funded by the SRA in the National Trust's Riverlands Porlock Vale Streams project, which in turn is part of the EU's Co-Adapt project funded through the Interreg 2 Seas programme.

Benefits are expected to include:

- reduced risks of flooding because of slower flow and the river having more capacity
- reduced risks of drought
- healthier soils
- richer and lusher sward for summer grazing
- bigger and better habitats
- improvements to the special characteristics of Exmoor

Activities in 2021-22

A planning application for this scheme was registered with Exmoor National Park Authority on 28 October 2021. Reference number 6/29/21/119, local parishes Luccombe, and Selworthy and Minehead Without. The application's 32 documents are full of interest. Notable respondents (13 in total) include Porlock Parish Council, Luccombe Parish Council, a neighbour, and the Exmoor Rivers and Streams Group. The scheme is part of the same Porlock Vale Streams initiative as Tivington Farm (see below).

TIVINGTON FARM: RIVER ALLER UPPER CATCHMENT FLOODPLAIN RESTORATION

This scheme has been designed to help restore and re-naturalise 125 hectares of land at Tivington Farm on the National Trust's Holnicote estate in West Somerset. The idea is that drainage ditches and short sections of headwater streams should become part of a more complex, diverse and dynamic system of wetlands, flushes, pools and branched-out channels. As with the National Trust's ambitions for the River Aller downstream at Selworthy Farm, this scheme has been inspired by the success of 'Stage Zero' techniques in producing numerous benefits for people, wildlife and landscapes.

Gains here are expected to include reduced flood risks for nearly 100 properties downstream in places such as Allerford and Bossington, and reduced flooding of the A39 between Porlock and Minehead, several B roads and smaller lanes.

This Riverlands Porlock Vale Streams project is part-funded by the EU's Interreg2Seas programme and by the Environment Agency. Match-funding has been given by the SRA for works including modelling and design.

Tivington Farm Activities in 2021-22

A planning application for this scheme was registered with Exmoor National Park Authority on 2 February 2022. Reference number 6/29/22/01, local parishes Selworthy and Minehead Without, and Wootton Courtenay. The application contains 73 documents with lots of interesting details. Respondents (seven in total) include neighbours and Selworthy and Minehead Without parish council.

DULVERTON WEIR AND LEAT

The weir across the River Barle in Dulverton, and the Leat that loops off it, are both eroded and damaged. Somerset West and Taunton Council owns the weir and Leat and wants to see them repaired and improved. As a partner in Somerset Rivers Authority (SRA), the council has been investigating how best this goal might be achieved. The weir and Leat help to regulate flows of water in and around Dulverton. (The sluice gates at the head of the Leat form part of an Environment Agency flood defence scheme).

During 2021-22, SRA funding was used to commission an ecological survey from Westcountry Rivers Trust (WRT). WRT produced a detailed 87-page report making 18 recommendations. For example, it suggested designing a multi-species technical fish pass on the right hand bank, with an upstream deflector. Species known to live downstream of the weir include lamprey, brown/sea trout, European eel, Atlantic salmon, bullhead, stone loach and grayling. It is likely they would go upstream if they could get there.

Using SRA funding, the council also commissioned Mann Williams (Consulting Structural and Civil Engineers) to produce detailed designs for reconstructing the Weir.

Dulverton Leat Trust has agreed in principle to lease the Weir and Leat, once they are restored, and to pay for their future maintenance.

LANGPORT FLOW STATION

In 2019 the Board of Somerset Rivers Authority approved an Environment Agency bid for funding for a permanent flow station in the River Parrett in Langport. In 2020, ground investigation works were completed and the flow station was designed. In 2021, it was due to be built but construction was postponed until the start of 2022 because of problems arising from the coronavirus pandemic. In January 2022, work again had to be deferred because it was not possible to move a hugely heavy piling rig on site, as the access route was too wet.

Langport flow station is now due to be built in August-September 2022. It will measure how much water is going down the Parrett from a catchment of approximately 770 square kilometres (478 square miles). Used in combination with data from existing gauges at Chiselborough, Yeovil, Donyatt and Stathe, information from Langport flow station will help to make several important systems work better – flood warning systems, for example.

Somerset Rivers Authority funds many Natural Flood Management (NFM) activities across Somerset. All sorts of different techniques may be used, singly or in combination. All share the aim of reducing local flood risks, by slowing the flow of water down through catchments in ways that work with nature.

This workstream is led for the SRA by the Farming & Wildlife Advisory Group SouthWest (FWAG SW). It is known for its sophistication, strong partnership working and dogged attention to local detail. Measures taken to slow the flow of water down through catchments generally go under the popular local branding of Hills to Levels. A catch-all approach makes it easier for partners to get involved, and to contribute match-funding so that more can be achieved. Many examples of different techniques and match-funding follow in this W2 section.

About Natural Flood Management (NFM)

As people often ask what 'NFM' means in practice, and how it works, take as an example creating a bank across the slope of a field and then planting a hedge on top. The bank acts as a physical barrier. The hedge takes up water through its roots. Together they reduce the run-off of surface water into watercourses downstream.

Moreover, by stopping sediment from sloping off, the bank helps to keep soil in a field – and out of a stream or drain or river – which has positive implications for water quality. Meanwhile, the hedge provides a corridor for wildlife. Together, such benefits advance the objectives of Somerset's 20 Year Flood Action Plan.

CAPITAL GRANT SCHEMES

Schemes begun or completed in 2021-22.

Mendip

In the SRA's Enhanced Programme of works for 2021-22, part of the funding allocated to Hills to Levels was earmarked for NFM activities in Mendip. This was to enable Mendip District Council's flood risk consultant to follow up on SRA-funded work done previously to analyse Mendip sub-catchments' flooding problems, assess where things could most usefully be done that were not being done by others, and fix those gaps by developing ideas and encouraging people and organisations to act together. The Farming & Wildlife Advisory Group SouthWest (FWAG SW) has been helping matters to progress, as with these two schemes in the Frome area in 2021-22.

CAPITAL GRANT SCHEMES BEGUN OR COMPLETED IN 2021-22

CAPITAL GRANT SCHEMES BEGUN OR COMPLETED IN 2021-22

Marston Park

A floodplain restoration scheme is being developed on part of the Marston Park estate near Frome, between Tuckmarsh Lane and Thickthorn Wood. Its main aims are to reduce downstream flood risks by slowing the flow of water, increase biodiversity and improve water quality.

Activities so far have included water level monitoring, an initial ecological survey by FWAG SW, a site walkover with an archaeologist from South West Heritage Trust and a topographical survey. Because Marston Park and Garden are Grade II Listed, and there is evidence within part of the site of a medieval shrunken settlement, only small-scale marsh and floodplain restoration works are being proposed.

This scheme is being led for the SRA by Mendip District Council's flood risk consultant, following on from some initial work done by FWAG SW as part of the Somerset Frome Project initiated by the Somerset Frome Partnership.

It is hoped to carry out works in autumn 2022.

Witham Friary

A scheme to restore parts of the floodplain along Hermitage Stream at Holt Farm, Witham Friary, about halfway between Frome and Bruton. Hermitage Stream is a tributary of the River Frome. Works in autumn 2021 comprised:

- Lowering sections of the riverbank to let more water out on to the floodplain
- Creating leaky woody dams in the stream to help divert water out on to the floodplain
- Creating shallow scrapes to hold more water on the floodplain
- Using timber to roughen-up the floodplain and slow the flow of water

In late October 2021 – before the whole scheme was completed – monitoring after very heavy rain showed water being held back. The purpose of slowing the flow downstream is to reduce flood risks in Witham Friary and down towards Frome and the A362 at Wallbridge. Other benefits include better water quality, because of a reduction in the movement of sediments, and a wider, more varied corridor of wetland habitat for wildlife.

This scheme was jointly funded by Mendip District Council and Somerset Rivers Authority, as part of both the Somerset Frome Project and Hills to Levels. It was designed by Hydro-Morph Ltd and FWAG SW, with groundworks done by local contractors.

Somerset West and Taunton

Lower Lovelynch, near Milverton, Hillfarrance Brook, a scheme designed to reduce flooding and the amount of soil deposited on a troublesome corner on the B3187 between Wellington and Milverton. Too much water from an uncontained spring was flowing down onto the road. Works consisted of four main elements:

1. Digging a ditch to contain and divert water into an existing culvert to take water into an existing drainage pipe.
2. Cutting grips to re-direct water onto grassland to slow its flow, allow for infiltration into the ground and for sediment to settle.
3. Extending an existing grassland area and installing a silt trap.
4. Installing raised banks to intercept and slow run-off, and stabilising those banks with hedge planting.

Lower Vexford, Yeaw Farm, Doniford Stream tributary, 330 metres of hedgerow have been planted along the contours of quite a steeply sloping field, to help slow the flow of water and reduce flood risks downstream. One 20-metre section was planted in triple-row formation to provide a thicker barrier to a stream that rises after heavy rain. This whole scheme was also designed to help improve water quality and create new habitats for wildlife.

Luxborough, Chargot estate, upper Washford catchment. Two schemes were combined here to manage arable field run-off and water from a spring, and slow their flow downstream through three main interlinked measures. In order of descent down the hillside, and in simple terms: 1) quite a large pond was created and connected to a new field drain which flows down into 2) an extended and restored silt trap which drains into 3) another large new pond which drains down into a swale.

The SRA paid 21.6% of the cost of these two schemes, which were designed as part of the Hills to Levels Multiple Benefits Project led by the Environment Agency and FWAG SW. The Multiple Benefits Project is otherwise funded through the Environment Agency's Water Environment Improvement programme. The Project's purpose is to demonstrate that multiple benefits can be delivered by working with natural processes and natural flood management techniques across small catchments such as the upper Washford. Here on the Chargot estate, for example, the lower pond was designed to have a base level of water for the benefit of wildlife. The landowner is thinking of paying for further refinements such as a manually controlled sluice structure.

The schemes' main elements can be seen in this video, which includes interviews with Angelique McBride of FWAG SW and landowner Caleb Sutton, from 2 minutes 37 seconds (2:37") to 3:49": https://youtu.be/HuIivbT7a1Y

CAPITAL GRANT SCHEMES BEGUN OR COMPLETED IN 2021-22

Roadwater, in a wet field by The Old Mineral Line coming into Roadwater, below Road Wood, a bunded scrape has been created to hold more water for longer before it reaches the Washford River. Materials excavated during the making of the scrape were used to build up the bund. The landowner paid for the scrape to be fitted with pond liner up to a certain level, so that it can hold some water all-year round, but also take excess floodwater when need be.

West Bagborough, Crossways Farm, Back Stream catchment. An existing field corner pond has been de-silted and enlarged, and its outlet re-fashioned, so the pond can now store more water, in a more controlled way, during periods of heavy rain.

Associated works in this small but sophisticated scheme included:

- creating a hedgebank uphill from the pond to intercept and slow surface water run-off
- creating a ditch to capture more field run-off and drain into the pond
- coppicing the south-west hedgebank along the pond to let in more light and reduce leaf litter

Between 2017 and 2021, the SRA has funded several other schemes in and around the parish of West Bagborough to help reduce flood risks.

South Somerset

Stoney Stoke, Lush's Farm, 1125 trees, 450 shrubs and 892 metres of hedgerow have been planted across a sloping valley side, down which water flows into the River Pitt. Slowing the flow of this runoff will help to reduce flood risks downstream, and – by trapping sediment and reducing erosion – to improve water quality. As the new trees, shrubs and hedgerow adjoin a recently created strip of woodland, they also extend a wildlife corridor for species including bats, birds, small mammals and invertebrates. The SRA gave a grant for just under 68% of the costs of this scheme. Other funding came via the Environment Agency's Brue Catchment Priority Project.

Lush's Farm

HIGHWAYS REFERRALS

In 'Highways referrals' SRA partners look for answers to highway flooding problems in better management of land nearby. Cases generally involve Somerset County Council's Highways Department and the Farming & Wildlife Advisory Group SouthWest (FWAG SW), with the former referring problems on to the latter. Highways officers may be told about matters by various sources – for example, residents or parish councils – or they may spot issues themselves, when they are out and about. (As indeed may FWAG SW advisers).

In 2021-22, FWAG SW were asked to investigate reports of surface water run-off in eight places:

Mendip

Bathway near Chewton Mendip, Cheddar Road and A39 crossroads.

Somerset West and Taunton

Kilve, A39, 200 metres east of Sea Lane.

South Somerset

Blackford, Manor Farm Road; **Castle Cary**, Torbay Road; **Chard**, St Mary's Close; **Charlton Horethorne**, Blackford Road; **East Coker**, Green Lane and Holywell crossroads; **West Coker**, Gooseacre Lane and A30.

Cases have a range of different outcomes. At Blackford, for example, issues reported with mud were judged to have been a strange one-off, as the land in question was well-cultivated and in good condition. At Bathway, Charlton Horethorne and Kilve, advisers discussed detailed suggestions for improvements. At Kilve, for example, the site in question sits at the foot of a long, steeply sloping field. When it was visited, it had very recently been re-seeded. Temporary filter fencing was proposed as a way of reducing surface water run-off and sedimentation, before re-assessing later. At Castle Cary, Chard, East Coker and West Coker, matters are still being looked at.

In two other places – **Carhampton**, near Orchard Close and **South Petherton**, Whitfield Lane and Carey's Hollow – a FWAG SW adviser returned to see how matters were progressing after visits in previous years. In Carhampton, fresh plans have been drawn up for a swale and bund to slow water and a ditch to collect water, and one farmer has agreed to take further measures to reduce run-off from land above.

In South Petherton, landowners have previously taken various measures to try to reduce run-off onto roads, but the situation is complicated by soils in this area being very sandy and light, and Carey's Hollow being an extremely sunken lane, up to 10 metres below its adjoining fields. More recently, the farmer has agreed to install a buffer strip, and has discussed ideas to further slow run-off, such as planting cover crops in fields that would otherwise be left bare over the winter.

SOIL VISITS

Better soil husbandry helps to reduce the run-off of surface water. Keeping soil in good health also brings obvious benefits to farmers. One visit was made this year to Ham Hill Farm, on heavy Denchworth clay north of Combe St Nicholas, near the A303, where it was suggested that a few more spring cultivations could be tried to improve the infiltration of water into the soil. The farmer is interested in joining one of the Government's new Environmental Land Management Schemes (ELMS), the Sustainable Farming Incentive.

ONLINE NATURAL FLOOD MANAGEMENT (NFM) AUCTIONS

W2 W2

ONLINE NATURAL FLOOD MANAGEMENT (NFM) AUCTIONS

Every year since 2018 Somerset Rivers Authority (SRA) has given grants to successful bidders for works to help stop flooding. Somerset farmers are invited to bid via an auctions website (www.naturebid.org.uk) for Natural Flood Management (NFM) measures which they believe would work well on their land.

In 2021 NFM measures on offer included better maize management, grassland subsoiling and grassland slitting, and hedge planting. The aim of all these measures is to help slow the flow of water down through catchments, while delivering other benefits. For example, grassland subsoiling and slitting aerate the ground so that more rainwater can filter in. They also improve the soil.

The auctions are organised for the SRA by the Farming & Wildlife Advisory Group SouthWest (FWAG SW). They are reverse auctions. In conventional auctions, bids go up until the highest one wins. In reverse auctions, people who submit lower bids are triumphant.

All bids are checked by FWAG SW advisers, before and after proposed works are done, to make sure firstly that they will have good effects in suitable locations, then that they have been done to a good standard.

Farmers say they like the auctions system because it is quick and easy to use, and involves very little paperwork. Another part of its appeal for all concerned is that it draws on farmers' and landowners' unrivalled knowledge of their own land.

A few grand totals: grants were given for better maize management on 519.24 hectares (enough space to park about 192,400 cars), for winter cover crops on 127.07 hectares (47,100 cars), for buffers on 2.91 hectares (1,080 cars), for grassland subsoiling and slitting on 175.12 hectares (64,900 cars) and for 605.68 metres of hedgerow planting.

A note on maize management: water running off from compacted maize ground can contribute to localised flooding. Problems can be minimised by encouraging the infiltration of water through soil. Useful techniques include drilling and cultivating fields with a winter cereal or ryegrass, after maize has been harvested. Establishing green cover helps to intercept rainfall and protect the soil surface.

To get the grants they bid for, farmers have to cut their maize before 1 October. This rule is intended to allow for more time, after harvesting, for run-off reduction works to be carried out. If works are left too late, then the soil can simply become too wet for success.

Sharpshaw Farm

Asham View

2021-22 AUCTION ACTIVITIES

For ease of reading many separate auction bids have been amalgamated into total hectarages.

Mendip

Downhead, Green Farm, 3.4 hectares of maize management in a field south of Battlefields Wood near Downhead, 3.54 hectares of grassland slitting in a field east of Battlefields Wood; parishes Doulting, Leigh-on-Mendip; watercourses Whatley Brook source to confluence with Mells River, Somerset Frome.

Chantry, Asham View, 21.5 hectares of grassland slitting between Leigh upon Mendip and Tadhill; parish Mells; watercourse Buckland Brook source to confluence with Mells River; catchment Somerset Frome.

Nunney, Sharpshaw Farm, 32.73 hectares of maize management and 0.40 hectares of grass buffer strip at the boundary of a field; parishes Nunney and Selwood; watercourse Nunney Brook source to confluence with Mells River; catchment Somerset Frome.

Trudoxhill, Sunnyside Farm, 5.3 hectares of maize management on land east of Trudoxhill; parish Trudoxhill; watercourse Frome source to confluence with Maiden Bradley Brook; catchment Somerset Frome.

West Bradley, Bridge Farm, 23.47 hectares of grassland subsoiling in the parishes of Baltonsborough and West Bradley; watercourses Coxbridge Brook and Brue (Tootle Bridge to Clyse Hole); catchment Brue.

Witham Friary and Cranmore, New Manor Farm, 18.14 hectares of maize management, 72.6 hectares of grassland slitting; parishes Doulting, Postelbury; watercourses Frome – source to confluence with Maiden Bradley Brook, Whatley Brook source to confluence with Mells River; catchment Somerset Frome.

Sedgemoor

Pedwell, Redlands Farm, 34.31 hectares of grassland slitting; parish Ashcott; watercourses 18 Feet Rhyne and King's Sedgemoor Drain Henley Sluice to mouth; catchment Parrett.

Rhode near North Petherton, Rhode Farm, 18.8 hectares of winter cover crops; parish North Petherton; watercourses Hamp Brook and Stockmoor Rhyne; catchment Parrett.


Manor Farm

Stawell, Manor Farm, 23.25 hectares of cover crops at Pendon Hill and land at Righton's Grave; parish Stawell; watercourse Level Rhyne and Pendon Rhyne, King's Sedgemoor Drain from Henley Sluice to mouth; catchment Parrett.

Stretcholt, land near Sealey Cottage, 106.65 metres of hedge planting; parish Pawlett; watercourse River Parrett; catchment Parrett.

Sedgemoor *and* Somerset West and Taunton

Otterhampton, Manor Farm, 131.84 hectares of maize management at several locations across the parishes of Cannington, Wembdon, North Petherton, Oake, Milverton and Nynehead; watercourses Fiddington Brook, Cannington Brook (Lower), North Moor Main Drain, Tone (Willington to Taunton), Hillfarrance Brook; catchments Tone and Parrett.

West Monkton, Quantock Farm, 74.29 hectares of maize management and two buffer strips totalling 0.42 hectares were established at the bottom of two sloping fields; parishes North Petherton, West Monkton; watercourses Petherton Stream, North Moor Main Drain, Tone downstream of Taunton, Allen Brook (Maiden Brook); catchment Tone and Parrett.

Somerset West and Taunton

Assorted locations, Slough Court, 65.4 hectares of maize management, 8.6 hectares of grassland slitting; parishes Burrowbridge, Durston, North Curry, Stoke St Gregory; watercourses King's Sedgemoor Drain (Henley Sluice to mouth), North Moor Main Drain, River Parrett, River Tone downstream of Taunton, West Sedgemoor Main Drain; catchments Tone and Parrett.

Blagdon Hill, Woodram Farm, 6 hectares of maize management in fields at Blagdon Hill and Blagdon Old School; parish Pitminster; watercourse Sherford Stream; catchment Tone.

Cheddon Fitzpaine, Hestercombe Farm, 7.16 hectares of maize management and a 0.31 hectare buffer strip at a sloped field margin; parish Cheddon Fitzpaine; watercourse Allen Brook (Maiden Brook); catchment Tone.

Dunster, Lower Marsh Farm, and land at Old Cleeve, 37.2 hectares of maize management and 33.2 hectares of winter crops; parishes Dunster and Old Cleeve; watercourses Pill and Avill; catchment West Somerset Streams.

Somerset West and Taunton (continued)

Lydeard St Lawrence, Higher Vexford Farm, 78.44 hectares of maize management at various locations in parishes of Elworthy, Fitzhead and Stogumber, Elworthy; watercourses Hillfarrance Brook, Doniford Stream and Halse Water; catchments Tone, West Somerset Streams.

Pinksmoor near Wellington, Pinksmoor Farm, 69.4 metres of hedge planting on banks in a good cross-slope location and the bottom of a sloped field; parish Wellington Without; watercourse upper Tone; catchment Tone.

Rumwell, Ritherdens Farm, 51.82 hectares of winter cover crops on land east of Hele and north of Castleman's Hill; parishes Bradford on Tone, Bishop's Hull and Trull; watercourses Hele Brook, Sherford Stream, River Tone; catchment Tone.


Bryants Farm


Newlands Farm

Staplegrove, Smokey Farm, 123.07 metres of hedge planting on banks; parish Kingston St Mary; watercourse tributary of Back Stream; catchment Tone.

Tolland, Little Parks Farm, 131.56 metres of hedge planting across a large, sweeping slope; parish Brompton Ralph; watercourse Halse; catchment Tone.

Wellington, Bryants Farm, 6.09 hectares of maize management, 0.19 hectares of two buffers to intercept run-off; parishes Wellington Without, West Buckland; watercourse Haywards Water; catchment Tone.

Wellisford near Wellington, Newlands Farm, 11.1 hectares of grassland subsoiling; parishes Langford Budville, Stawley, Wellington Without; watercourse upper Tone; catchment Tone.

West Monkton, Prockters Farm, 10.32 hectares of maize management; parish West Monkton; watercourse Allen Brook (Maiden Brook); catchment Tone.

South Somerset

Bower Hinton near Martock, Bower Hinton Farm, 1.42 hectares of buffers to intercept run-off from high-risk cops in sloping fields; parish Martock; watercourse Parrett (Lopen Brook to River Isle); catchment Parrett.

Ilminster, Hurcott Farm, 3 filter fences installed in the form of both fabric filter fencing and coir rolls and a 0.17 hectare buffer strip; parishes Seavington St Mary and Whitelackington; watercourses Lopen Brook, Lam Brook and River Isle upper to confluence with Cad Brook; catchment Parrett.

North Barrow near Yeovil, Firtree Farm, 175 metres of hedgerow planted; parish North Barrow; watercourse River Cary source to confluence with King's Sedgemoor Drain; catchment Parrett.

Carrot Hill Farm, Spargrove

SOMERSET TREES FOR WATER ACTION FUND

This Fund for tree and hedge planting helps people across Somerset to reduce local flood risks arising from surface water run-off. It's designed to suit small sites where local knowledge and expert analysis suggest that planting will make a difference. On top of grants given by Somerset Rivers Authority (SRA), free trees and shrubs worth £20,000 are supplied by the Woodland Trust. Planting is usually carried out by landowners themselves and many local volunteers.

The project is led by Reimagining the Levels, working in collaboration with the Farming & Wildlife Advisory Group SouthWest (FWAG SW). It is popular with participants.

Mendip

Butleigh, 2 Rood Cottage, Kingweston Road, 212 trees, 123 shrubs; **North Wootton**, Mead Lane Field, 350 trees, 350 shrubs, 155 metres (m) stock proof fencing; **Parbrook**, Withial Farm, 375 trees and 375 shrubs in two strips; **Shepton Mallet**, Windsor Hill House, Windsor Hill, 200 trees, 200 shrubs; **Spargrove**, Carrot Hill Farm, 440 trees, 440 shrubs; **Walton**, Windmill Hill, 15 trees, 140m hedgerow; **Westbury sub Mendip**, Nottley Field, 75 trees and 75 shrubs; **Westbury sub Mendip**, Shepherd's Barn Field, Lynchcombe Lane, 125 trees, 125 shrubs; **Westhay**, Sunnyside Farm, 75 trees, 75 shrubs, 15 hedgerow trees, 140m hedge planting; **West Pennard**, Southtown Farm, 175 trees, 175 shrubs, 38m of hedging; **Witham Friary**, Iron Mills Farm, 190 trees, 190 shrubs; **Wookey**, Wookey Farm, 175 trees, 175 shrubs

Sedgemoor

Ashcott, Potato Cottage, 200 trees, 200 shrubs, 92m stock proof fence; **Middle Stoughton near Wedmore**, Bear House Farm, 100 trees, 100 shrubs, 100m fencing; **Moorlinch**, Hams Barton, 350 trees, 350 shrubs, 180m stock proof fencing; **Moorlinch**, Spring Farm, 50 trees, 50 shrubs; **North Newton**, Hedging Lane (Hope Nature Project), 220 trees, 220 shrubs.

South Somerset

Ash, Hurst Drove, Witcombe Lane, 95 trees, 95 shrubs; **Barrington**, Hill Farm, 685 trees, 175m hedge planting; **Compton Dundon**, Peak Lane (Compton Dundon bridleway), 15 trees, 140 metres hedge planting; **Curry Rivel**, Curry Woods Conservation Trust land near the highest point of the parish, 240 trees and 160 shrubs; **Henley**, Tutnell House, 40 trees, 40 shrubs, 30m triple row hedge; **Hornsbury Hill near Chard**, Northayes Farm, 75 trees, 75 shrubs; **Isle Brewers**, Isle Brewers Lane, 550 trees, 550 shrubs, 25 hedgerow trees, 648m of fencing; **Knole**, Twelve Acre Farm, second phase, 176 trees, 150 shrubs, 265m of hedge; **Knole**, West Knole House, 3 trees, 86m hedging; **Langport**, Merrick's Farm, 350 trees, 50 shrubs; **Langport**, Park Lane Farmhouse, 30 trees, 30 shrubs; **Pitney**, The Old Stables / near Park Lane, second phase 175 trees, 175 shrubs, 110m of stock proof fencing; **Queen Camel**, The Nook, 100 trees, 90 shrubs, 65m fencing; **Sparkford**, Sparkford Hill Lane, 8 trees, 80m hedge planting.

Somerset West and Taunton

Bishops Lydeard, Eastcombe Farm, 700 trees, 120 shrubs, 160m hedge planting; **Bradford-on-Tone**, Tone Green, 85 trees, 85 shrubs; **Gotton**, Pengotton, 65 trees and 65 shrubs; **Holywell Lake**, Triangle Field, 27 trees and 9 shrubs; **Kingston St Mary**, Beacons Close Farm, 150 trees, 150 shrubs, 150m fencing; **Kingston St Mary**, field off Parsonage Lane, 160 trees and 160 shrubs; **North Curry**, Newport Hill Cottage, near Banana Cottage, 35 trees, 35 shrubs; **Stoke St Gregory**, Williams Hall, 2 trees and 120m of hedge.

NATURAL FLOOD MANAGEMENT (NFM) FOR DONIFORD CATCHMENT FARMS

In March 2021, the Board of Somerset Rivers Authority agreed to fund a joint initiative by the Farming & Wildlife Advisory Group SouthWest (FWAG SW) and the Wildfowl & Wetlands Trust (WWT) to help tackle flooding problems across the catchment of the Doniford Stream in West Somerset. FWAG SW and WWT had been working together on a Green Recovery Challenge Fund project in the parishes of Bicknoller, Elworthy, Sampford Brett and Stogumber. One aim of getting extra funding from the SRA was to enable more work with farmers and landowners, including some Natural Flood Management (NFM) measures.

NFM work in 2021-22 has included four schemes:

Bicknoller Combe: Materials cut at the base of the combe were hauled uphill by an Ardennes heavy horse, and four leaky woody dams were installed in the combe stream. The stream runs through common land grazed by cattle, sheep and wild animals such as deer. The dams' purpose is to help slow the flow of water down to Bicknoller, as heavy rain has often been known to cause flash flooding there.

Bicknoller Combe

Stogumber, Vellow Farm Wood: A 200-metre cross-slope hedge was planted, and fencing erected to protect it from grazing animals. The hedge intercepts surface water and provides an extended corridor for wildlife from the wood.

Triscombe, Triscombe Farm: A 130-metre cross-slope hedge was planted including four trees. Fencing was put up to protect the hedge from grazing horses, and a small gate was fitted. The hedge intercepts surface water run-off and for wildlife connects two boundary hedges already there.

Vellow Farm Wood

Williton: In the corner of a field behind homes on the A358 Tower Hill in Williton, a 135-metre hedgebank and swale were created to intercept surface water run-off towards properties. Fencing was put up, with a gate fitted to enable access for future swale de-silting.

Williton

The main aims of Somerset Rivers Authority's Urban Water Management workstream are to reduce local flood risks, and to make places better to live and work.

Activities in 2021-22 have included drainage surveys in Shepton Mallet, water management system modelling and the installation of a new field drain in Rode, research in and around Minehead, and more than 40 inspections of Sustainable Drainage Systems (SuDS) on new Somerset developments.

When it rains, SuDS help to control the run-off of water from hard surfaces like roads, roofs and pavements. SuDS use techniques inspired by nature – such as permeable paving and plants and ponds – to absorb water and hold it back. SuDS can make places greener and more attractive, healthier for people and better for wildlife, with less pollution.

SUDS INSPECTIONS

Very few formal SuDS inspection processes are in place across England: Somerset is ahead in checking new developments. Sites are inspected at various points, either through pro-active engagement with developers, or by following up notifications from local planning authorities.

The main aims are to ensure that SuDS are built in accordance with the exact designs that were approved by local planning authorities, and that they work as they are meant to work. Local planning authorities have the power to enforce changes to constructed SuDS schemes, and where necessary they use this power.

SuDS inspectors check schemes for compliance against 16 different criteria. Scores are generally best for water quantity, design requirements, health and safety, and system blockages. They are more middling for water quality and structural components, and they are lower for biodiversity, materials, vegetation and future maintenance arrangements. Future maintenance arrangements are a recurrent weakness.

Future maintenance arrangements are of particular concern because there is generally a delay in the handing over of SuDS assets to an adopting authority, such as Wessex Water or a management company. SuDS inspectors believe that one effect of this delay is to reduce the level and the quality of the maintenance undertaken. If site maintenance is neglected, SuDS designs can be compromised and long-term performance affected. Systems may get blocked, flood storage capacity may be reduced. It is important for all stakeholders, particularly local residents, that developers fulfill their planning obligations.

Mendip

Shepton Mallet, Tadley Acres.

Sedgemoor

Ashcott, Bath Road; **Axbridge**, land off Cheddar Road; **Berrow**, Rose Tree Paddock; **Brent Knoll**, Brent Street; **Bridgwater**, Black Horse Inn, Rhode Lane, and Durleigh Road; **Burnham-on-Sea**, Olivier Close, Wallace Wells Road; **Cannington**, Southbrook Close; **Cheddar**, land at Holwell Lane; **Chilton Polden**, Hayne Walk; **Durleigh**, off Haygrove Road; **East Huntspill**, Hackness Farm; **Mark**, Northwick Road; Puriton, Site B; **Wedmore**, Blackford Road and Cross Farm; **Woolavington**, Crockers Hill.

URBAN WATER MANAGEMENT SUDS INSPECTIONS

Somerset West and Taunton

Bishops Lydeard, Taunton Road; **Comeytrowe**, Phase 1; **Cotford St Luke**, Dene Road; **Creech St Michael**, Nyde Lane, land south of Hyde Lane, West View Gardens; **Henlade**, Stoke Road; **Monkton Heathfield**, extensively, including Birds Farm, land off Milton Hill, and Farriers Green; North Curry, Knapp Lane; **Taunton**, Nerrols Farm and Richmond Court; **Stogursey**, Farringdon Hill Lane; **Stoke St Gregory**, land adjacent to Willey Road; **Williton**, land to the east of Aller Mead Way; **Wellington**, Cades Farm, Jurston Farm, Longforth Farm; **Wiveliscombe**, Style Road.

Stoke St Gregory Detention Basin

South Somerset

Broadway, Tanyard; **Chard**, land off Touchstone Lane; **Ilton**, Court Farm; **Langport**, Parrett Gardens.

OTHER SUDS PROJECTS

Some SuDS projects that SRA partners hoped to advance during 2021-22 have been delayed. For example, at Somerset West and Taunton Council's Coal Orchard development in Taunton, where it was planned to put trees in tree pits as SRA-funded additional SuDS, the site developers went into administration. The publication of SRA-funded Somerset-specific SuDS guidance has also been deferred, because of staff shortages in Somerset County Council's Flood and Water Management section, and procedural complications to do with the launch and adoption of the guidance arising from the reorganisation of local government in Somerset and the move towards a single unitary authority.

ACTIVITIES IN RODE NEAR FROME

The main aims of this project are to reduce flood risks to more than 25 properties and nine roads in Rode, and to enhance parts of the local environment through techniques of Natural Flood Management (NFM).

This project grew out of an earlier SRA-funded programme of investigations into sub-catchments across Mendip that could benefit from extra maintenance. It is being delivered for the SRA by Mendip District Council's flood risk consultant working with other SRA partners and contractors.

Early on, the team conversed with villagers to glean their local knowledge, and listen to their concerns and aspirations for this project. In March 2021, CCTV and topographical surveys were carried out.

Seymour Court Farm

URBAN WATER MANAGEMENT ACTIVITIES FOR 2021-22

Rode Activities in 2021-22

Drawing on earlier phases of research, the project team has been building a computer model to enable testing of the capacity of Rode's drains and watercourses, and to help assess the long-term benefits of different possibilities for action.

The team has also been working closely with landowners, discussing what could be done in watercourses upstream to help slow the flow of water and minimise the amounts of sediment being carried downstream. One result has been that at Seymour Court Farm in autumn 2021 a new field drain was installed between Green Park Pond and Green Park Lane. More improvements are planned in autumn 2022 to make better use of flood attenuation ponds upstream and enhance the river corridor.

In spring 2021 it was discovered that a section of culverted watercourse beneath Lower Street has a timber frame which holds up the pavement. Vehicle movements here have led to a small collapse, so temporary safety barriers have been put in place. The old wood will need to be replaced with stronger materials. In the meantime, the site is being monitored by Somerset County Council's Highways Department and Mendip's team continue to liaise with villagers.

Periton Cross, Minehead

MINEHEAD 25-YEAR FLOOD ACTION PLAN

Many properties and businesses in Minehead are at risk of flooding, and flood risk management authorities are concerned about new developments putting extra pressure on drainage systems already struggling to cope. Climate change makes flooding more likely.

In March 2021, the Board of Somerset Rivers Authority (SRA) agreed to fund the development of a 25-year action plan for tackling flood risks from all sources in and around Minehead. Somerset County Council and Wessex Water are also putting money into this project. Partners contributing local expertise are Somerset West and Taunton Council, the Environment Agency and the Parrett Internal Drainage Board.

During 2021-22, partners agreed that Wessex Water should take the lead in developing a 2D Integrated Catchment Model to get a better understanding of local surface water flood risks. Relevant information has been collected and collated, for example about Minehead's current drainage infrastructure, and partners discussed and decided what areas most needed attention and surveying. Activities in 2022-23 will include investigations, model-building, analyses and determined efforts to find the best ways of giving Minehead greater flood protection and resilience.

Croscombe

RIVER SHEPPEY CATCHMENT ACTION PLAN

Somerset Rivers Authority awarded Mendip District Council funding for a study of the catchments of Croscombe and Shepton Mallet, after flooding there in October 2020. Twenty-six properties flooded internally and many roads including the A371 were submerged and made impassable. SRA partners' aim is to understand more about how flooding arises, so that plans can be devised for reducing flood risks and making places more resilient to flooding.

Information about flooding problems in Croscombe, Shepton Mallet and places in-between such as Bowlish is being reviewed by Mendip's flood risk consultant working together with other SRA partners and contractors. Local people and organisations are being consulted. Surveys have begun.

In December 2021, CCTV surveys were carried out in Croscombe along with drainage maintenance activities such as vegetation clearance and jetting. More work is being planned for the second half of 2022.

In February and March 2022, surveys focused on Collett Park, Coombe Lane culvert, Little Brooks Lane and the grounds of Whitstone School in Shepton Mallet. Despite some difficulties with access, because of debris or the way structures were designed, a lot was learned. The drainage network around Little Brooks Lane, for example, is not what was expected. The surveys identified some locations where repairs are needed.

Further investigations are planned for other parts of Shepton Mallet including Leg Square, Martins Lane and St Peter's Road. Some areas will require jetting and the use of a gully sucker. Costed plans for action are expected by the end of 2022.

Two of the six main objectives in Somerset's 20 Year Flood Action Plan relate directly to making Somerset's infrastructure more resilient. One is to 'Maintain access for communities and business', another is to 'Ensure strategic road and rail connectivity, both within Somerset and through the county to the South West peninsula'.

Both these targets stem from the frustrations of 2013-14, when floods closed 81 roads, often for long periods. Countless people suffered difficulties. Businesses lost time and money. 86% of Somerset businesses were badly hit, costing the local economy up to £15 million.

As it oversees the Flood Action Plan, Somerset Rivers Authority therefore deals with highways as well as waterways. Extra maintenance works funded by the SRA benefit many places where roads are prone to flooding. Drainage improvements and detailed studies also help to keep people moving along safer roads.

A39

Hill Lane

CARHAMPTON

For many years the A39 at Carhampton Cross regularly flooded so badly it was dangerous or impossible to drive through. As the A39 is the main road serving West Somerset, widespread disruption resulted for residents, businesses and visitors.

Problems were made worse by water cascading down from Carhampton Cross, regularly flooding the B3191 Eastbury Road, and hitting people's homes. Drainage systems were simply overwhelmed by the amount of water pouring off land nearby.

Somerset Rivers Authority therefore teamed up with Somerset County Council's Highways Department for a series of major drainage upgrades. Works were carried out by contractors Skanska (now known as Milestone) in October and November 2021.

SRA-funded improvements along the A39, B3191 and nearby Hill Lane included bigger pipes, better gullies, and new water control features such as concrete chambers and a catch-pit. Somerset County Council paid for extensive road resurfacing.

All these works were very well tested in torrential rain on Boxing Day 2021, when the county council's local highways service manager Kevin Bridgwater happened to be driving through on his way to a seasonal family get-together. In the past, he said, Carhampton Cross would have been deluged. Now to his delight, he did not even see a puddle - and he drove up and down Hill Lane, the A39, and Eastbury Road to check. Several residents have approached him at social events to say 'thank you' for the excellent job done.

"There isn't a negative to it," said Mr Bridgwater.

KINGSTON ST MARY

SRA-funded drainage improvements were installed down Lodes Lane in Kingston St Mary in April 2021. In recent years, properties in the village have flooded many times because the old Lodes Lane drainage system could not cope with the large amounts of water coming down from the Quantocks.

In 2020-21, Somerset County Council's Highways Department made – and paid for – the necessary preparations. These included clearance, jetting, and CCTV surveying of the lane's drainage system; identification of buried services; detailed design and specification; pre-works licences and temporary road closure orders. The SRA paid for the actual works, which accounted for the bulk of the costs of this scheme.

WEST CAMEL

A scheme to reduce flood risks for residents and road users in the Urgashay Road area of West Camel in South Somerset. Seven properties there were known to be affected by surface water flooding.

SRA-funded drainage improvements included:

- installing or replacing about 350m of highway drainage
- re-constructing five gullies
- building a new gully with a silt trap
- building a headwall fitted with a trash screen for connection into an existing ditch
- tidying up some small lengths of ditch

West Camel

These works were designed and delivered for the SRA by Somerset County Council's Highways Department in autumn 2021, with the Taunton gang from contractors Skanska (now Milestone).

CULVERT INSPECTIONS AND REMEDIAL WORKS IN INTERNAL DRAINAGE BOARD (IDB) AREAS

Previously for the SRA, the Axe Brue and Parrett Internal Drainage Boards (IDBs) inspected more than 700 of the most vulnerable and strategically important culverts in the Somerset Levels & Moors.

One problematic culvert was along the south side of Northwick Road near Mark, roughly 600 metres west of the junction with Baggs Lane. On the north side of this stretch of road are non-viewed rhynes (which do not get the same IDB maintenance as Viewed Rhynes). Water from these non-viewed rhynes was topping over Northwick Road into Northwick Rhyne, on the south side of the road, and the culvert was too small to cope with this.

In February 2022, for the SRA, the Axe Brue IDB replaced it, to improve the conveyance of water, reduce local flooding and lessen disruption to residents and road users.

CHADMEAD

Somerset County Council's Rights of Way Department asked the SRA for a one-off grant for fixing an unstable section of the bank of Bankland Stream, where it runs alongside part of the track that connects Northmoor Corner and Kitches Lane in Chadmead. The SRA approved this request, because although the track is classified as a public footpath, it has previously been used, and may be used in future, as a vehicular access route to and from Chadmead in times of flood. The owners of adjoining land were consulted, a scheme specification was prepared, and, in summer 2021, L8 interlocking trench sheets were installed, and the top of the bank was reprofiled. A few remaining improvements – such as levelling and surfacing 13 metres of the route – are due to be completed in summer 2022. The SRA is paying for this work with the remains of a grant originally given towards Somerset's 20 Year Flood Action Plan by what used to be the Department for Communities and Local Government (DCLG), now the Department for Levelling Up, Housing and Communities (DLUHC).

ASSET UPGRADES AT FREQUENTLY JETTED SITES

Since 2016, SRA funding has allowed for extra pro-active drain jetting at many places, 125 in 2021-22. Some drains have had to be jetted many times, which indicates intrinsic problems that it makes sense to fix. Hence SRA-funded asset upgrades.

Mendip

Chilcompton, Broadway/Wells Road, reconstructed existing highway gullies, installed new highway gullies, raised existing carriageway kerbing.

Ditcheat, Ditcheat Hill, provided new highway gullies, installed a formalised road-edge drainage channel.

South Somerset

Bruton, Frome Road/Cuckoo Hill/ Bruton Road, repaired – and where need be replaced – sections of the existing drainage system.

Castle Cary, South Cary Lane, cleansed roadside ditch, refitted existing trash screen, constructed and installed a small gabion basket wall to prevent scouring of the roadside bank.

Cucklington, Long Hill, repaired – and where need be replaced – sections of the existing drainage system.

ENHANCED MAINTENANCE 2021-22

Four programmes of enhanced maintenance were organised for Somerset Rivers Authority by Somerset County Council's Highways Department. The aim is to keep roads open, make them safer, preserve access for communities, and safeguard properties from flooding. These works benefit residents, businesses and visitors, in line with the objectives of Somerset's 20 Year Flood Action Plan.

GULLY-EMPTYING

Somerset County Council's Highways Department empties gullies in areas most susceptible to flooding once a year. For 13,622 of the highest-risk gullies countywide (too many to list individually), the SRA funded a second round of emptying, six months after the first. So in 2021-22, 13,622 gullies were emptied twice.

DRAIN JETTING

125 drains were jetted for the SRA in 2021-22, by district as follows:

- 22 in Mendip
- 36 in Sedgemoor
- 33 in Somerset West and Taunton
- 34 in South Somerset

Under existing budgets, Somerset County Council's Highways Department can only afford to jet drains when a bad blockage has occurred. SRA funding allows for earlier preventative maintenance at locations known to suffer problems with flooding. Final selections of drains for jetting are made using local knowledge and professional judgement.

Mendip

Meare, Glastonbury Road/St Mary's Road; **Rodney Stoke**, Bay Lane, Brangay Lane, New Road, Stoke Street, Wells Road; **Street**, Westway; Walton, Berhill (x2), Long Lane, Mildred Road, Quarry Batch (x3), South Street, Veal Lane, Walton High Road; **Westbury**, Westfield Lane; **Wookey**, Barrow Causeway/Wells Road, Bleadney Batch, Vicarage Road, Wells Road.

Sedgemoor

Axbridge, Parkfield Road; **Ashcott**, Taunton Road; Badgworth, Bristol Road/Turnpike Road; Bawdrip, Bath Road; **Broomfield**, Rose Hill; **Burnham-on-Sea and Highbridge**, Stoddens Road; **Catcott**, Manor Road; **Chapel Allerton**, Stone Allerton Drove; **Cheddar**, Axbridge Road/ Tweentown, Shipham Road; **Chilton Polden**, Broadway; Durleigh, Enmore Road; **East Huntspill**, Old Withy Road; **Edington**, Broadmead Lane; **Greinton**, Taunton Road; **Lympsham**, Rectory Way; **Lyng**, Main Road; **Mark**, Mark Road/The Causeway; **North Petherton**, Boomer Lane, Church Walk, High Street; **Shapwick**, Church Road, Kent Lane, Lippets Way; **Shipham**, Bristol Road, Broadway; **Stawell**, Stawell Road; **Thurloxton**, Church Road; **Wedmore**, Blackford Road/Pilcorn Street, Coldnose, Combe Batch/Wells Road, Lane from Dungeon to Crate Farm, Glanville Road, Mudgley Road/Billings Hill, Sand Road, Wells Road.

Somerset West and Taunton

Bicknoller, Taunton Road; **Bishop's Hull**, Silk Mills Road; **Bishop's Lydeard**, Minehead Road (x2); **Bradford-on-Tone**, Hele Road, Oake Road; **Comeytrowe**, Jeffreys Way; **Huish Champflower**, Tanners Hill; **Kingston St Mary**, Church Lane, Park Lane, Yarford Road; **Langford Budville**, Harpford Farm Lane, Runnington Lane; **Milverton**, Wiveliscombe Road; **Norton Fitzwarren**, Minehead Road, Wiveliscombe Road; **North Curry**, Queen Square (x2); **Oake**, Bradford Road, Oake Road, Wiveliscombe Road; **Stawley**, Greenham Road (x2); **Old Cleeve**, Roadwater to White Horse pub; **Stogumber**, Hartrow Gate Cross to Ashbeer Hill; **Taunton**, Farm View, **Highlands**; Wellington, Alexandra Road, Hoyles Road, Mantle Street; **West Buckland**, Silver Street; **Wiveliscombe**, Hartswell, Jews Lane.

South Somerset

Ashill, Ashill bypass; **Bratton Seymour**, Cattle Hill, Holbrook Roundabout to Jack White's Gibbet; **Charlton Horethorne**, Bugle Farm Lane; **Chard Town**, Coker Way, Crewkerne Road, Crimchard, Furnham Road, Glynswood (x2), Tatworth Road; **Combe St Nicholas**, Eleighwater; **Henstridge**, Lime Kiln Lane; **Keinton Mandeville**, High Street/Castle Street; **Kingsdon**, Lower Road, Rocky Hill; **Langport**, Bow Street/Cheapside; **Marston Magna**, Camel Street/Marston Road; **Mudford**, Mudford Sock; **North Cadbury**, Hearn Lane, Parish Hill; **Somerton**, Langport Road, South Hill/Sutton Road, West Street to Behind Berry; **Stoke Trister**, Riding Gate to Bayford Lane; **Tatworth & Forton**, Lower Coombses, Station Road, Waterlake Road; **Yeovil**, Reckleford, Reckleford Triangle, Sherborne Road, Wyndham Street; **Yeovilton**, Bridgehampton Road, Stockwitch Lane.

TRASH SCREEN CLEARING

Most of the county's trash screens are situated in Somerset West and Taunton. Eight were cleared in the following parishes: **Dunster**, Ellicombe Lane (between Dunster and Alcombe); **Kingston St Mary**, Pickney Lane (between Pickney and Nailsbourne); **Minehead**, Brook Street (Alcombe), Manor Road (Alcombe); **Staplegrove**, Whitmore Lane; West Buckland, Wellington Road; **Wiveliscombe**, North Street; **Wootton Courtenay**, Burrow Road.

SILT TRAP EMPTYING

More was done in South Somerset than in other districts. Somerset County Council's Highways Department says this was because "the availability of resources to order and deliver works was a real issue in 2021-22 across the service".

Mendip

Rodney Stoke, Butts Lane, Hill Lane, New Road; **Wookey**, Yarley Hill.

Sedgemoor

Wedmore, Orchard Close.

Somerset West and Taunton

Kingston St Mary, Kingston Road.

SILT TRAP EMPTYING (CONTINUED)

South Somerset

Allowenshay, Ludney Lane; **Barrington**, Bonnings Lane, Shelway Lane (x2); **Brewham**, Kingsettle Hill; **Castle Cary**, Coopers Ash Lane (x2), Foxcombe Hill; **Chard Town**, Chardstock Lane (x3), Laurel Gardens (x2), Tatworth Road (x1), Urban footpath (x3); **Charlton Mackrell**, Somerton Lane; **Combe St Nicholas**, Stoopers Hill; **Compton Pauncefoot**, New Road; **Corton Denham**, Corton Denham Road, Ridge Lane; **Cudworth**, Cudworth Hill; **East Chinnock**, Chinnock Hollow; **East Coker**, Higher Burton (x2); **Henstridge**, Furge Lane; **Long Sutton**, Batts Lane; **Merriott**, Moorlands Road; **Milborne Port**, Sherborne Road; **Mudford**, Droveway Lane (x2); **North Cadbury**, Cary Road; **Odcombe**, Woodhouse Lane; **Pitcombe**, Pitcombe Rock; **Pitney**, Marsh Lane; **Shepton Beauchamp**, Great Lane (x2), Love Lane; **Shepton Montague**, Horns Lane (x2); **South Cadbury**, Buckland Lane; **South Petherton**, Long Lane, Whitfield Lane; **Tatworth and Forton**, Paradise Lane, Pop Lane (x2); **West Coker**, A30 West Coker; **Whitestaunton**, Howley Road, Mill Lane.

RIMPTON AND MARSTON MAGNA STUDY

Records show that 18 properties and several roads in the South Somerset village of Rimpton have been affected by flooding, while roads suffering in nearby Marston Magna include the A359. One common factor is the Mill Stream, which flows west through Rimpton and then alongside and under the A359 in Marston Magna, near the church and village hall.

Somerset Rivers Authority therefore agreed to fund a survey of the Mill Stream catchment, to identify improvements and strategies that would reduce flood risks to people's homes and local roads. Somerset County Council's Highways Department commissioned consultants WSP. They reviewed all publicly-available information about relevant matters, and consulted officers from Somerset County Council (SCC, as the Lead Local Flood Authority) and the Parrett Internal Drainage Board (IDB). A WSP site visit with SCC and IDB representatives focused particularly on watercourses and structural controls such as bridges and culverts.

A report was produced with six appendices, making 97 pages in total. Three options for improvements were recommended for Rimpton, five for Marston Magna (with two further possibilities there, depending upon the results of monitoring). The suggested options cover matters such as dredging and de-silting, infrastructure replacement and installation, and creating flood storage and flood diversion features.

WSP also stressed the importance of regular maintenance. All options are now being considered by Somerset County Council.


Emma Giffard


Dawn James

This workstream is mostly about people. During 2021-22, therefore, it was inevitably affected by concerns about coronavirus and by pandemic restrictions. The impact of Covid-19 is why Somerset's annual Community Resilience event was held online (again), and why popular film screenings got pushed back from autumn 2021 to February-March 2022.

However, there were still many more in-person get-togethers than there were in the year before. The SRA's community engagement officers Emma Giffard and Dawn James were able to do things like give talks to Long Sutton Gardening Club and Langport Rotary Club, and take part in SCOP26+, Somerset's version of the international event held in Glasgow – as well as activities detailed in the following pages.

SOMERSET COMMUNITY RESILIENCE EVENT

Preparing for emergencies and strengthening communities were the main themes of the annual Somerset Community Resilience event held in October.

Highlights included a dozen interactive online training sessions, all free, and an open evening for the new Langport and Huish Episcopi Flood Group.

Session subjects included:

- Property flood resilience, with national flood resilience expert Mary Donhau and the Environment Agency
- Using social media in flooding emergencies, with communications officers from Somerset County Council's Highways and Transport section (@TravelSomerset)
- How we can prepare for the challenges our changing climate may bring, with SRA Community Engagement officers Emma Giffard and Dawn James
- Insurance, volunteer recruitment and risk assessments with Communities Prepared, a national community resilience training programme

The whole event was organised by the Somerset Prepared partnership, which is jointly chaired by the SRA's Emma Giffard with a representative from the Environment Agency. Partnership members include Somerset Rivers Authority, the emergency services, the county and district councils, the Environment Agency, Somerset Rotary, Spark, Red Cross and Safe South West.

Videos and presentations can be seen on the Somerset Prepared website:
http://www.somersetprepared.org.uk/somerset-prepared-event/videos-and-resources/

SOMERSET PREPARED GRANTS

The SRA funds a small number of grants for equipment and training given to Somerset communities by Somerset Prepared. Three grants were given to flood warden teams in 2021-22:

Croscombe: for equipment such as hi-viz jackets and sandbags, and materials to help raise awareness about flood risks and what flood wardens do.

Ham: for equipment such as a generator to power a back-up to the main the village pump (which is featured at 13 minutes 40 seconds in the film Down by the River – see p.44) and parts for that back-up pump.

Martock: for equipment such as head-torches and hi-viz jackets, temporary flood barriers, flooding advisory signs and flood warning apparatus.

Robin Huish, Ham Village Flood Defence Committee

SUPPORTING COMMUNITIES AFFECTED BY FLOODING

In several places recently affected by flooding, Dawn and Emma have helped people to get through the aftermath and get readier for what the future may bring. In Chard, Combe St Nicholas, Forton and Tatworth, Ilminster, Shepton Mallet and Croscombe, dozens of dedicated residents have volunteered to help their communities become more resilient. Emma and Dawn say it has been a privilege to help set up and reinforce flood warden groups. In Chaffcombe, a flood resilience plan devised by a local resident was presented to the SRA's Technical Group, and it is hoped that Chaffcombe will be one of several places to benefit from a new project funded in the SRA's Enhanced Programme of works for 2022-23, which is about helping communities to implement their own ideas. In Croscombe and Forton and Tatworth, the possible installation of new 'early warning' telemetry systems is being investigated.

In all of the above places, information has been provided about topics including property flood resilience measures, insurance, emotional health, household, business and community flood plans, funding for community groups and the complexities of who is responsible for what when it comes to water. Flood warden training is being arranged for all of the above communities, as part of ongoing SRA involvement.

In Ruishton and Ham, Emma and Dawn worked with local residents and Somerset County Council's Highways department on a successful bid to the SRA for a grant for new digital flood warning signs. In Burrowbridge, they worked alongside the Environment Agency, meeting flood group members to discuss refreshing their community flood resilience plan and ways of recruiting more members. In North Petherton, which was affected by flooding in 2021, they met town and district councillors to discuss setting up a community resilience group and possible grants for equipment and training. In Martock and Langport, they continued to support existing groups in a variety of ways, such as going on a Martock site visit to discuss road flooding problems with representatives from Somerset County Council's Highways Department, and giving a presentation at a recruitment evening in Langport.

Bridgwater

SCHOOLS

Around 120 children enjoyed learning more about flooding when Somerset Rivers Authority and Environment Agency staff visited Catcott Primary School and St John & St Francis Church School in Bridgwater.

Highlights included lively sessions about the £100-million Bridgwater Tidal Barrier scheme and climate change, and several fun activities.

From a flood box, they fished out all sorts of unpleasant things that might be hidden in floodwater, such as poo and a giant rat. Not real poo, and not a real rat's body, it should be said, but still memorably gross enough for an audience of 8- to 11-year olds.

They poured water over a model house to see how different features of Sustainable Drainage Systems (SuDS) can reduce run-off.

And they experimented with an Augmented Reality Sandbox, which uses light and sand to show how water runs off different kinds of landscapes. This video explains how the magic sandbox works: https://youtu.be/pqEC8DpiYv0

SuDS House

DOWN BY THE RIVER FILM

A new Somerset film called Down by the River premiered in Glastonbury in February 2022, with nine free screenings following countywide.

Down by the River is a documentary about the inspiring ways that communities across Somerset have responded to flooding. It was commissioned by Somerset Rivers Authority from the Bridgwater-based charity Somerset Film.

Down by the River celebrates local volunteers, and highlights some of the extraordinary work they do to help reduce the risks of flooding. Places featured include Moorland, Martock and Ham on the Somerset Levels & Moors, Croscombe in Mendip and West Somerset.

After its launch in Glastonbury Town Hall, Down by the River was shown in Bridgwater, Burrowbridge, Cheddar, Croscombe, Drayton, Martock, Minehead, Taunton and Yeovil.

Entertaining and thought-provoking Somerset archive films also featured. Subjects included historic Somerset floods, local groups like the Home Guard in World War Two, and fundraising carnivals. The exact mix varied from place to place, to allow for items of very local interest, but all of the films showed what Somerset people can do when they put their minds to it.

That theme served to prompt discussions with audiences about challenges such as flooding and climate change, and what people locally could do to respond, for example by setting up or joining a flood wardens group or devising plans for greater community resilience. Preparing for an incident could ultimately save lives.

Down by the River is now online: https://youtu.be/3M3G52lvNlo

David Hall

Odcombe

Sarah Elliott

Teresa Bridgeman

Cheddar

Gordon Swindells

ADAPTING THE LEVELS

"Greater resilience to climate and economic change"

One of the aims of Somerset's 20 Year Flood Action Plan is to facilitate "better management of the most vulnerable and challenging parts of the Somerset Levels, with the consent of owners and occupiers, with the intent of helping them to remain profitable and build greater resilience to climate and economic change." This ambition has fed into many different parts of the SRA's work, particularly into Adapting the Levels and two ongoing trials of Environmental Land Management Scheme (ELMS) initiatives being run for Defra.

Background

Somerset Rivers Authority and the EU's Interreg 2 Seas European Regional Development Fund are funding a major project on the Somerset Levels and Moors called Adapting the Levels. The EU's funding has not been affected by Brexit: the project runs until March 2023.

The aim of Adapting the Levels is to get local people and organisations co-operating and adapting to the water-related effects of climate change (flooding and drought).

Out on the ground, the project is being led by the Farming & Wildlife Advisory Group SouthWest (FWAG SW), Somerset Wildlife Trust and Somerset County Council, with support from the SRA's Community Engagement team.

Adapting the Levels is part of a larger €7.347 million EU Climate Adaptation initiative called Co-Adapt. Co-Adapt is short for Climate Adaptation through Co-Creation. It involves 12 partners in four countries: Britain, France, the Netherlands and Belgium. Lessons learned are being shared between different countries.

The other two Co-Adapt projects in Britain are both local. They are: Connecting the Culm, which is led by the Blackdown Hills AONB (Area of Outstanding Natural Beauty) team and covers parts of Somerset and Devon; and Porlock Vale Streams, which is led by the National Trust in West Somerset, and is interwoven with the Trust's Riverlands initiative. Through Hills to Levels, the SRA has approved funding for more than a dozen Riverlands schemes. Two recent examples include the proposals for the River Aller and Tivington Farm (see pages 17-18).

Activities in 2021-22

New web-based Adaptation Pathways app for Adapting the Levels

A new app helps Somerset people and organisations turn their ideas into plans for action, particularly as regards flooding and drought. It proffers Adaptation Pathways as a simple way of looking into complex issues, to see how different options interact in changing combinations of circumstance.

Adaptation Pathways are generally used to help organisations across the world plan for climate change. Somerset's approach is unusual because it allows anyone to contribute, so conversations about future courses of action can be more inclusive.

ADAPTING THE LEVELS ACTIVITIES IN 2021-22

Adapting the Levels team members worked with parish and town councils, businesses and communities to create draft pathways which can be explored on the Adapting the Levels website, using tablets or desktop computers. People living and working in Somerset are invited to comment on the pathways and add their ideas. Visit https://pathways.adaptingthelevels.com

Subjects covered include reducing the run-off of rainwater from homes and gardens, managing flood risk in Wedmore and Langport, and managing flooding and drought on farmland.

Adapting the Levels' ultimate ambition is to build up a shared mosaic-like vision for the future of Somerset's communities and businesses.

New mobile Somerset Trails app


Iona

Somerset Trails is a free mobile app that helps people to explore the local impacts of climate change and ways that nature can help Somerset adapt. Launched by local Co-Adapt partners in 2021, the app is funded by Somerset Rivers Authority and the EU's Interreg 2Seas programme. It combines maps for walkers with video-guided tours, and has a Kids Corner for children.

Somerset Trails can be downloaded from the Google Play Store or Apple's App Store.

The first trail begins in the centre of Wedmore. It incorporates fine views across the Somerset Levels, and takes in meadows, dew ponds and historic ridge and furrow field systems. Videos are triggered at key points when out walking. For younger Wedmore trail followers, 8-year-old tour guide Iona leads the way. She said: "I think people are going to have a lot of fun coming on the walk, and they're going to learn lots about climate change and what people are doing about it in Somerset."

A second trail is being planned by the National Trust. This will focus on the Porlock Vale Streams project on Exmoor, with behind-the-scenes footage of re-introduced beavers and details of pioneering river restoration schemes in the Aller and Horner catchments.

Throughout walks, people are invited to add their own thoughts and ideas, so project teams can develop climate adaptation plans with community voices at their heart.

Moor Associations

Moor Associations were encouraged by the SRA in earlier strands of Flood Action Plan work now absorbed into Adapting the Levels. The forerunner in 2018 was the West Moor Futures Group, followed by Tealham and Tadham Moor, Moorlinch, Curry Moor and Aller Moor (Beer Wall to Aller Drove). Other Moor Associations are being developed. The SRA's goal is to promote flood-resilient farming and good environmental outcomes in flood-prone areas, through greater collaboration between different sectors, chiefly farming, conservation and water management.

Moor Associations make it easier for people to co-operate and get things done. They are set up and run by local farmers and landowners who have agreed to work together for their mutual benefit. On Curry Moor there are 32 landowners (173 fields, 350 hectares), on Aller Moor 37 (140 fields, 285 hectares). Local experience has shown that in areas with fragmented land use, greater collaboration between farmers and a single management structure enables greater collective buying power, more machinery sharing, better grazing arrangements and improved farmland infrastructure.

A Moor Associations Co-ordinator is employed on the Adapting the Levels project through FWAG SW, along with a Farm Liaison Officer and a part-time Water Management Adviser. Associations get some administrative support from these staff.

Environmental Land Management Schemes (ELMS)

In 2021-22, new Moor Associations were set up on Curry Moor and Aller Moor (Beer Wall to Aller Drove) to allow landowners to participate in a Test and Trial water storage programme for Defra's new Environmental Land Management Scheme (ELMS). ELMS is due to be Defra's main land management funding scheme by 2024, focused on the delivery of "public goods for public money".

The Somerset Levels and Moors are very dependent on public payments, worth around £5 million a year. The phasing out of those payments could have considerable effects on the special characteristics of the Levels and Moors, and the people who make a living from that landscape. The SRA Board wants to be able to make a case to Defra for continuing public payments for public services such as the seasonal management of flood water. Hence this trial, part-funded by the SRA and supervised by the Farming & Wildlife Advisory Group SouthWest (FWAG SW).

Ben Thorne of FWAG SW told the SRA Board in September 2021 that the process was being driven by talking to farmers on the ground who were very keen individually and collaboratively. A trial was due to run between the start of December 2021 and the end of February 2022. However, while October 2021 was very wet, November, December and January had below-average rainfall. This meant no inundation of the areas selected for trial. Farmers will try again this coming winter.

Somerset Levels and Moors peat trial

Somerset Rivers Authority has also agreed to part-fund the running of an ELMs trial of payments for the preservation and restoration of peat in 2 – 4 small areas of the Somerset Levels & Moors. The proposed system of payments will be based on a sliding scale of incentives for progressively higher water tables and compatible types of land management. Areas of wet low-lying land are important to the SRA because they can act as a buffer against flooding. Preparations for this exercise were carried out during 2021-22. It is hoped to run a trial this coming winter (2022-23).

BACKGROUND

For its first full year of work in 2015-16, Somerset Rivers Authority (SRA) had Interim Funding of £2.7 million from the Department for Environment, Food & Rural Affairs (Defra), Somerset's local authorities and Somerset Drainage Boards Consortium. In December 2015, the Government proposed that Somerset County Council and Somerset's district councils should be given the power to raise what is known as a 'shadow precept' of up to 1.25% of 2016-17 council tax, to fund the SRA – and only the SRA. SRA money is strictly ringfenced for SRA purposes. The Government's move was approved in the House of Commons in February 2016.

The figure of 1.25% was chosen because it came close to matching the SRA's initial budget of £2.7 million.

The SRA is still reliant upon an annual shadow precept and its level is still pegged to that initial £2.7 million, although the actual amount of money raised has gone up. In 2021-22, it was £2.922 million. In other words: the level of the charge is frozen, it has not gone up since 2016-17, but as the number of households in Somerset increases every year, more people pay, so the total amount rises. The Parrett and Axe Brue Internal Drainage Boards (IDBs) also choose to contribute £10,000 a year each.

2021-22 LOCAL PARTNER FUNDS

As stated above, the SRA receives annual funding from two sources. Firstly, council tax. Somerset's local authorities raise money for the SRA through a shadow precept. Secondly, the Parrett and Axe Brue IDBs make contributions.

In 2021-22, from these two sources, the SRA received Local Partner Funds totalling £2,941,586 (£2,921,586 from the shadow precept, £20,000 from the two IDBs – £10,000 each).

In March 2021, the SRA Board agreed to top up that total of £2,941,586 with funds moved out of contingency, and thereby set a budget of £3,440,000 to cover the SRA's 2021-22 Enhanced Programme of works. Further funds, also carried forward from the previous year, were allocated to staffing (four full-time staff), a new part-time Technical Adviser post, administration and overheads. The 2021-22 Enhanced Programme contained 21 schemes and activities, all designed to advance Somerset's 20 Year Flood Action Plan. The table below shows how much money was allocated to each workstream within the Flood Action Plan:

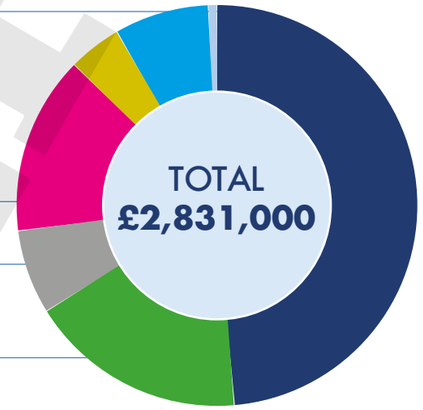
2021-22 BUDGET BY WORKSTREAM	TOTAL £	PERCENTAGE
Dredging and River Management	1,445,000	42%
Land Management	705,000	20%
Urban Water Management	300,000	9%
Resilient Infrastructure	865,000	25%
Building Local Resilience	125,000	4%
TOTAL	3,440,000	100%

Spending of Local Partner Funds in 2021-22

Since its launch in January 2015, the SRA has received Local Partner Funds of just over £20m. It has used these funds to deliver 203 actions and initiatives, described in this and previous Annual Reports available in the Flood Risk work section of the Somerset Rivers Authority website. Many actions and initiatives are completed within one financial year. Some require longer-term research, design, planning and implementation, so take longer.

During 2021-22, coronavirus pandemic restrictions continued to affect delivery, so less was spent than originally expected. The table below shows all of the Local Partner Funds held by the SRA at the beginning of the 2021-22 financial year and the SRA's total spend during the year. Remaining funds are carried forward into future years.

2021-22 SPENDING BY WORKSTREAM	TOTAL £	%
Dredging and River Management	1,377,000	48.6
Land Management	498,000	17.6
Urban Water Management	193,000	6.8
Resilient Infrastructure	408,000	14.4
Building Local Resilience	121,000	4.3
SUB TOTAL	2,597,000	
Staffing, administration, overheads	214,000	7.6
SRA Development Activities	20,000	0.7
TOTAL	**2,831,000**	



LOCAL PARTNER FUNDING 2021-22 FINANCIAL SUMMARY	ALLOCATED FUNDS AT START OF 2021-22 FINANCIAL YEAR £	SPEND IN 2021-22 £	ALLOCATED FUNDS CARRIED FORWARD TO 2022-23 ONWARDS £
TOTAL	**10,388,000**	**2,831,000**	**7,557,000**

HEART OF THE SOUTH WEST LOCAL ENTERPRISE PARTNERSHIP (HOTSWLEP): SOMERSET FLOODING PROJECT

Following the Somerset floods of 2012 and 2013-14, the Heart of the South West Local Enterprise Partnership (HotSWLEP) allocated £13,049,000 of Government Growth Deal funding to a project known as Somerset Flooding. Since the SRA was launched in 2015, this Growth Deal funding has been channelled through the SRA. Its purpose has been to help the SRA and its partners achieve some of the main ambitions and objectives of Somerset's 20 Year Flood Action Plan.

To complement HotSWLEP's Growth Deal funding, the Somerset Flooding project has had to secure significant local match funding. The project's total budget is more than £40 million. Other money has come from SRA Local Partner Funds, Sedgemoor District Council, Somerset West and Taunton Council, local Community Infrastructure Levy charges on new developments, the Environment Agency, Wessex Water, central Government sources (Flood Defence Grant in Aid, New Homes Bonus), the Department for Environment, Food & Rural Affairs and the EU's Triple C initiative.

The SRA has now spent all the £13,049,000 Growth Deal funding it was allotted. The last £1,372,866 was spent in 2021-22. Total spending on the Somerset Flooding project during 2021-22 financial year was £4,871,660, because of additional contributions from other sources.

HM Government

heart of the south west
local enterprise partnership

SOMERSET FLOODING 2021-22 SUMMARY (£)	HotSWLEP FUNDING ALLOCATION	MATCH FUNDING TOTAL ALLOCATION	TOTAL FUNDING SPEND UP TO END 2021-22	HOTSWLEP FUNDING SPEND DURING 2021-22	TOTAL FUNDING SPEND DURING 2021-22
Pioneer Dredging River Parrett	2,222,179	8,298,463	10,520,642	213,851	226,201
River Sowy/King's Sedgemoor Drain Enhancement Scheme	8,211,821	3,485,772	9,269,680	1,159,015	1,796,712
Bridgwater Tidal Barrier *(SRA made a contribution)*	2,000,000	13,875,062	10,978,146	-	2,642,387
Land Management Capital Grant Schemes	550,000	1,285,234	1,835,234	-	-
Taunton Strategic Flood Alleviation Improvements Scheme *(SRA made a contribution)*	65,000	8,194,058	1,022,252	-	206,360
TOTAL	**13,049,000**	**35,138,589**	**33,625,954**	**1,372,866**	**4,871,660**

Financial Summary

Somerset
Rivers Authority

www.somersetriversauthority.org.uk
www.twitter.com/SRAnews
www.facebook.com/SomersetRiversAuthority

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Somerset Rivers Authority Joint Scrutiny Panel Paper

2021-22 Annual Finance Update

RECOMMENDATIONS

The Somerset Rivers Authority (SRA) Joint Scrutiny Panel is asked to:

1. Consider and comment on the SRA financial performance for financial year 2021-22.

Background and context

This report provides information on the financial position at the end of quarter 4 which is the latest period full financial data is available.

Somerset Rivers Authority does not deliver projects, instead the partners that make up the SRA partnership deliver projects on behalf of the SRA and reclaim funding after contractors / suppliers are paid. This results in a delay between what SRA delivery partners have spent and how much has been claimed from the SRA. This means that the amount claimed may not reflect the amount of work which has been completed by SRA partners.

There are two main sources of funding which the SRA draws on:

a. Local Partner Funding – money raised annually by an additional amount on Council Tax and direct contributions from the Internal Drainage Boards.

b. Growth Deal Funding – £13.049m of funding allocated in 2014 through the Heart of the South West Local Enterprise Partnership (HotSWLEP) for specific large-scale capital projects.

Confidential Appendix A provides Scrutiny Panel Members a detailed breakdown of project funding allocations.

1. Local Partner Funding Financial Performance

The total available funds at the start of the 2021-22 financial year were £10,388k made up of £7,446k carried forward from 2020-21 and £2,942k raised in the 2021-22 precept.

TABLE A: Local Partner Funding Summary at end of 2021-22							
Area of spend	2021/22 Funding Allocation	Spent				Forecast 2022/23 Onwards	
		2021/22 Q1	2021/22 Q2	2021/22 Q3	2021/22 Q4		
	£,000	£,000	£,000	£,000	£,000	£,000	
Enhanced Programme	9,164	182	749	744	919	6,473	
Core work and development	250	0	0	2	18	230	
Administration & Staffing	286	53	75	32	57	0	
Contingency	688	0	0	0	0	688	
TOTALS	**10,388**	**235**	**824**	**778**	**994**	**7,391**	

As at the end of 2021-22:

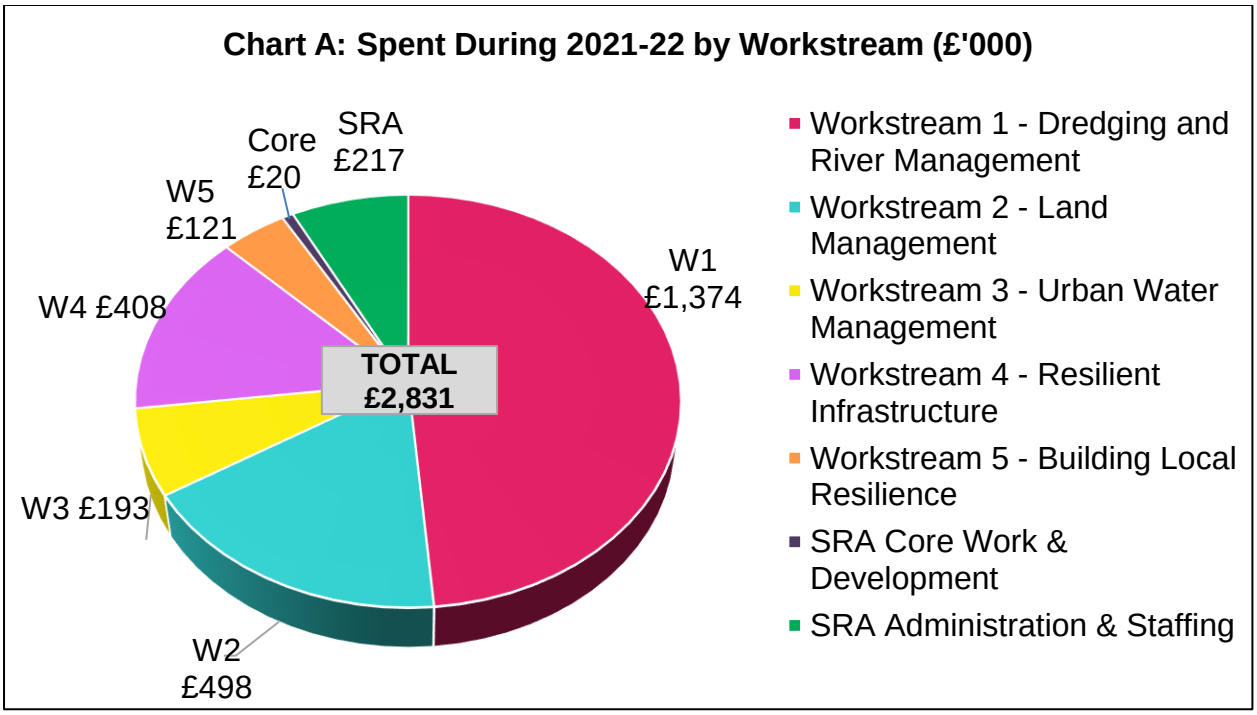
- 3% of funds are forecast to be spent on the administration and staffing of the SRA.
- 2% will be spent on SRA core work and development.
- 7% is held as contingency.
- 88% is allocated to specific projects and activities within the Enhanced Programme.

The SRA spend during Quarter Four 2021-22 totalled £994k. Of this £697k was spent on Workstream One works;

- Dredging and River Management including; £306k on the bank raising as part of the River Sowy - Kings Sedgemoor Drain Enhancements Scheme;
- £245k on the Parrett and Tone annual maintenance dredging; and
- £120k towards the Tone Strategic Flood Alleviation Scheme.

The remaining £323k was spent delivering natural flood management schemes across the county, SuDS Inspections and building local resilience in communities.

Chart A below shows a breakdown of the total amount spent during 2021-22 across all workstreams. The draft SRA annual report provides a detailed account of SRA funded project activity during 2021-22.



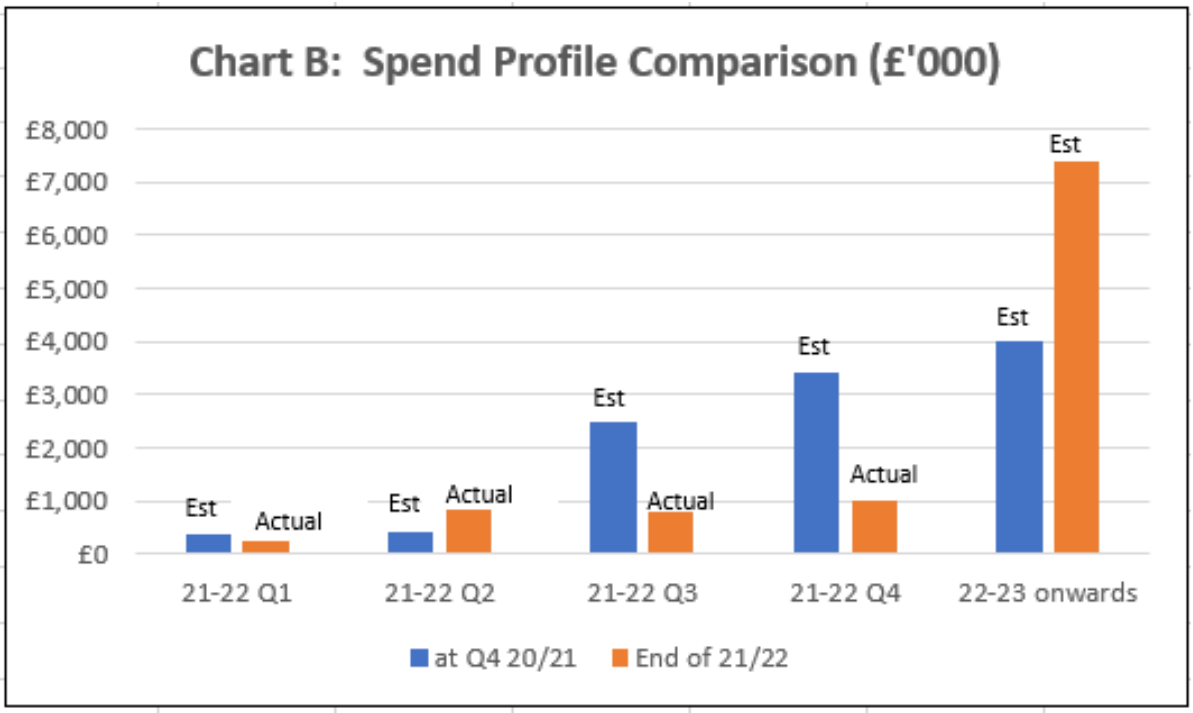
1a. Spend Profile Summary

Chart B below shows SRA spend by quarter as forecast at the beginning of the financial year (blue) and the actual profile (orange) of SRA spend throughout the financial year.

For example: the Quarter Four (Q4) spend for 2021-22 was originally estimated to be £3,420k as forecast at the end of Q4 2020-21, however the actual spend in Q4 was £994k.

The starting estimate for overall spend in 2021-22 was £6,688k. The actual spend for the financial year was £2,831k. The majority of the slippage (£2.528k) is due to the works on the River Sowy-King's Sedgemoor Drain enhancements being delayed until summer 2022.

£348k of spend on workstream W3 – Urban Water Management has slipped into 2022-23 due to the lack of resource at the Lead Local Flood Authority.



2. Growth Deal Funding Financial Performance

The full amount of £13,049k Growth Deal funding has now been claimed from the SRA by delivery partners.

TABLE C: Growth Deal Funding Summary - 2021-22					
Project	**Funding Agreement Allocation**	Claimed to end of 2020-21	Actual Claims 2021-22 Q1	Actual Claims 2021-22 Q2	**Total Claims**
	£,000	£,000	£,000	£,000	**£,000**
River Sowy/King Sedgemoor Drain Enhancement Scheme	**8,204**	7,045	329	830	**8,204**
Pioneer Dredging, River Parrett	**2,230**	2,230	0	0	**2,230**
Land Management	**550**	550	0	0	**550**
Bridgwater Tidal Barrier	**2,000**	2,000	0	0	**2,000**
Taunton Strategic Flood Alleviation Scheme	**65**	65	0	0	**65**
TOTAL	**13,049**	11,890	329	830	**13,049**

Although the Growth Deal funding has been claimed, the overall Somerset Flooding project continues to be delivered using SRA Local Partner Funding. These projects are the three local intervention schemes as part of the Taunton Strategic Flood Alleviation Improvements Scheme due for completion in 2024, the remaining works of the River Sowy-King's Sedgemoor Drain Enhancements Scheme to be completed in 2022, and the Bridgwater Tidal Barrier continues to

wait for approval of the Transport and Works Act Order (TWAO) before commencing to the construction phase.

RECOMMENDATIONS

The Somerset Rivers Authority (SRA) Board is asked to:

1. Note the financial performance as at the end of 2021-22.
2. Approve the re-allocation of funds to and from contingency as per Part Two.

Date: 29 June 2022

Authors: Ian Tier, SRA Finance Manager & David Mitchell. SRA Senior Manager

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The Somerset Levels and Moors Flood Action Plan

Report on Progress

Report on progress delivering the actions of the Somerset 20 Year Flood Action Plan

David Mitchell
Somerset Rivers Authority Senior Manager

Joint Scrutiny Panel
8 July 2022

1

Purpose of the Item

To update the SRA Joint Scrutiny Panel on progress towards delivery of the actions contained within the Somerset 20 Year Flood Action Plan (FAP) and inform the panel of plans to review and update the plan.

Background and Context

The FAP was written in 2014 during the flooding of the winter of 2013/14 and is now 8 years old. The Somerset Rivers Authority (SRA) was established as a result of the FAP and the SRA Board now oversees delivery of the Plan. The SRA is a partnership of the flood risk management authorities in Somerset and Natural England. The actions with the FAP are being delivered by the SRA partners and other organisations such as Farming and Wildlife Advisory Group South West.

Current Status

Many of the actions within the FAP have either been completed, are underway or are now established as part of the SRA's annual Enhanced Programme (EP). Some actions have been started but are stalled or are no longer being taken forward. The SRA Board has commissioned a review of the existing Flood Action Plan with a view to updating it to provide a strategy and plan that is fit for the future and which plans for addressing emerging flood risks.

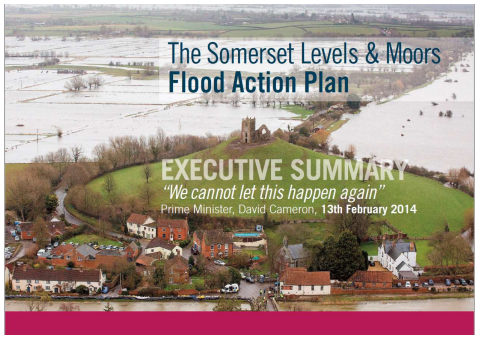
Recommendation

The Joint Scrutiny Panel is asked to consider and comment on progress to date with delivery of the actions of the Somerset 20 Year Flood Action Plan.

2

Somerset Rivers Authority

Somerset Flood Action Plan objectives:



- Reduce frequency, depth and duration of flooding
- Maintain access
- Increase resilience to flooding
- Make the most of special characteristics of Somerset
- Strategic transport connectivity
- Promote business confidence and growth

3

Somerset Rivers Authority

Key	
Complete	Action completed
EP	Action now part of annual SRA funded Enhanced Programme
Underway	Action underway but is not yet completed
Incomplete	Action either started and stalled or deemed not required

The Somerset Flood Action Plan

A 20 year plan for a sustainable future

Workstream Purpose & Progress to Date

Workstream 1 – Dredging and River Management

- Effective management of the rivers, ditches, pumping stations and other structures is vital for all aspects of life on the Somerset Levels and Moors. It reduces the frequency, duration, depth and extent of flooding events.
- Dredging of the Rivers Parrett and Tone has been identified locally as a key element in addressing future flood risk, and especially reducing the duration of flooding but it will need regular long term maintenance to keep rivers flowing well.
- Enhancement of the Sowy-KSD to relieve pressure on the River Parrett is a key priority of this plan
- The development of a tidal barrier or sluice on the River Parrett below Bridgwater will be an important contribution to managing flood risk to Bridgwater, potentially reducing the amount of silt entering the Parrett and Tone from the Sea.

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ID.	Workstream 1 Dredging and River Management - Actions	Status
W1.1	Dredge 4km of the River Tone and 4km of the River Parrett	Complete
W1.2	Additional maintenance of dredge profiles	EP
W1.3	Maintain rivers and small watercourses for better conveyance	EP
W1.4	Install permanent infrastructure to enable temp. pumping at Dunball, Northmoor and B&T Canal	Complete
W1.5	Repair and reinstate river and flood banks and spillways	Complete
W1.6	Implement small scale ring bank improvements e.g. Thorney	Complete
W1.7	Expand existing river models to assess effectives of actions	Complete
W1.8	Review impact of existing WLMPs on 13/14 event	Complete
W1.9	Develop Flood Risk Management Strategy for Levels & Moors	Underway
W1.10	Review effectiveness of and identify locations for further dredging	Complete
W1.11	Enhance role of voluntary rhynesmen (riparian responsibilities officer)	EP
W1.12	Sowy-KSD capacity improvements	Underway
W1.13	Develop future governance and funding model for 'Somerset Rivers Board'	Complete
W1.14	Taunton Strategic Flood Alleviation Improvements Scheme	Underway

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Somerset Rivers Authority

The Somerset Flood Action Plan

A 20 year plan for a sustainable future

Workstream Purpose & Progress to Date

Key	
Complete	Action completed
EP	Action now part of annual SRA funded Enhanced Programme
Underway	Action underway but is not yet completed
Incomplete	Action either started and stalled or deemed not required

Workstream 2 – Land Management

- Every farm and every stream has a part to play in water and flood management in Somerset. Farming lies at the heart of Somerset's rural economy, employing 10,000 residents and worth in the region of £200m per annum.
- Effective land management through the entire catchment can make a real difference to flood risk in local areas and have a significant effect on sediment at the catchment level. Securing benefits in the upper catchment is particularly important.
- To maximise the potential for land management to contribute to the overall enhancement of the catchments, by reducing flood risk and soil erosion, improving water quality and environmental management, there is need for an expansion of the existing farm advice and support package to assist and encourage land managers with making the necessary changes.

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ID.	Workstream 2 – Land Management - Actions	Status
W2.1	Somerset partners to pilot a new approach to Catchment Sensitive Farming that covers flood risk management	Complete
W2.2	Support adoption of more flood resilient farming systems and adaptation	Complete
W2.3	A locally administered capital grant fund	EP
W2.4	Explore the potential of delivery through locally defined Nature Improvement Areas, ecosystem services and off-setting approaches	Underway
W2.5	Slow the flow in watercourses	EP
W2.6	Review current High Level Stewardship schemes at their 5 year break clauses and agree adaptations	Underway
W2.7	Ensure that next agri-environment scheme (NELMS) takes into account benefits from natural flood management.	Complete
W2.8	Put in place simplified approvals process to allow land managers to carry out work	Complete
W2.9	Pilot a locally operated Payment for Ecosystem Services scheme	Complete
W2.10	Defra will consider how best to secure flood risk benefits in CAP review	Complete
W2.11	Examine innovative mechanisms such as developing a Community Land Management Trust to support a Land Swap/ Transfer/Purchase Scheme .	Complete

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Somerset Rivers Authority

The Somerset Flood Action Plan

A 20 year plan for a sustainable future

Workstream Purpose & Progress to Date

Key	
Complete	Action completed
EP	Action now part of annual SRA funded Enhanced Programme
Underway	Action underway but is not yet completed
Incomplete	Action either started and stalled or deemed not required

Workstream 3 – Urban Water Management

- Rainfall in developed areas often falls on hard impervious surfaces such as roads, roofs and pavements so it runs off fast and cannot infiltrate into the ground. This can increase the risk of flooding, particularly locally.
- there is an opportunity across the county for individual businesses and home owners to improve drainage locally and decrease run off where it does cause a problem, by putting in place things such as permeable paving, green roofs etc.
- The plan includes an action about retrofit schemes where run off is identified to be an issue, and an action about working with local partners to provide and promote advice to individuals or businesses who wish to implement schemes .

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ID.	Workstream 3 – Urban Water Management - Actions	Status
W3.1	Provide an easy to use online source of expert guidance on the design and delivery of sustainable drainage systems (SuDS) for planners and developers	Complete
W3.2	Encourage developers to go beyond the minimum requirements to reduce runoff by creating a "Watermark" scheme	Underway
W3.3	Review to what extent we can use the planning system to create planning requirements eg require rainwater harvesting on all new development	Incomplete
W3.4	Review the effectiveness of existing SuDS schemes and attenuation ponds	Complete
W3.5	Mapping of existing SUDS and flood alleviation schemes across the county	Incomplete
W3.6	Undertake an awareness raising campaign of steps individuals can take to reduce runoff and explore potential options in terms of incentives for doing so.	Underway
W3.7	Authorities will work with organisations that occupy large areas to encourage them to use permeable materials and install SUDS when replacing or maintain hard surfaces .	Incomplete
W3.8	Carry out inspections of new unadopted SuDS to ensure they are constructed and maintained in accordance with approved plans.	EP

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Somerset Rivers Authority

The Flood Action Plan

A 20 year plan for a sustainable future

Workstream Purpose & Progress to Date

Key	
Complete	Action completed
EP	Action now part of annual SRA funded Enhanced Programme
Underway	Action underway but is not yet completed
Incomplete	Action either started and stalled or deemed not required

Workstream 4 – Resilient Infrastructure

- The flooding of the Somerset Levels and Moors in 2012 and 2014 has seen major disruption to transport. Some communities have been cut off for weeks at a time. There has been major disruption to the road network with several A roads blocked, causing disruption and delay to peoples' travel and consequent costs to business; initial estimates of impacts are in the region of £100m. The strategic road and rail routes into the South West peninsula have been cut.
- Other important infrastructure was affected, with 57 BT telecommunications boxes under water and waste water treatment not possible for some isolated communities
- Effective infrastructure and transport links are vital both for individual communities and for economic prosperity and growth and the delivery of Nationally Significant Infrastructure Projects. We aim to ensure:

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ID.	Workstream 4 – Resilient Infrastructure - Actions	Status
W4.1	Deep clean of system, including review and survey of gullies and culverts	EP
W4.2	Pre-placed flood gates and signage (for diversionary routes) for roads that are at risk of flooding	Complete
W4.3	Repair and resurface damaged roads (44km), using materials and road marking more resilient to flooding, allowing faster recovery in the future.	Complete
W4.4	Implement minor flood alleviation management schemes e.g. to reduce road flooding of the strategic network	EP
W4.5	Assess risk and as necessary implement flood alleviation measures at National Grid's Bridgwater electricity substation and Western Power's substations	Complete
W4.6	Assess risk and as necessary implement flood alleviation measures to ensure that mains water supply is unaffected by, or can be maintained in, a flooding event	Complete

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Somerset Rivers Authority

The Somerset Flood Action Plan

A 20 year plan for a sustainable future

Workstream Purpose & Progress to Date

Key	
Complete	Action completed
EP	Action now part of annual SRA funded Enhanced Programme
Underway	Action underway but is not yet completed
Incomplete	Action either started and stalled or deemed not required

Workstream 5 – Building Local Resilience

- Resilient communities are the cornerstones for protecting local lives and livelihoods. Somerset has a long tradition of self help, and we need to build on that, sharing experience of what works and work together to innovate and ensure excellence across the county.
- This is about helping people help themselves and each other to reduce vulnerability to future flooding events.
- The first stage is to support people to re-establish their day to day lives, business connections, farming practices and community way of life, which have been so affected by the prolonged floods in 2014.
- The second stage is to work with households, businesses and landowners to prepare and adapt for possible future flooding.

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ID.	Workstream 5 – Building Local Resilience - Actions	Status
W5.1	During Recovery Deliver a dedicated programme of targeted support to help individuals, farms, businesses and neighbourhoods to recover, including help to access resources and advice from existing and future Govt. and local agency programmes including the Somerset Community Foundation. Citizens Advise Bureau, and partners to Somerset Emergency Voluntary Agencies Group (SEVAG).	Complete
W5.2	Somerset Resilience Website – CRISP to continue their work to improve existing website presence to provide a comprehensive and easy to access information source for resilience, linked to flood risk information	Complete
W5.3	Build household, farm, business and neighbourhood level flood resilience – support locally led action to plan, design and implement solutions to increase resilience, Limited progress with these groups.	EP
W5.4	Formalise the role of the Community Resilience in Somerset Partnership (CRISP) and provide sustainable funding and governance arrangements.	Complete
W5.5	Ensure households, farm, business and neighbourhoods can obtain affordable and comprehensive insurance	Complete
W5.6	Help ensure Somerset is seen as good place to do business as well as ensure tourism businesses become more resilient to flooding	Incomplete

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Somerset Rivers Authority

Key	
Complete	Action completed
EP	Action now part of annual SRA funded Enhanced Programme
Underway	Action underway but is not yet completed
Incomplete	Action either started and stalled or deemed not required

The Somerset Flood Action Plan

A 20 year plan for a sustainable future

Workstream Purpose & Progress to Date

Workstream 6 – Complex Interrelated and Unfunded

- Determining the long term sustainable future for the Somerset Levels and Moors (SLM) will require careful assessment of the options and evidence and difficult decisions around investments and how the community can adapt.
- There is a complex interaction between different major capital investment opportunities which would be funded from a range of different central and local government groups as well as the private sector and other funders.
- Currently it is not known if flood risk to rail and road routes is more cost effectively delivered by raising transport routes or managing the river system differently. These options need to be considered together to provide good evidence on the most effective and best value approaches.
- The possibilities and options for adapting to changing pressures, including changing land use and buying out properties must also be considered as part of the overall assessment.

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ID.	Workstream 6 – Complex Interrelated and Unfunded - Actions	Status
W6.1	Raise level of the A361 (East Lyng to Burrowbridge)	Incomplete
W6.2	Raise level of the A372 – Othery to Aller (7 bends) to allow larger culvert for Sowy channel (to be taken with River Sowy improvements below)	Complete
W6.3	Design and implement road raising schemes to ensure access for Muchelney and other communities	Complete
W6.4	Feasibility and assessment studies to identify key priorities for road schemes to ensure local access and delivery of schemes	Complete
W6.5	Improve pumping capacity and operation, including upgrading Northmoor pumping station as appropriate.	Complete
W6.6	Further local protection e.g. ring banks, around communities	Complete
W6.7	Additional dredging, identified as effective of key locations across the catchment, and implement as appropriate	Complete
W6.7	Improve the condition and raise floodbanks and spillways	Complete
W6.8	Setting back defences to increase river channels and create floodplain within widened river channel	Incomplete
W6.9	Spreading floodwater across the moors more evenly	Underway
W6.10	Create temporary flood storage areas particularly in the mid catchments – 500 ha within 20 years	Underway
W6.11	Production of an economic impact study of the 2014 event	Complete
W6.12	A303 improvements to increase resilience, following Highways Agency feasibility study	Underway
W6.13	Network Rail to identify best value options for ensuring the resilience of 4.5 miles stretch of railway	Incomplete

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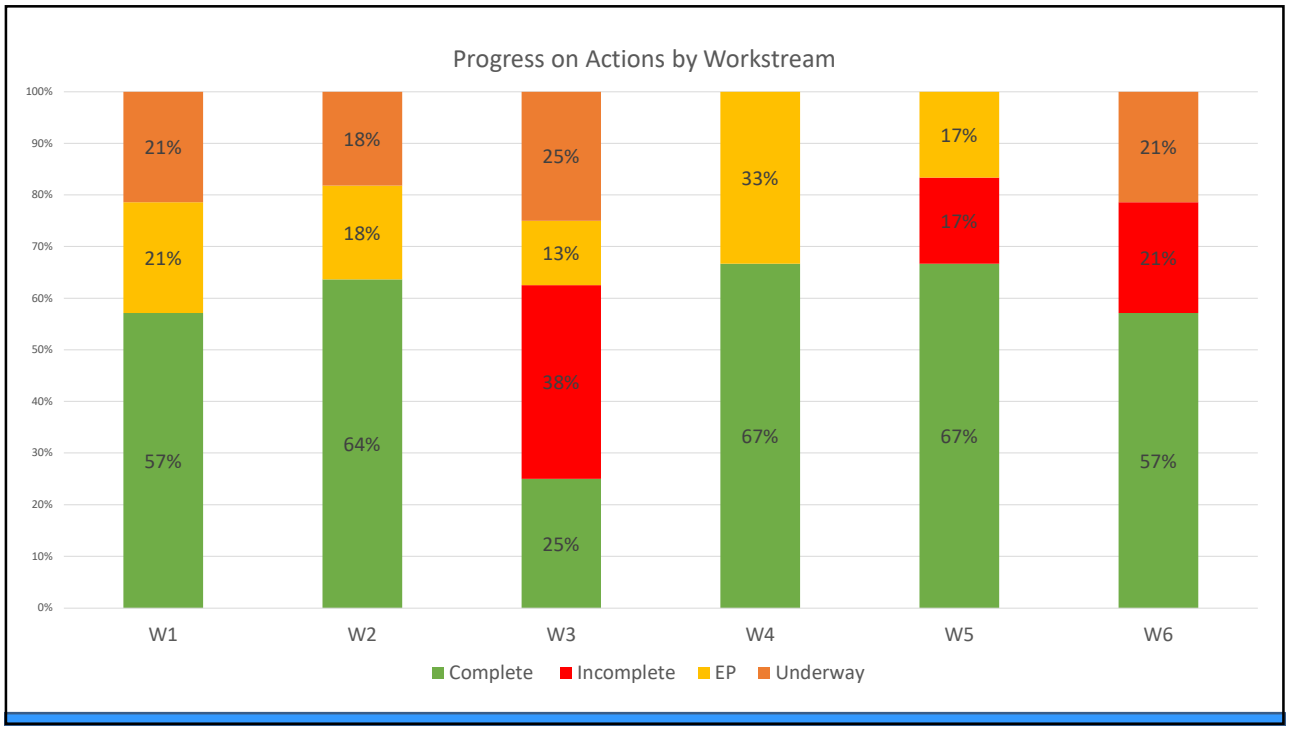
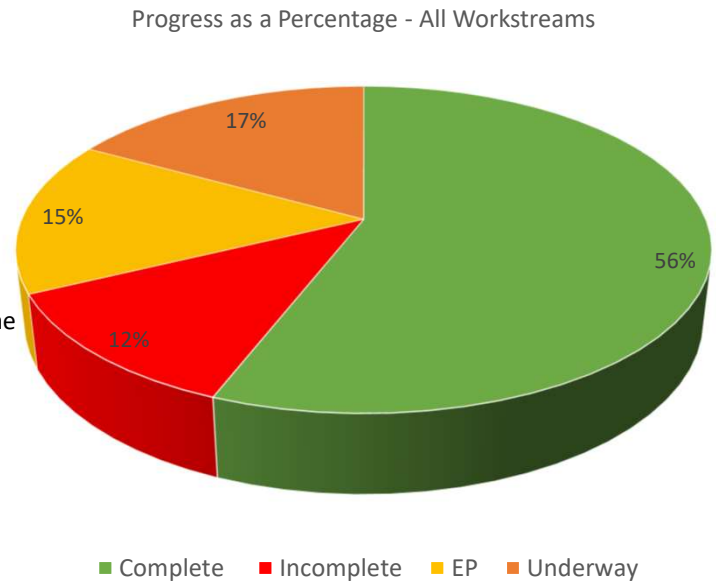


16

79% of all actions either
- Complete
- Underway
- Part of the SRA Enhanced Programme



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Flood Action Plan Review

- The plan was written in response to a specific set of events - 2012, 2013-14 floods
- 59 actions identified in the plan
- 52 complete, underway or now part of the SRA Enhanced Programme
- 7 actions are 'incomplete'
- 220+ projects/ schemes / activities large and small taken forward so far
- Hundreds of places across Somerset have benefitted through the Flood Action Plan and the SRA partners

- It is time to review the plan and reflect on
  - what has been achieved
  - what has changed
  - what we want to achieve in the future
- The new plan will set the objectives of the Somerset Rivers Authority for the future

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Flood Action Plan Review

Several engagement sessions have already been undertaken with

- SRA Board
- 1-1s with key technical officers from SRA partners
- 1 Stakeholder workshop
- 1 workshop with SRA Technical Group

Some themes to consider are already emerging:

- Strategic vision
- Climate change
- Adaptation / resilience
- Surface water flooding
- Water quality / drought
- Coastal risks
- Net zero – carbon sequestration
- Legislative change
- Government reorganisation
- Transition period
- Long term planning
- Community engagement
- Complexity - clarity
- Leadership role – 'one voice'
- Empower communities to act
- Food security / energy security
- Power of collective efforts
- Pioneering / innovation

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Flood Action Plan Review

Next Steps

- Stakeholder workshops x3 – July onwards
- SRA Board workshop – August
- Online consultation hub – Late September to November
- 'Village Hall' events x2 – Late September to November
- Online consultation events x2 – Late September to November
- Draft Plan to the Board December 2022
- Joint Scrutiny Panel Review – January 2023
- March 2023 for final approval
- SRA Team keen to attend groups and meetings to discuss the project
- Questions or comments contact sra@somerset.gov.uk / 01823 355111

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The Somerset Levels and Moors Flood Action Plan

A 20 year plan for a sustainable future

"We cannot let this happen again" Prime Minister, David Cameron, 13th February 2014

The prolonged wet weather and subsequent flooding in Somerset began in mid-December 2013. Within the Levels and Moors over 150 properties are now flooded internally and 11,000 hectares of agricultural land remain under water. Over 200 homes in several communities have been cut off, some for more than two months.

On 27 January the Secretary of State for Environment, Food and Rural Affairs, Owen Paterson, visited Somerset to see the effects of flooding. He challenged Somerset to develop an Action Plan for a long-term sustainable future for the Somerset Levels and Moors.
This is the Plan that was prepared by a broad partnership of local and national organisations, building on the extensive work already undertaken and the views articulated by local communities. It covers the catchments of the rivers Parrett, Tone, Axe and Brue.
Local communities and partners have agreed the vision for the Somerset Levels and Moors, namely:

> *We see the Somerset Levels and Moors in 2030 as a thriving, nature-rich wetland landscape, with grassland farming taking place on the majority of the land. The impact of extreme weather events is being reduced by land and water management in both upper catchments and the flood plain and by greater community resilience.* (Reference: The Somerset 'Task Force', 2014)

Managing the impacts of floods and achieving the right amount of water, at the right time, in the right locations across the Levels and Moors is going to be increasingly challenging, as weather patterns change. Because water management on the Levels and Moors is complex, how we can achieve these outcomes will need to be an integrated mix of actions across the whole catchment which both impact on the likelihood of flooding and make us more able to cope with it. We will never be able to stop flooding completely.

Determining the long term sustainable future for the Somerset Levels and Moors (SLM) will require careful assessment of the options and evidence and difficult decisions around investments and how the community can adapt. It will need work to understand and agree what is an acceptable level of risk and what is a reasonable standard of protection for people, property, agriculture and the environment. It will also critically need to set out the case for why such intervention is fundamental to smooth operation of the economy in the area and the wider South West. This will need to look to the long term, at least 20 years ahead, to respond to likely future pressures. This reflection must better involve the local community but also involve understanding what that means for investment choices affecting others both elsewhere in Somerset and across the country.

For ease of understanding we have grouped the Actions in our plan into different types of activity:

Risk reduction actions:

- Dredging and river management
- Land management – recognising that what happens in the upper and mid catchment has an impact on the lowlands
- Urban run-off

Mitigation actions:

- Infrastructure resilience (road, rail, sewerage, power and telecommunications)
- Building local resilience

Some actions we can get on with now and we will be able to see real results in the first year. There are others that we have a good understanding of, we know they will have an impact, are relatively cheap and although currently not funded, we can see how existing funding mechanisms can be tapped relatively easily and quickly. But there are others, and they are all expensive, that might have significant impact where the situation is far more complex and challenging because:

- The most cost effective mix of flood management measures that will work is unclear
- The precise mix of flood management and infrastructure resilience actions that is most cost effective is unclear

As a result, a number of different possible actions are included in this plan that could form part of the solution to reduce the frequency, duration and impact of floods. Ensuring we have a better understanding of the relative cost effectiveness of these and blending proposals together to create the most acceptable and fundable package will require careful partnership work during the first year of the Action Plan. This will include working in partnership to develop new approaches for long term funding of management work on the Levels and identifying additional and innovative sources of funds to deliver elements of the plan. Detailed assessments and business cases will need to be produced to make the case for some of the investment choices, including how they compare to other projects across the country.

HOW WILL THE PLAN BE DELIVERED?

This Plan must result in real action and changes on the ground. Throughout this plan, we have identified a number of actions which will make a real difference to flooding on the Levels and Moors. We have worked closely with our partners and Government over the past six weeks to identify where options exist and choices need to be made. The Action Plan is directly aligned with the Strategic Economic Plan, which has flagged up flooding and water management as a priority. The challenge now for us all is to ensure that the actions within this document are delivered for those communities and business within the Somerset Levels and Moors.

In order to take this plan forward therefore, a renewed, coordinated and joined-up approach to addressing flooding and resilience issues upon the Somerset Levels and Moors is required. This will, by necessity, need to bring together Government, its Agencies, the heart of the South West Local Enterprise Partnership, Somerset's Local Authorities and the wider community and stakeholders. In doing so, there will be opportunities to develop new approaches to the management of the drained areas of the Levels and Moors and the wider catchment, and for enhanced local leadership.

But to take new and innovative approaches, this body will require not only local leadership but also need to:

- Incorporate a new way for all agencies both local and national to work together to identify the best possible package of actions;
- A recognition that funding flood risk management activities can avoid costs not just in repairing damaged infrastructure but also in avoiding the need to raise or redesign roads, railways and statutory undertakers' equipment;
- A recognition that the whole catchment has a role to play and that water management in our upland catchment and urban areas needs to be an integral part of the plan; and
- Investment in resilience, for when we do experience flooding.

National government has provided additional resources to respond to the situation in Somerset, with £10m from Defra for flood risk management, £10m from DfT for transport work, and £0.5m from CLG for community resilience. In addition, Somerset business, farms and households are eligible for support under a variety of national level flooding recovery programmes. Furthermore prior to this plan local partners had identified over £1.5m towards future flood risk reduction work.

Somerset County Council is committed to leading the further development and implementation of this plan, ensuring full engagement with local and national partners and engage with the community to build consensus and agree which actions should be implemented and how the community can increase its own resilience.

THE PLAN ACTIONS

SECTION 1

DREDGING AND RIVER MANAGEMENT

Effective management of the rivers, ditches, pumping stations and other structures is vital for all aspects of life on the Somerset Levels and Moors. It reduces the frequency, duration, depth and extent of flooding events. Managing water levels is essential for facilitating life on the levels, whether enabling farming, protecting the local economy and wider infrastructure assets, or maintaining the high value environmental sites that are central to the character of the Levels. It requires both one off investment to ensure the system is working effectively and most importantly regular ongoing maintenance.

Dredging of the Rivers Parrett and Tone has been identified locally as a key element in addressing future flood risk, and especially reducing the duration of flooding. Dredging can restore the system to the channel capacity put in place in the 1960s but it will need regular long term maintenance to keep rivers flowing well.

The use of the Sowy and King Sedgemoor Drain, combined with pumping at Beer Wall and Dunball to relieve pressure in the Rivers Parrett and Tone has been tested in late February 2014. This is a deliverable and effective flood management tool and a key priority of this plan is to undertake work to assess, identify funding for, develop and deliver approaches to ensure this option is available in the future.

There are other ways to reduce the frequency and duration of floods across the Levels and Moors including raising riverbanks and changing how and where floodwater is stored. In the longer term the development of a tidal barrier or sluice on the River Parrett below Bridgwater will be an important contribution to managing flood risk to Bridgwater, potentially reducing the amount of silt entering the Parrett and Tone from the Sea. It will also protect 17,500 properties within the town, both homes and businesses, and one of the county's key service and economic centres. More work is needed on the technical design of this project to see what difference it would make to floods on the Levels and Moors, and to see whether the existing long term funding plans can be accelerated, to allow the project to be built earlier than currently envisaged. There have been proposals for a possible Bridgwater Bay Barrage, which would be primarily a tidal energy generation project. However a developer has yet to come forward and the flood risk benefit of this would need to be explored as proposals are developed.

The public consultation has resulted in a number of innovative ideas, including some different engineering solutions, some questions about the maintenance of pen levels and river restoration, including learning from the Dutch. All of these ideas will need further consideration before they can be developed or costed.

OUTCOME	ACTION	WHEN	HOW MUCH DOES IT COST	WHO LEADS IT?
Reduce duration and/or frequency of flooding Maintain access for communities Ensure strategic transport connectivity	Dredge 4km of River Tone upstream of Burrowbridge and 4km of the River Parrett below their confluence at Burrowbridge, to 1960s river profile.	To start by end March 2014 (conditions permitting)	£5.7m	EA/Defra
Reduce duration and/or frequency of flooding Maintain access for communities Ensure strategic transport connectivity Maintain special characteristics of SLM	Maintain rivers and small watercourses to achieve conveyance most effectively	ongoing	Currently £2m per year (reviewed annually)	EA, IDBs, and landowners
Reduce duration and/or frequency of flooding Maintain access for communities Ensure strategic transport connectivity Maintain special characteristics of SLM	Additional maintenance including maintaining newly dredged profiles	On-going	£1.2m per year	New Somerset rivers board
Reduce duration and/or frequency of flooding	Review effectiveness of temporary operations and if appropriate install permanent infrastructure to enable temporary pumping sites at Dunball Sluice and Northmoor as well as Bridgwater Taunton Canal for future use	By autumn 2014	£2000k	EA
Reduce duration and/or frequency of flooding	Consider making permanent existing temporary local protection e.g. at Aller, Westonzoyland and others	By end 2015	£500k	EA and others
Reduce duration and/or frequency of flooding Maintain access for communities	Repair and reinstate existing river and flood banks and spillways Review and where appropriate Implement small scale ring bank improvements e.g. Thorney village and Thorney Pottery	By end 2015	£3m-11m £150k	EA, IDBs and others,
Reduce duration and/or frequency of flooding	Expand existing river models to assess effectiveness of actions and identify most cost effective options	By end March 2014	£500k	EA

Maintain access for communities Increasing resilience to flooding Maintain special characteristics of SLM	Review impact of existing water level management plans on 2013/14 flood event	2014/15	Staff time only	IDBs and NE
	Develop a Flood Risk Management Strategy for Levels and Moors including actions from other workstreams	2014/15	£250k	EA, IDBs NE and LAs
	Review the effectiveness and identify locations of further dredging across the Levels and Moors	2014/15	£25k	EA, IDBs NE and LAs
Reduce duration and/or frequency of flooding	Enhance role of voluntary rhynesmen to inspect, undertake small scale maintenance activities and liaise with the IDBs and SCC to identify where riparian owner works are required, ensuring local knowledge of drainage network is captured and retained.	2014/15	£10k	SCC/IDB/Community
Reduce duration and/or frequency of flooding Maintain access for communities Ensure strategic transport connectivity Maintain special characteristics of SLM	Sowy/Kings Sedgemoor Drain Capacity Improvements: Develop options for increasing the capacity of the Sowy/Kings Sedgemoor Drain system Undertake appropriate road works to enable the River Sowy channel to be widened. Deliver an effective scheme to increase capacity of the Sowy/Kings Sedgemoor drain system	 Autumn 2014 2014	 £25k £2m £6m+	EA, SCC and other local partners
Reduce duration and/or frequency of flooding	Review design options for Bridgwater tidal barrier/sluice	By summer 2014	£10k	EA
Maintain access for communities Increasing resilience to flooding	Discussions to identify approaches to accelerate the build programme and financing of the barrage/sluice	By end 2014	Staff time only	SDC, EA, central government
Maintain special characteristics of SLM Business confidence and growth	Build Bridgwater tidal barrier/sluice	By 2024	£27-30m	SDC, EA and developers/investors
Maintain access for communities Strategic transport connectivity Reduce duration and/or frequency of flooding	Develop future governance and funding model for local flood and water management – a 'Somerset rivers board' - working with local partners, including EA, IDBs and relevant stakeholders	Proposals by end 2014 In place by 2015/16	£100k+	Requires partnership approach

LAND MANAGEMENT

Every farm and every stream has a part to play in water and flood management in Somerset. Farming lies at the heart of Somerset's rural economy, employing 10,000 residents and worth in the region of £200m per annum. The county has varied and complex soils that support a wide range of farming, from intensive cropping (potatoes) and dairying but elsewhere only support extensive grassland systems for beef and sheep.

Scientific evidence[1] shows that how land is managed can affect flood risk and sediment transport, and also has a major influence on water quality, biodiversity and drought resilience, although it is recognised that changed land management practices would not have lessened the impact of an event on the scale of the floods this year. Effective land management through the entire catchment can make a real difference to flood risk in local areas and have a significant effect on sediment at the catchment level. Securing benefits in the upper catchment is particularly important. A range of activities can contribute – improving soil management and reducing erosion, harvesting rainwater on farms, intercepting overland flows, slowing the flow in watercourses, restoring and creating wetland areas that absorb and store water, woodland planting and management. The internationally important environmental and wildlife sites on the Levels are central to the character of the area, and have been supported through on going environmental stewardship schemes targeted at maintaining and enhancing wet grassland in the floodplains.

To maximise the potential for land management to contribute to the overall enhancement of the catchments, by reducing flood risk and soil erosion, improving water quality and environmental management, there is need for an expansion of the existing farm advice and support package to assist and encourage land managers with making the necessary changes. This must build on existing programmes, such as Catchment Sensitive Farming and environmental land management schemes that are already widely accepted and respected by the land management community. This expanded programme needs to be aligned to local priorities and must cover the whole catchment, from adaptation in the floodplains of the Levels to its headwaters.

OUTCOME	ACTION	WHEN	HOW MUCH DOES IT COST	WHO LEADS IT?
Increase resilience to flooding Reduce duration and/or frequency of flooding Maintaining special characteristics of the SLM	Somerset partners to pilot, with support from Defra, a new approach to Catchment Sensitive Farming that covers flood risk management as a well as water quality, through integrated advice and support to assist land managers, including: • Encouraging adoption of a range of practices that intercept and retain water, reduce run off and erosion and maximise the benefits from natural flood management actions required throughout the catchments. • Supporting adoption of more flood resilient farming systems,	Package put together by Sept 14 Operational by January 2015	Approx £0.6m pa (of which £150-200k will come from EAFRD for skills and farmer support) in addition to existing CSF funding	Partnership of NE and FWAG/RSPB/ SWT/NFU/CLA/R oyal Bath & West

[1] Summarised in the Construction Industry Research and Information Association (CIRIA) report C719 (2013)

	voluntary adaptation, restructuring and relocation of farm businesses. • A locally administered capital grant fund (to be supported by the Royal Bath and West Society) • Explore the potential of delivery through locally defined Nature Improvement Areas, ecosystem services and off-setting approaches.			
Reduce duration and/or frequency of flooding	Slow the flow in watercourses, from woody debris dams in tributaries to restoring river meander	From January 2015	Approx £0.35m pa	Partnership of FWAG/RSPB/ SWT/NFU/CLA
Reduce duration and/or frequency of flooding	Review current High Level Stewardship schemes at their 5 year break clauses and agree adaptations to take account of flood protection benefits where the benefits are deemed significant.	From 2015	With current funding	NE
Reduce duration and/or frequency of flooding Maintaining special characteristics of the SLM	Ensure that next agri-environment scheme (NELMS) takes into account benefits from natural flood management. Encourage take up and use of environmental land management schemes, including woodland planting	Ongoing	With current funding	NE, IDBs, Forestry Commission with FWAG/ RSPB / SWT / NFU / CLA
Reduce duration and/or frequency of flooding	Put in place simplified approvals process to allow land managers to carry out work on the minor watercourses and ditches, where there is no increase in flood risk and within a strategic framework	By September 2014	Staff time	SCC, EA and IDB
Increasing resilience to flooding Maintaining special characteristics of the SLM	Pilot a locally operated Payment for Ecosystem Services scheme delivering a reduction in local flood risk, carbon flux, conservation of peat soils and water quality.	March 2014, operational 2014/15	Approx £0.03m in total	Partnership of NE / IDB & FWAG/ RSPB / SWT / NFU / CLA?
Reduce duration and/or frequency of flooding	Defra will consider how best to secure flood risk benefits in the forthcoming decisions on approaches to all Common Agricultural Policy (CAP) funding	March 2014	Staff time	Defra
Increasing resilience to flooding Maintaining special character of the SLM	Examine innovative mechanisms such as developing a Community Land Management Trust to support a Land Swap/ Transfer/Purchase Scheme.	March 2015	Staff time	SCC, EA, NE

URBAN WATER MANAGEMENT

Rainfall in developed areas often falls on hard impervious surfaces such as roads, roofs and pavements so it runs off fast and cannot infiltrate into the ground. This can increase the risk of flooding, particularly locally. This is why the planning system requires that new developments do not increase flood risk either by slowing down run off and increasing infiltration within the development or adjacent to it often through incorporating Sustainable Drainage Systems (SuDS). These involve the use of such mechanisms as permeable paving, soak aways, swales and holding ponds.

The current National Planning Policy Framework states that any new development must not make flooding downstream worse and it also must take into account future climate change. Thus new development often provides betterment – at least in the shorter term, and no worsening of the situation in the long term. The Flood and Water Management Act 2010 will establish the SuDS approving bodies (SABs). In this area the SAB will be Somerset County Council who will have statutory responsibility for approving Drainage Applications and in some cased adopting the approved drainage systems.

This does not mean we should be complacent. Development across Somerset must continue if the county is to remain an economically sustainable community. We need to ensure that all policies and standards going forward are sufficiently robust for the future. The action plan suggests a review of current national policies (in light of the local extreme events), to ensure that this position is maintained.

Studies have shown that run off from the developed areas is perceived to be a more significant contributor to flooding than it actually is (see Appendix A, Environment Agency 2014). This is the case even though, in the more distant past, developments were constructed without SUDS. However, there is an opportunity across the county for individual businesses and home owners to improve drainage locally and decrease run off where it does cause a problem, by putting in place things such as permeable paving, green roofs etc. The plan includes an action about retrofit schemes where run off is identified to be an issue, and an action about working with local partners to provide and promote advice to individuals or businesses who wish to implement schemes.

OUTCOME	ACTION	WHEN	HOW MUCH DOES IT COST	WHO LEADS IT?
Reduce duration and/or frequency of flooding	SCC as the Lead Local Flood Authority will provide an easy to use online source of expert guidance on the design and delivery of sustainable drainage systems (SuDS) for planners and developers. This will include examples of success, and bespoke advice for major sites.	By end 2014	Funded business as usual	Somerset County Council
Reduce duration and/or frequency of flooding	LPAs with Somerset County Council will determine* whether national SuDS Approving Body standards are sufficient for the requirements in Somerset and whether more robust standards are needed. A new	Review by March 2015	Funded business as usual	SCC, LPAs and CLG

	Supplementary Planning Document (SPD) will be produced, if required, to meet district and local needs. *following enactment w.e.f. October 2014			
Reduce duration and/or frequency of flooding	Somerset County Council as the SAB will provide advice to people and businesses so they can reduce runoff from existing premises and developments.	ongoing	Funded business as usual	Somerset County Council
Reduce duration and/or frequency of flooding	Authorities will work with public and private organisations that occupy large areas to encourage them to use permeable materials and install SUDS when they replace or maintain hard surfaces.	ongoing		DEFRA/SCC/ LPAs
Reduce duration and/or frequency of flooding	All Somerset LPAs will review their planning policy with regard to flooding and if necessary develop local policies (in line with National Planning Policy Framework) in light of recent extreme events in Somerset. This will include consideration of what development within the flood plain is admissible. All Somerset LPAs will review their condition compliance / enforcement processes to ensure that any flood risk mitigation measures covered by condition / S106 Agreement is delivered.	2 – 5 years	Funded business as usual	LPAs
Reduce duration and/or frequency of flooding	Local Authorities will maximise the opportunities to reduce downstream flooding whilst delivering planned growth. They will identify and deliver strategic flood mitigation sites upstream of developments including the planned flood alleviation reservoir between Wellington and Taunton.	2016-19	£10 - £20m but depends on size of scheme – likely to include substantial contributions from developers and possible CIL but other public funding streams will be required e.g. LEP funding	LAs
Reduce duration and/or frequency of flooding	SCC (as Lead Flood Authority), LPAs, EA and Wessex Water will identify hotspots with a high risk of urban run off and put in place appropriate schemes and identify funding to tackle the problems	2015	Dependent on size and number of schemes	SCC, Local Authorities, EA, Wessex Water via the Regeneration Directors' Group
Reduce duration and/or frequency of flooding	Wessex Water will improve the performance of combined storm overflows in Bridgwater to reduce the volume of spill by 50% and undertaking some integrated urban drainage in Bridgwater	By 2020	£16m	Wessex Water

RESILIENT INFRASTRUCTURE

The flooding of the Somerset Levels and Moors in 2012 and 2014 has seen major disruption to transport. Some communities have been cut off for weeks at a time. There has been major disruption to the road network with several A roads blocked, causing disruption and delay to peoples' travel and consequent costs to business; initial estimates of impacts are in the region of £100m. The strategic road and rail routes into the South West peninsula have been cut. Other important infrastructure was affected, with 57 BT telecommunications boxes under water and waste water treatment not possible for some isolated communities.

Effective infrastructure and transport links are vital both for individual communities and for economic prosperity and growth and the delivery of Nationally Significant Infrastructure Projects. We aim to ensure:

- A recognised community should have at least one access road, or if that is not possible, easy access to alternative means of transport
- Maintain strategic connectivity into and through the county
- Infrastructure at risk should be able to recover more quickly from flooding
- Where routes are likely to be subject to flooding the resilience of agreed alternative routes should be strengthened

There are short term actions that can both reduce flood risk and increase access, putting the road network back to a good state following the impact of the floods. There are a range of longer term actions that can increase the overall resilience of the transport infrastructure, which in some cases need to be considered alongside flood risk management measures to ensure maximum effectiveness and value for money as part of the wider consideration of a sustainable long term future for the Levels and Moors (see Section 2 on "Assessing the long term choices and options").

OUTCOME	ACTION	WHEN	HOW MUCH DOES IT COST	WHO LEADS IT?
Maintain access for communities Reduce duration and/or frequency of flooding	Deep clean of system, including review and survey of gullies and culverts	By April 2015	£1.7m	SCC/Highways Agency
Maintain access for communities	Pre-placed flood gates and signage (for diversionary routes) for roads that are at risk of flooding	By winter 2014	£75k	SCC
Maintain access for communities Strategic transport connectivity	Repair and resurface damaged roads (44km), using materials and road marking more resilient to flooding, allowing faster recovery in the future. Also to include maintenance to key rights of way	By winter 2014	£1.6m	SCC

Maintain access for communities Reduce duration and/or frequency of flooding	Implement minor flood alleviation management schemes e.g. to reduce road flooding of the strategic network	ongoing	£200k in 2014	SCC
Increasing resilience to flooding Business confidence and growth	Assess risk and as necessary implement flood alleviation measures at National Grid's Bridgwater electricity substation and Western Power's substations	2-5 years	Funding secured via Ofgen. Settlement subject to categorisation of risk to the site.	National Grid, Western Power
Increasing resilience to flooding	Assess risk and as necessary implement flood alleviation measures to ensure that mains water supply is unaffected by, or can be maintained in, a flooding event	2-5 years		Bristol and Wessex Water

BUILIDNG LOCAL RESILIENCE

Resilient communities are the cornerstones for protecting local lives and livelihoods. Somerset has a long tradition of self help, and we need to build on that, sharing experience of what works and work together to innovate and ensure excellence across the county. This is about helping people help themselves and each other to reduce vulnerability to future flooding events. Everyone needs to know what is expected from others and what to do for themselves; for example local residents can help themselves by installing flood gates and boards and through moving electric sockets and wiring above flood levels. Often grants are available for this type of work.

The first stage is to support people to re-establish their day to day lives, business connections, farming practices and community way of life, which have been so affected by the prolonged floods in 2014. The second stage is to work with households, businesses and landowners to prepare and adapt for possible future flooding.

OUTCOME	ACTION	WHEN	HOW MUCH DOES IT COST	WHO LEADS IT?
Increasing resilience to flooding	**During Recovery** Deliver a dedicated programme of targeted support to help individuals, farms, businesses and neighbourhoods to recover, including help to access resources and advice from existing and future Govt. and local agency programmes including the Somerset Community Foundation. Citizens Advise Bureau, and partners to Somerset Emergency Voluntary Agencies Group (SEVAG). • Local Authorities to administer local allocations from Government Flood Support Schemes. EG Repair and Renew grants; council tax rebates; NNDR Hardship Relief schemes; plus local schemes as agreed by each local authority (eg council tax, NNDR, loans and grants). • Ensure local access and take-up of other forms of support eg Farm Recovery Fund (DEFRA); Specialist agricultural and small business advice from banks; Rural Business Support Scheme • Continue to offer support to neighbourhoods / parishes to review and create local flood plans. • Establish sustainable funding and support for CRISP – Community Resilience in Somerset Partnership.	now	Individuals, farms, businesses are able to apply to national schemes for support	LAs through Somerset Civil Contingencies Partnership and Local Resilience Forum
Increasing resilience to flooding	**Somerset Resilience Website –** CRISP to continue their work t**o** improve existing website presence to provide a comprehensive and easy to access information source for resilience, linked to flood risk information	By autumn 2014	£15k	LAs through Somerset Civil Contingencies Partnership

Increasing resilience to flooding Business confidence and growth	**Build household, farm, business and neighbourhood level flood resilience** – support locally led action to plan, design and implement solutions to increase resilience, community preparedness and to adapt (including voluntary relocation). Use and learn from best practice for example through LGA network; National Flood Forum, the new national Community Prepared hub and Defra community resilience pathfinder projects. To include Flood Plans, small scale flood mitigation/protection schemes and equipment/boats to increase local resilience . Formalise the role of the Community Resilience in Somerset Partnership (CRISP) and provide sustainable funding and governance arrangements.	Over next 3 years	£100k/yr £100k one-off	Somerset Civil Contingencies Partnership / Local Resilience Forum; supported by Sector led schemes.
Increasing resilience to flooding	**Ensure households, farm, business and neighbourhoods can obtain affordable and comprehensive insurance** – including advice to households on available insurance through the new national Flood Re approach.	2014		Defra
Business confidence and growth	Help ensure Somerset is seen as good place to do business as well as ensure tourism businesses become more resilient to flooding	now	£250k to support local tourism and marketing activity – one off	Tourism Businesses/ STA/Somerset Chambers of Commerce

SECTION 2 – COMPLEX, INTERRELATED AND UNFUNDED

ASSESSING THE FLOOD RISK LONG TERM CHOICES AND OPTIONS FOR A SUSTAINABLE FUTURE FOR THE SOMERSET LEVELS AND MOORS

Determining the long term sustainable future for the Somerset Levels and Moors (SLM) will require careful assessment of the options and evidence and difficult decisions around investments and how the community can adapt. It will need work to understand and agree what is an acceptable level of risk and what is a reasonable standard of protection for people, property, agriculture and the environment. It will also critically need to set out the case for why such intervention is fundamental to smooth operation of the economy in the area and the wider South West. This will need to look to the long term, at least 20 years ahead, to respond to likely future pressures. This reflection must better involve the local community but also involve understanding what that means for investment choices affecting others both elsewhere in Somerset and across the country.

There is a complex interaction between different major capital investment opportunities which would be funded from a range of different central and local government groups as well as the private sector and other funders. Some of these opportunities are shown in the table below.

Currently it is not known if flood risk to rail and road routes is more cost effectively delivered by raising transport routes or managing the river system differently. These options need to be considered together to provide good evidence on the most effective and best value approaches, and how to maximise the funding opportunities from a range of potential sources. The testing of options requires improvements to the hydraulic model of the Somerset Levels and Moors and assessment of costs for all the different options. An initial assessment can be delivered by the autumn.

The possibilities and options for adapting to changing pressures, including changing land use and buying out properties must also be considered as part of the overall assessment. Future maintenance of any capital schemes will also need to be planned for.

The immediate action flowing from the plan is to ensure the assessment of these options is carried out by autumn 2014, and to work with the wider community to reach a shared view on the best approaches to a long term sustainable future for the Somerset Levels and Moors. This will be a key task in the delivery of the plan, and a central role for the future delivery body.

The development of the new flood risk management plans and the review of the impact of existing water level management plans on this year's flood event will provide good evidence to underpin this work, supported by improving the existing computer river model to assess the impact of a range of options.

OUTCOME	OPTION	HOW MUCH DOES IT COST?	WHO LEADS THIS?
Maintain access for communities Strategic transport connectivity	Raise level of the A361 (East Lyng to Burrowbridge) - Feasibility study - Estimate of cost of work	Initial estimates suggest c.£1.55m c.£25m+ depending on scheme and EA linked solution	Requires local and central government partnership approach as local government could not afford to fund this scheme alone
Maintain access for communities Strategic transport connectivity Reduce duration and/or frequency of flooding	Raise level of the A372 – Othery to Aller (7 bends) and to allow larger culvert for Sowy channel (to be taken with River Sowy improvements below) - Feasibility study - Estimate of cost of work	Initial estimates suggest c.£1.05m up to £16m – there may be more innovative solutions including underpumping or aqueducts which may be cheaper	Requires local and central government partnership approach as local government could not afford to fund this scheme alone
Maintain access for communities Reduce duration and/or frequency of flooding	Design and implement road raising schemes to ensure access for Muchelney and other communities	Initial estimate £650K based on raising the road to the south of Muchelney	Requires local partner and DfT to determine effective and cost-effective solution.
Maintain access for communities l-t	Feasibility and assessment studies to identify key priorities for road schemes to ensure local access and delivery of schemes	Scheme value dependent on number and location of schemes to be taken forward.	Requires local and central government approach
Reduce duration and/or frequency of flooding Maintain access for communities Maintaining special characteristics of the SLM	Improve pumping capacity and operation, including upgrading Northmoor pumping station as appropriate.	£3.5m	EA and other local partners
Reduce duration and/or frequency of flooding Business confidence and growth	Further local protection e.g. ring banks, around communities	£2.5m	EA and other local partners
Reduce duration and/or frequency of flooding Maintain access for communities Maintaining special characteristics of the SLM	Additional dredging, identified as effective of key locations (other than the 8km near Burrowbridge), across the catchment, and implement as appropriate	£2.5m + ongoing costs of £100k pa	EA and other local partners

Reduce duration and/or frequency of flooding Maintain access for communities Maintaining special characteristics of the SLM	Improve the condition and raise floodbanks and spillways	£10m	EA and other local partners
Reduce duration and/or frequency of flooding Maintain access for communities Maintaining special characteristics of the SLM	Setting back defences to increase river channels and create floodplain within widened river channel	£3m	EA and other local partners
Reduce duration and/or frequency of flooding Maintain access for communities Maintaining special characteristics of the SLM	Spreading floodwater across the moors more evenly eg. Improved Lyng cutting	£2m + ongoing costs of £200k pa	EA, IDB and other local partners
Reduce duration and/or frequency of flooding Increase resilience to flooding	Create temporary flood storage areas particularly in the mid catchments – 500 ha within 20 years	£7m over 20 years	EA and other local partners
Maintain access for communities Strategic transport connectivity Reduce duration and/or frequency of flooding	Production of an economic impact study of the 2014 event to support related funding bids and provide a shared evidence base for future usage	£30k	Requires partnership approach
Strategic transport connectivity	A303 improvements to increase resilience, following Highways Agency feasibility study	To be determined	Highways Agency
Strategic transport connectivity	Network Rail to identify best value options for ensuring the resilience of 4.5 miles stretch of railway between Taunton and Bridgwater and to implement the findings	Initial estimates suggest 1m raise c£110m 2m raise c£132m	Network Rail

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