

River Severn Partnership - Shropshire Flood Prevention

Responsible Officer Mark Barrow, Executive Director Place
e-mail; mark.barrow@shropshire.gov.uk Tel: 01743 258916

1.0 Summary

The purpose of this Report is to update Cabinet on the progress made by the River Severn Partnership and to seek support for reviewing future technical options for water management including flood risk management measures north of Shrewsbury in conjunction with the development of the North West Relief Road.

The threat of future increases in river levels couple with prolonged dry weather as a result of climate change requires both a catchment wide approach to river management and the development of long term sustainable interventions. This paper seeks support to engage in a comprehensive programme of community consultation and engagement to help shape these options.

The report also provides headline details of the opportunities and benefits of developing such measures.

2.0 Recommendation

It is recommended that Cabinet;

- 2.1 support in principle, the potential development of water management measures north of Shrewsbury that would reduce future risk of river flooding for all communities within Shropshire along the River Severn south of Shrewsbury.
- 2.2 support the principle of a holistic approach to development of the North West Relief Road in conjunction with 2.1 above.
- 2.3 support the opportunity, in conjunction with 2.1 above, to explore the potential to develop a water based, leisure resource that includes enhanced natural wildlife and habitat, visitor economy facilities that would include enhanced highway, cycling and walking infrastructure.
- 2.4 support the work of the River Severn Partnership and Environment Agency in a joint approach to a programme of community consultation and

engagement that will explore and develop potential options for future flood risk management outlined in the report.

3.0 Background

- 3.1 At 220 miles long, the River Severn is the UK's longest river and runs from the Vyrnwy and Clywedog Dams in Mid-Wales to the Bristol Channel. Its catchment covers an area of approximately 4,500 square miles with close to 600,000 people living in major settlements along the length of the river network.
- 3.1 Storms Ciara, Dennis and the subsequent flooding events that existed for over three weeks in February this year, reminded us of just how vulnerable our communities, economy and social infrastructure are to the effects of river flooding. Given the nature of the storms, we experienced flooding across many parts of the county. The towns of Shrewsbury, Ironbridge and Bridgnorth were badly affected through the River Severn flooding as well as Ludlow and other communities within the Clun Valley along the River Teme. In both cases significant swathes of farmland along the river length were also flooded. In general terms this recent episode of river flooding was classed as a once in 20 year event, but the inevitable concern is that it will occur more frequently.
- 3.2 To give an idea of local impact, within Shropshire we received claims for flood related grants for 438 residential properties and 418 businesses. However, river flooding indirectly affects many thousands more people, properties and businesses and has a severe impact in terms of transport systems, access to employment, economic activity and day to day life generally. Research by the Shropshire Chamber of Commerce suggests that only one third of all Shropshire businesses were able to function normally during the floods. The estimated Gross Value Added (GVA) impact of flooding in Shropshire is estimated to cost our local economy more than £1m per day. This is in addition to the direct costs to the council of embankment erosion and land slips that will cost circa £5m to reinstate.
- 3.3 The additional cost to Shropshire Council of responding to these events approached £520,000 and in addition we incurred unavoidable capital costs of £2.74m. Under the Government's Bellwin Scheme the Council was only able to claim grant aid for about £60,000 of these costs. The disruption to peoples' lives and our local economy is much wider than that and to illustrate the scale of the social impact, the Council normally receives around 2,500 enquiries through the Customer Service Centre every day, yet during the peak of the floods it averaged 23,000 per day.
- 3.4 To illustrate the fluctuation in water management challenges between low an high flows at the time of drafting this report during early August this year, the depth of the River Severn at Welsh Bridge was at levels below 0.5m

deep yet on the 25th February it approached 5.2m deep. The recorded highest level at this point is 5.25m in November 2000. Low level land in Shrewsbury begins to flood when the river rises to circa 2.70m and low lying properties flood at circa 3.15m. Coleham, Frankwell and the Quarry area being most vulnerable.

- 3.5 It is estimated that the economic impact of flooding of this nature was about a £1m per day loss in Gross Value Added (GVA) output. A chamber of Commerce survey revealed only about one third of Shropshire businesses were able to function normally during the floods.
- 3.6 The severity and frequency of flooding is set to increase through the impact of predicted climate change. Whilst investment has historically been directed at flood defence measures for Shrewsbury this existing infrastructure does not include climate change allowances. The modelling undertaken by the Environment Agency anticipates a precautionary rise in the average river level of 0.85m by 2050. In that context and left unaddressed, future flooding events could affect many thousands more properties, businesses and communities not previously affected. In that sense relying on the measures currently in place and taking an ad-hoc localised approach to river defences is not sustainable.
- 3.7 As part of the development of the Shrewsbury North West Relief Road an opportunity has arisen to explore potential for a river management measure to reduce the risk of flooding to Shrewsbury and other towns, cities and settlements south of Shrewsbury. This would be the prime enabling scheme for future strategic catchment management, along the River Severn. Across the wider catchment further measures are required i.e. flood defences to the River Teme, but outside of the County also along the Stour, Warwickshire Avon and Wye. Work is underway within the River Severn Partnership to identify these wider measures and a further report on progress will be submitted to a future meeting of Cabinet.
- 3.8 At its meeting on the 18th November 2019 Cabinet agreed to support the formation of the River Severn Partnership to explore these issues further and in particular the following recommendations:
1. To support Shropshire Council's involvement in the River Severn Partnership
 2. That the Executive Director of Place enters into a Memorandum of Understanding for the River Severn Partnership.
 3. To support a submission to the One Public Estate Programme for £500k support towards feasibility studies and modelling.

4.0 Progress - River Severn Partnership

- 4.1 The River Partnership was formed in September 2019 and involves all the local authorities along the River Severn and its catchment. It also includes the key water and environmental agencies in England and Wales and each

relevant Local Enterprise Partnership. The Partnership is co-chaired by Mark Barrow, Exec Director Place, Shropshire and Mike Grimes Midlands Area Director Environment Agency. During autumn last year the partnership agreed terms of reference, appointed a jointly funded project manager and created an enabling fund of circa £300k to progress studies and business case development.

- 4.2 Following the visits to Shropshire during the floods by both the Secretary of State for Environment and the Minister for Flooding, a debate took place in Westminster Hall on the 11th March which was attended by the Minister and over 20 MP's whose constituencies include the River Severn. During the debate the Minister expressed her personal support for the Partnership, and it was agreed that a working caucus of River Severn MP's would be formed under the Chairmanship of Shrewsbury MP, Daniel Kawczynski. The caucus has since met with the Flooding Minister, Rebecca Pow during lockdown to discuss progress and has received her full endorsement and support.
- 4.3 During the visit to Shrewsbury by the Secretary of State, George Eustace, he received a presentation on the potential for a water storage option north of Shrewsbury. He welcomed the innovative 'holistic' approach being taken and was very supportive of our ambitions to reduce flood risk and to better manage water as an asset. The Secretary of State has made numerous public statements since in respect of developing schemes to compensate farmers/land owners in return for using land for flood management.
- 4.4 The Board of the Environment Agency are supportive of the work of the River Severn Partnership and are including it as a case study as part of the new "Flood and Coastal Erosion Risk Management Strategy". Emma Howard-Boyd as Chairman of the Environment Agency has pledged her personal support and is actively promoting the work of the Partnership across Government, including delivering presentations to the Prime Minister.
- 4.5 Given the impact on water supplies, boreholes and drainage, the main board of Directors at Severn Trent Water have also received presentations on this initiative and have also given their support, plus expressed a desire to explore commercial investment opportunities to invest in their infrastructure.
- 4.6 The potential for the North West Relief Road to be a catalyst for wider investment and the development of a flood alleviation project has been shared with the Director responsible for regional engagement within the DfT, who has expressed her support and willingness to explore any necessary flexibilities in delivering the scheme.

- 4.7 In January this year a workshop was held at Theatre Severn involving Government representatives from DfT, BEIS, MHCLG, DEFRA, Environment Agency, Marches LEP, and Shropshire Council, to explore the key issues and opportunities presented by the notion of a new water storage area and reducing flood risk from the Severn from Shrewsbury downstream.
- 4.8 The Partnership is now engaging wider ‘strategic’ stakeholders such as English Nature, The National Trust, Shropshire Wildlife Trust, National Union of Farmers etc. Recently the Partnership has moved to include Welsh local government partners with Powys County Council and discussions with the Welsh Assembly. The Partnership has continued to meet monthly through the COVID-19 lockdown and the Core Group of lead representatives meet fortnightly.

5.0 The Opportunity & Strategic Benefits

- 5.1 The Partnership has engaged (through Environment Agency frameworks) private sector experts Mace, Jacobs and Arup to develop technical, economic and cost models that both frame the potential costs of the flood alleviation work and the economic and other benefits arising. The Environment Agency believe that developing such a water storage option would cost in the region of £100m to develop including contingencies, allowances for ‘risk optimism bias’, a compensation scheme and the physical construction of the water control measure
- 5.2 To help secure resource for the next phase of work a draft strategy has been produced entitled “Unlocking Opportunities for the Severn Regional Growth Zone” (Appendix A). This document does not set out the planned intervention in any detail as there is a need to complete the feasibility work building upon the technical options analysis and community engagement. It does however provide a high level assessment of what the potential benefits could be.
- 5.3 The above document is aimed at being a narrative that describes the extent of the opportunity identified by the Partnership. In addition, the consultants leading on the research work “Mace”, have provided some supplementary research (Appendix B) and information that outlines the wider scale of opportunities from progressing a holistic package of flood alleviation and infrastructure investment measures.
- 5.4 The Partnership is developing a programme of a package of measures across the whole catchment which could present the following headline benefits:
- i. £100bn GVA uplift by 2040
 - ii. 1,372 hectares (3,300 acres) released which could accommodate up to 48,000 new homes
 - iii. 687 hectares (1,650 acres) of employment land released

- iv. 34,000 hectares (81,600 acres) of farming land released
- v. 121,000 jobs created
- vi. Remove risk of £152m GVA losses following each typical flood episode

5.5 In a Shrewsbury context:

- i. Increase in Shropshire GVA of £190m during the 3 year construction period
- ii. Release circa £650m of inward development investment
- iii. £7.4bn GVA uplift to the Shropshire economy over 25 years (£300m p.a)
- iv. Approaching 8,000 new jobs created, training opportunities and apprenticeships
- v. space for 2,000 new homes released
- vi. 121 hectares (290 acres) taken out of flood risk
- vii. 33 hectares (72 acres) of Shropshire Council land removed from flood risk
- viii. reduction in £4m annual average loss of GVA across 291 businesses
- ix. Shrewsbury Town Centre (including Riverside) significantly reducing flood risk.

5.6 Further work is required to identify detailed potential benefits across Shropshire. This includes developing a feasibility for a large scale water and wildlife resource between Shrewsbury and Oswestry which could potentially be of national significance. The River Severn Partnership have engaged with Shropshire Wildlife Trust and Natural England and are engaging Eden Project International (Eden Project Cornwall) who are extremely interested in working with the Partnership to develop and model future options. This also offers a significant economic opportunity for Shropshire.

6.0 Finance & Funding

6.1 To help reach this stage Shropshire Council and the Environment Agency have each contributed £100k. Worcestershire, Gloucestershire and Telford & Wrekin Councils have contributed £33k each.

6.2 The Environment Agency have earmarked £40m of future Grant in Aid programme resources towards the capital cost of this project. To secure this the RSP is now focussed on confirming the options and remaining funding.

6.3 The government made an announcement on the 14th July for a package of flood related measures with the River Severn Partnership being awarded the following:

- i. £30m North of Shrewsbury Defence Measure
- ii. £5.4m Carbon Offsetting Programme (natural capital)

iii. £1.5m Innovative Resilience Funding (Adaptive pathways)

- 6.4 This means that the River Severn Partnership has assembled over £70m in commitments towards this particular scheme and there is full support from Government and the Environment Agency to move to a more detailed stage of design planning and business case development.
- 6.5 The work of the Partnership has landed very well across wider Government departments and given the impact on public sector land, this proposal has been discussed with Cabinet Office as part of the One Public Estate Programme. The OPE programme have been very encouraging in respect of potential support within their next round of funding which is due to be announced later in September.
- 6.6 As with all Government supported infrastructure projects there is an element of match funding required. As can be seen from Appendix A & B there would be considerable increases in land values, revenue income streams to government and local government and gains through developer related contributions. There would also be a substantial windfall gain to land/property owners in affected areas. A next stage development is to also model what funding is needed and to devise some form of value capture mechanism that can see future revenue return used to underpin capital borrowing. This is the same general principles that were used to fund Enterprise Zones through Tax Increment Financing. In that sense this scheme is also being seen within Government as an important part of the post COVID-19 recovery Build, Build, Build Programme that does not rely solely upon public sector investment.
- 6.7 The funding allocated by Government to date will form a combination of grant to Environment Agency and grant to the River Severn Partnership. It is proposed that Shropshire will act as 'Accountable Body' for the River Severn Partnership and a subsequent report will be submitted for consideration by Full Council in this respect.
- 6.8 Other than supporting and engaging in community consultation there is no specific financial implication upon the Council arising specifically from this report. At this stage the Council's engagement and contribution is all from within existing resources.

7.0 Climate Change

- 7.1 This programme can give rise to numerous potential future climate change mitigation measures. As mentioned above this scheme will mitigate the devastating physical impact of future flooding events in a scenario of average river levels being 0.85m higher than they are currently.
- 7.2 The programme will explore the potential for harnessing the unique attributes of the river network including as a potential for a heating and cooling resource as well energy generation.

- 7.3 The creation of a new significant water storage area and wildlife habitat/nature areas offers numerous opportunities for a sustainable ecological programme at a huge scale.
- 7.4 Wetlands play an important role in landscape function, including cycling of carbon, water and nutrients, food and fibre production, water purification, regulation of flows, provision of habitats, and tourism and recreation services.
- 7.5 The role of wetlands in carbon sequestration and storage has generally been under-estimated. Wetlands cover approximately six to nine per cent of the Earth's surface and contain about 35 per cent of global terrestrial carbon. As wetlands are centres of high productivity in the landscape, they have a high capacity to sequester and store carbon. As depositional areas, wetlands can also store carbon-rich organic sediments. However, under anaerobic conditions, wetlands can also produce greenhouse gases such as methane and nitrous oxide, though this is limited in saline conditions.
- 7.6 This programme significantly increases the environmental benefit provided by the construction of the North West relief Road and demonstrates an 'holistic' approach to infrastructure investment and development. In this sense the NWRR is a potential key enabler to this work.
- 7.7 The Programme is exploring how the advent of 5G and the ability to utilise the so called 'internet of things' to provide real time water management through telemetry enabled sensors and flow meters connected to the source of Severn. This will enable real time water management at times of significant rainfall in the Welsh mountains.

8.0 Technical Options

- 8.1 Options analysis suggests that some of storage solution is the sustainable means by which to manage water and associated flood risk to the level required in order to address the climate change impacts. There are two early options emerging for comparison purposes focused on creating a body of water that is controlled upstream of Shrewsbury. The first is to use the development of the North West Relief road to form a water retaining embankment structure with a height adjustable water barrier in the river. The second emerging option involves constructing a physical dam further upstream.
- 8.2 Both options require more detailed ground investigation work to determine suitability. At this stage a holistic development with the NWRR is the preferred option. Clearly this is dependent upon the final option selected, but at this stage it is estimated that The impact of this would be to increase the cost of the NWRR by approximately £10 -12m and involve a 12 month period in the NWRR programme to finalise designs suitable for planning. That said the current NWRR programme has allowed for up to 12 months

delay due to either legal, technical or planning issues. If the scheme were not to go ahead there is also the risk that the Environment Agency might object to the bridge design as it does sit in the current flood plain.

- 8.3 At this stage the suggestion is that the Council progresses some form of hybrid planning application for the NWRR that seeks full approval for the road and its alignment, but to leave the final design of the embankment as reserved matters within an 'Outline' element of the application. This approach would not create a significant delay to the construction of the NWRR. This means that the planning process needs to be front loaded with a range of statutory surveys which are currently being scoped and programmed.
- 8.4 This scheme and potential for impact on the NWRR has been discussed with our Regional Director lead within the DfT who felt that it would not be critical to the scheme given the joined up nature as a supported pan government initiative. Adopting a so called 'holistic' approach to infrastructure investment is the emerging template for future investment in significant infrastructure projects and the River Severn Partnership approach is being held up a national example of good practice and a pioneer of the model Government wish to see develop further.
- 8.5 Our current understanding is that a number of properties north of the new 'barrage' would be negatively affected and possibly one physical building lost. Clearly a system of compensation and compulsory purchase would be necessary to mitigate the economic impact on current owners. The Government already have mechanisms such as the Environmental Land Management Scheme, and Basic Payments Scheme which can provide compensation for land used to assist in flood management. A focus of the consultation and engagement process would be to understand and mitigate possible negative impacts wherever possible.

9.0 Next Steps

- 9.1 Following confirmation of capital support from Government the River Severn Partnership can now move through to appraisal and concept design for a water retaining solution and other technical issues in association with the NWRR and other issues outlined above.
- 9.2 Further work has been commissioned by the River Severn Partnership to fully understand the economic, physical and social benefits to all areas of the catchment, including Shropshire. It is anticipated the programme funding outlined in Section 6.0 will support this work.
- 9.3 Detailed financial modelling on options will now be taking place including developing a mechanism for some form of value capture mechanism that secures an element of financial growth and windfall gain to help fund the overall scheme.

- 9.4 Work is underway to fully understand the impact on the NWRR design, costs and timetable. This will be included in a future report to Cabinet/Council.
- 9.5 The Council will now work with the Environment Agency and River Severn Partnership to launch a public consultation programme across Shropshire, but specifically within the Shrewsbury area to engage the public, business, parish councils and wider interest groups. This will ensure direct engagement with those small numbers of people potentially negatively affected.

10.0 Timeline

ACTIVITY	DATE
River Severn Partnership Developed	Sept 2019
Shropshire Council formal agreement to be part of River Severn Partnership	Nov 2019
Storm Ciara / Dennis	Feb 2020
Westminster debate on River Severn Flooding	Mar 2020
Consultant Technical & Economic Analysis	Apr – Jun 2020
Government Funding Announcement £40m	July 2020
Shropshire Council agreement for consultation on Shrewsbury Food Defence options	Sept 2020
Consultation & engagement	Sept - Dec 2020
Detailed analysis and options review	Jan 2021 onwards

11.0 Legal Implications

- 11.1 At this stage there are no specific legal implications arising from this report. Cabinet are being asked to support in principle the potential for flood relief measures north of Shrewsbury.
- 11.2 Support for aligning the NWRR and this initiative does involve developing a hybrid planning application which may affect timescales for that project. Pending acceptance of this report this will form part of a specific future report back to Cabinet/Council.

12.0 Key Delivery Risk Summary

Risk	Mitigation
Technical deliverability	Completion of detailed surveys, ground investigations and technical analysis is required to determine a whole range of geological and physical issues to inform the business case process

Government Funding could be withdrawn at any time due to national funding issues	Ongoing liaison with DEFRA nationally on a quarterly basis on project monitoring and forecasting, also ongoing local liaison with DfT stakeholder representative. This will allow the programme to be managed with maximum foresight of any changes to DfT funding allocations.
FBC with any increased costs and/or scope not accepted by DEFRA / HMT	To work to submitted OBC programme in establishing market costs and construction programme costs. Early engagement with DEFRA to be undertaken on establishment of actual construction costs, prior to FBC being submitted. Consideration of increased local funding contribution. Value engineering approach in latter design stages as required
Project delivery suspended / halted due to local changes in circumstance (financial, planning, Public Inquiry) leading to financial clawback	Establishment and management of local project risk register, ongoing engagement with Planning Authority and key stakeholders and rigorous pre-application preparation.
Compensation Scheme, land and asset acquisition being made by Shropshire Council / Environment Agency in advance of accepted FBC	All compensation, land acquisition agreements to be made pending, and subject to, the condition that FBC is accepted by DEFRA/HMT
Costs in FBC preparation exceed current OBC forecasts	Work programme and resource allocation to engineering, stakeholder engagement, traffic modelling, project management and pre planning preparation to be monitored and managed closely by RSP Project Board.
ESIA requirement as part of ongoing project delivery	To undertake ESIA most usefully in parallel with planned public and stakeholder engagement under the pre planning application process. Regular updates will be made as overall design elements are finalised
Compliance (perceived and actual) with Climate Emergency status, and Councils future carbon commitments	The Council's Lead Climate and Carbon Agenda officer and team are actively involved. An active role will be taken by this officer at the Project Board. This will in due course inform the project's approach taken through Planning, as regards

	<p>environmental mitigation, construction methodology, materials choices and post scheme monitoring to ensure compliance / potential betterment with wider Council aims.</p>
--	--

<p>Cabinet Members (Portfolio Holder) Leader</p>
<p>Local Members Cllr Ed Potter Cllr Lezley Picton Cllr Peter Adams</p>
<p>Appendices Appendix A – Unlocking Opportunities for the Severn Regional Growth Zone Appendix B - Unlocking Opportunities for the Severn Regional Growth Zone (Supplementary Report) Appendix C – River Severn: Flood Affected Areas</p>