

Environment & Economy Scrutiny Committee- 14th November

Shropshire Council and
Water Management

Areas of work

- Integrated Water Management (*River Severn Partnership*)
- Flood Management and Development (*Local Plan and Riverside*)
- Water Quality and Nutrient Neutrality (*Clun Catchment*)
- National thought leadership and Innovation (*Advanced Wireless Innovation Region*)
- Liaison with Severn Trent Water (*Strategic and operational engagement*)
- Liaison with Regulators (*Partnership working and statutory consultee*)

Flood Management and Water Security

- **Today flood zones across the catchment broadly affects...**
 - 117,000 homes
 - 10,250 business and 100,000+ jobs
 - 82,000 ha of agricultural land
 - 250km of main roads
- **Climate change impacts mean that by the year 2100 the River Severn...**
 - Will be on average 0.85m higher but up to 1.5m higher than current flood levels
 - But will be lower in summer – 25% less water available for abstraction
- **Frequency and severity of flooding is accelerating**
 - Three of worst five floods ever recorded happened in last four years
 - 1:20 year flood events have happened in each of the last three years



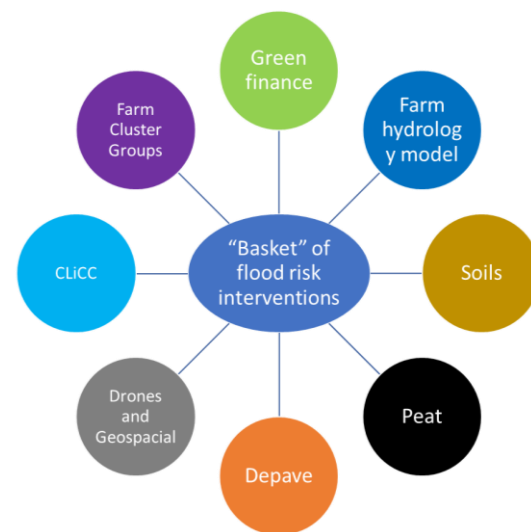
- ***SC jointly chaired-*** responding to a need to ***do things differently***
- National support ongoing ministerial engagement, all party MP Caucus, ***national award winner*** for LGC and MJ Awards 2024
- Secured ***over £50million to date and £4million in the last 12months***
- ***Strategic programme*** across whole River Basin
 - Engagement and lobbying
 - Short term delivery
 - Longer term strategy

Demonstrator Programme - Immediate Delivery and SC Led



The Demonstrators

Project Name	
<u>Guilsfield</u>	Natural flood management and soils
<u>Reabrook</u>	Nature based water management across the river catchment
<u>Perry and Peatlands</u>	Water storage potential in the farmed peatlands
<u>Morda –De-Pave</u>	Urban water management, blue-green spaces in town and villages
<u>Centre for Living with Climate Change - CLiCC</u>	Innovation, Education, Learning and Skills for the Future
<u>Geospatial</u>	Remote sensing and drone technology mapping catchments
<u>Attingham Estate Nature-Based Solutions</u>	Estate-wide nature-based water management
<u>Marches Future Farming</u>	Water management, farmer groups and future economics



2100+ Climate Resilience Strategy – collaborative change

- **SC partnership work** with regulators, water companies, local authorities etc
- Joint approach to **long term management** of flooding from all sources.
- Understanding of wider context- **alignment to growth plans, LNRS**

What's been happening?

The Environment Agency have worked with the River Severn Partnership to '*agree the scope of our climate resilience work which we can all commit to including*':

1. Partner views on what should be included
2. How partners will be involved
3. Shaping the approach of how we work together and with others

Agreed a data baselining group to help develop and shape the approach to Adaptation Pathway Planning in the Severn catchment

Next steps....

- Developing our **Full Business Case** to unlock further funding to develop this work
- 5th December – next partner workshop where we will be presenting draft **Adaptation Pathways** for our focus areas on the **River Avon** and **Upper Severn** for partner feedback



The Challenge



The amount of water we need to store upstream of Shrewsbury to protect against regular flooding will be in excess of 65 billion litres of water. That's roughly equivalent to filling...

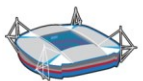
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Wembley
Stadiums

or

43

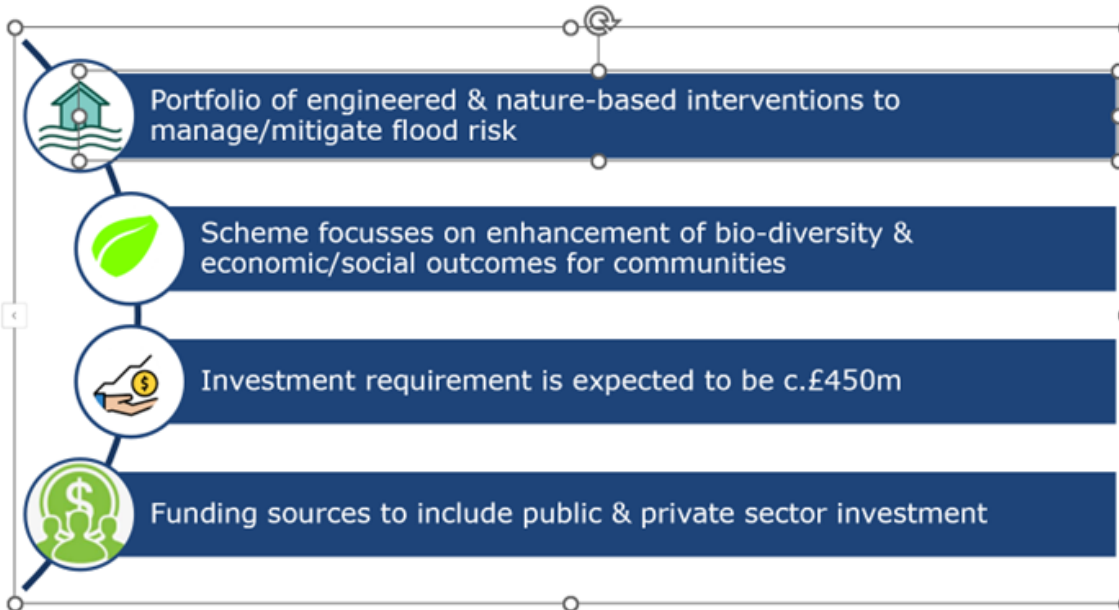
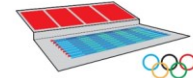


Principality
Stadiums

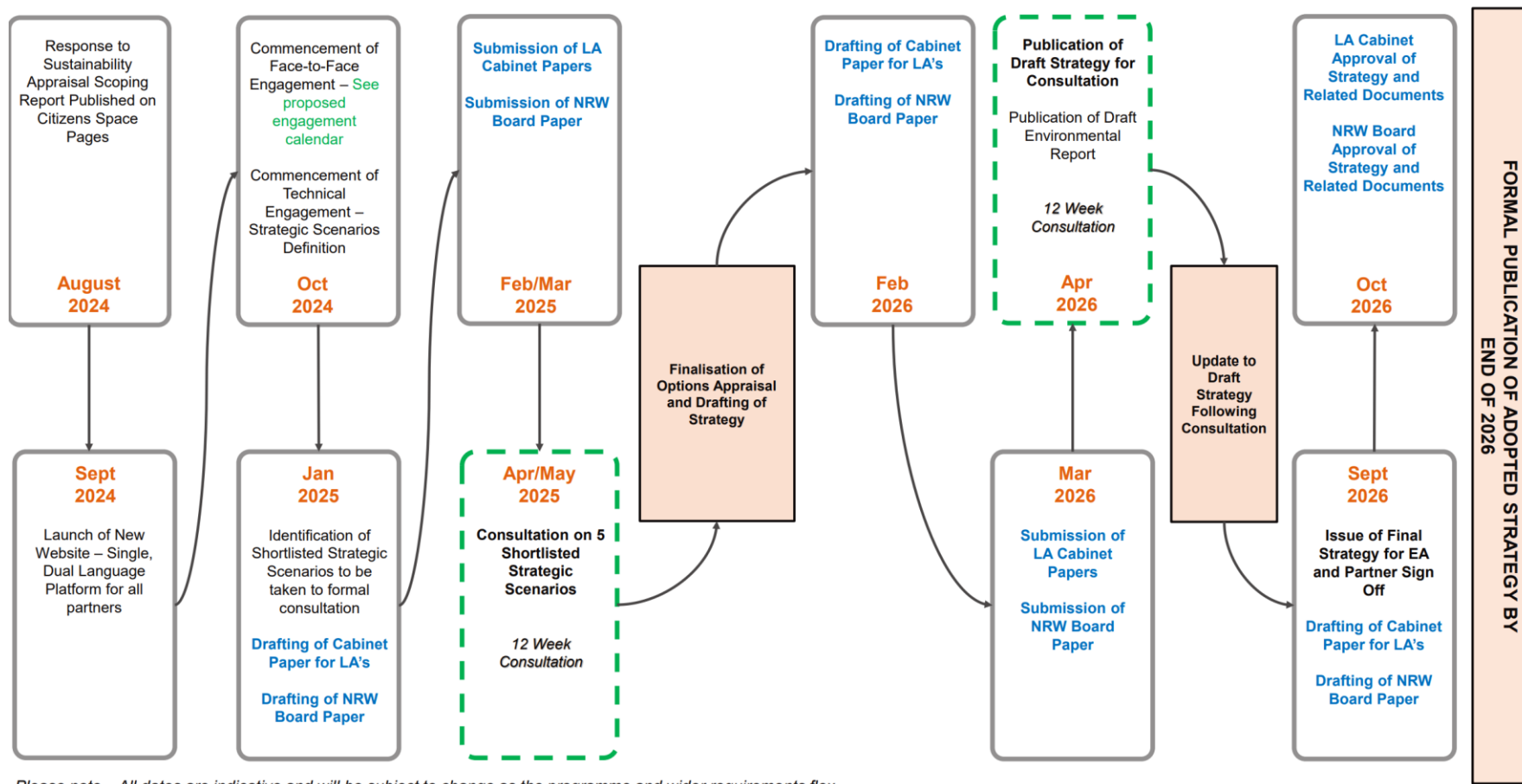
or

26,000

Olympic size
swimming pools



Simplified Engagement Timeline – Severn Valley Water Management Scheme



Please note – All dates are indicative and will be subject to change as the programme and wider requirements flex.

- SC part of **Joint Project Board**
- Leading **benefits, funding and finance**
- Partner engagement

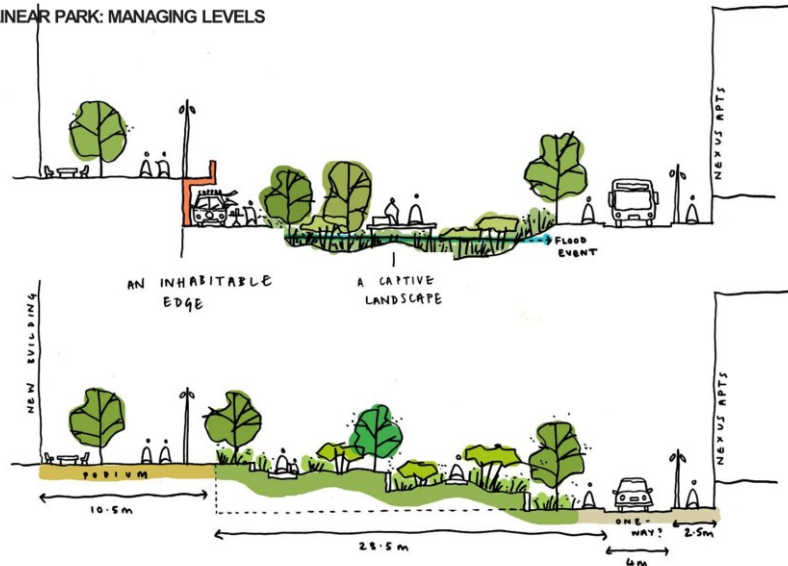
Flood Management and Development

- NPPF and integrated water management thinking is currently out of step:
 - NPPF requirement to model from the outset and assume future scenarios to design to.
 - Defra adaptive thinking to not lock in decisions but monitor climate changes over time and make decisions as need.

Riverside Redevelopment

- SC piloting an ***adaptive masterplanning approach***
- ***Joint work*** with Severn Trent Water (DWMP priority area) and Environment Agency

LINEAR PARK: MANAGING LEVELS



Proposed Linear Defence

Updates to make defence more feasible:

- Shorter (400m)
- Lower
- More benefits
- Find new ways of funding

ARCADIS



Water Quality and Nutrient Neutrality

- Historic focus on flood prevention and water resource management to solve issues with the river rather than seeing it as an integrated system.
- Nutrient neutrality impacts on Wye and Clun catchments with embargo on development (c350 dwellings in Local Plan).
- Point and diffuse sources contributing requiring interventions and long term cultural change.
- Lack of clarity on what we interventions can be used -restoration and/or mitigation.

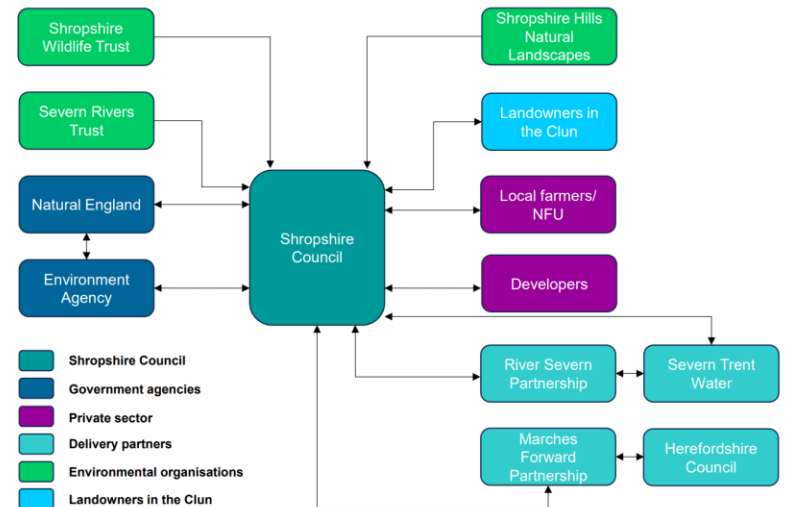
Clun Catchment Mitigation

- **SC lead role in mitigating nutrients** from proposed developments
- **Clun Liaison Group**- Regulators, Water Company and LA
- **Commissioned a mitigation options review** and draft implementation plan for preferred delivery model has been completed.

The summary of the assessments is shown below. Third-party schemes and third-party trading platforms are left blank as they failed to pass the gateway assessment.

Criterion	Weighting	A – Developer-led mitigation	B – Local authority strategic scheme	C – Third-party scheme	D – Local authority trading platform	E – Third-party trading platform
Deliverability	2	2.4	2.5		1.9	
Technical suitability	2	2.3	1.8		1.8	
Interface and dependencies	1	1.8	2.6		1.8	
Funding availability	1	1.7	2.3		2.0	
Weighted average score		2.1	2.2		1.8	
Normalised score		1.0	1.2		1.0	

Figure 6-2: Key stakeholders and delivery partners



Clun Catchment Water Quality



- **Funded by the RSPAWIR**
- **Baselining and real-time monitoring of phosphate levels in the River Clun**
- **Evidencing the effectiveness of sediment traps**
- **Endangered freshwater pearl mussels at risk of marginal nutrient imbalances**
- **Measurement needs to be highly accurate**

The project will

- **Demonstrate the potential to replicate manual testing**
- **Help unlock sustainable housing development**
- **Supplementary projects in North Shropshire (& Worcs)**

Innovation

- SC thought leadership- Flood and Coast, Adept, RICS, RTPI
- Treasury visit and ongoing engagement with minsters and Defra SoS
- Marches Forward Partnership positioning as a Trailblazing Green Growth Region
- £3.7million secured for RSP Innovation Region for Advanced Wireless and now in discussions about potential to extend.
- Defra cross water policy lead support- focus on governance
- Interest from NIC and NICW

RSPAWIR Use Cases & Projects



WATER

- Precision Irrigation
- Smart Abstraction
- Rainfall Nowcasting
- Real-time Water Quality Measurement



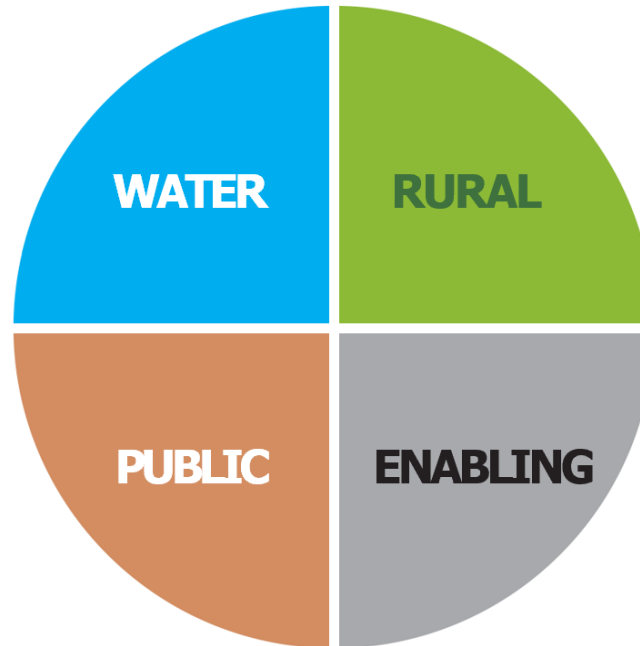
RURAL

- Digital Innovation Farms
- Agricultural Roadshow
- Ammonia Reduction
- Agri-tech on Commercial Farms



PUBLIC

- Digital Champions
- Policy in a Box
- Small Scale Use Cases

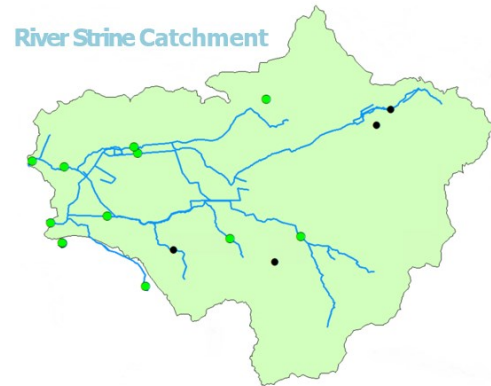


ENABLING

- Coverage Survey
- Booster Loan
- Small Grants
- Use Case Concept support

Sub Catchment Smart Abstraction

- Wireless sensors providing real-time guidance of when to “scalp” & when to “spill”
- Led by Cranfield University & involving 10 local landowners
- Fully Operational – Generates data at 15 min intervals from new & existing sensors
- Combining new & historical data to build a predictive hydrological model
- Significant potential for water resource & flood management if scaled up



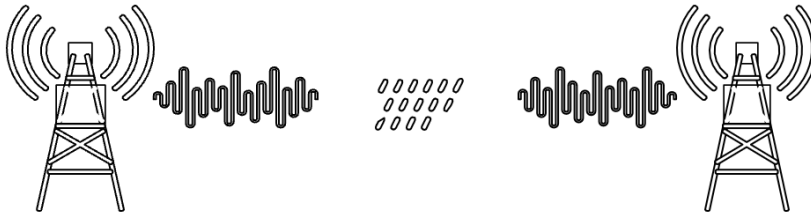
Precision Irrigation

- Real-time irrigation using weather, soil moisture & evapotranspiration sensors
- Led by Cranfield University with the University of Cordoba
- Operational since June at PDM south of Shifnal
- Building a data led Irrigation Management System
- Aiming to boost yield by 10% and reduce energy and water costs



Network as a Sensor

- Partnership with Vodafone
- Low atmosphere virtual rain gauges
- Adding to radar & ground surface water measurements
- 170 datapoints
- Working with the Met Office and local groups to
 - Improve weather modelling
 - Find new ways to exploit the data
 - React to real time rainfall events
- Clear links to other use cases & Local Authority Flood Response

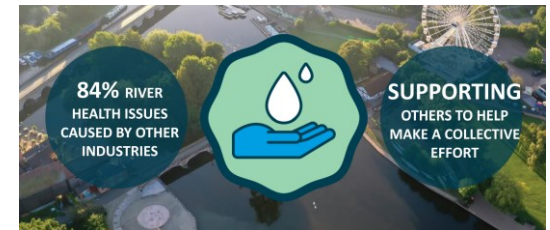


Engagement and Influence

Severn Trent Water

Strategically-RSP Board, Local Plan, Clun but more to do

Operationally- Effective joint working on flood events and with projects



Environment Agency

Strategically- RSP Joint Chairs, Clun

Operationally- statutory consultee, partnership projects but more to do

Further information

<https://www.riverseverpartnership.org.uk/>

(River Severn Partnership, Demonstrator Projects, Advanced Wireless Innovation Region)

<https://severnvalleywatermanagementscheme.commonplace.is/>

(Severn Valley Water Management Scheme)

<https://engageenvironmentagency.uk.engagementhq.com/river-severn-partnership-adaptation-pathway-project?preview=true>

(Climate Resilience Strategy)