United Utilities Water

Drainage and Wastewater Management Plan

Wyre DWMP

Document Reference: SPA_14

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United Utilities

Water for the North West

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Glossary

For the glossary, refer to document C003.

1. Introduction to DWMP

The Drainage and Wastewater Management plan (DWMP) is a long-term plan setting out how we intend to maintain robust and resilient drainage and wastewater systems, now and in the future. Whilst long term planning for wastewater has always been undertaken, this is the first time that we are developing a region wide plan in this format, and we have taken a comprehensive approach as we recognise the importance of long-term planning and the increasing need for partnership solutions.

The heart of the plan will be built around collaborative and innovative working, while encompassing all activities relating to drainage, flooding and delivering a wastewater service that protects the environment. We have led on this plan, but have developed it in consultation with our partners as we will be delivering the DWMP in partnership with other organisations such as the Environment Agency and local councils.

By developing the DWMP, we have an opportunity to:

- Provide a basis for more collaborative and integrated planning alongside stakeholders across the region to tackle shared and interrelated risks relating to drainage, flooding and protecting the environment;
- Strengthen partnership working with all key stakeholders to drive integrated investment in the environment and communities;
- Develop a plan that will help address the increasing environmental expectations from customers and stakeholders and work towards the ambitions set out in Defra's 25-year plan;
- Collectively explore innovative solutions such as Sustainable Drainage Systems (SuDS) and nature-based solutions to understand what is best for the North West; and
- Embed Systems Thinking to better understand drainage and environmental interactions, and to maximise the potential for integrated solutions.

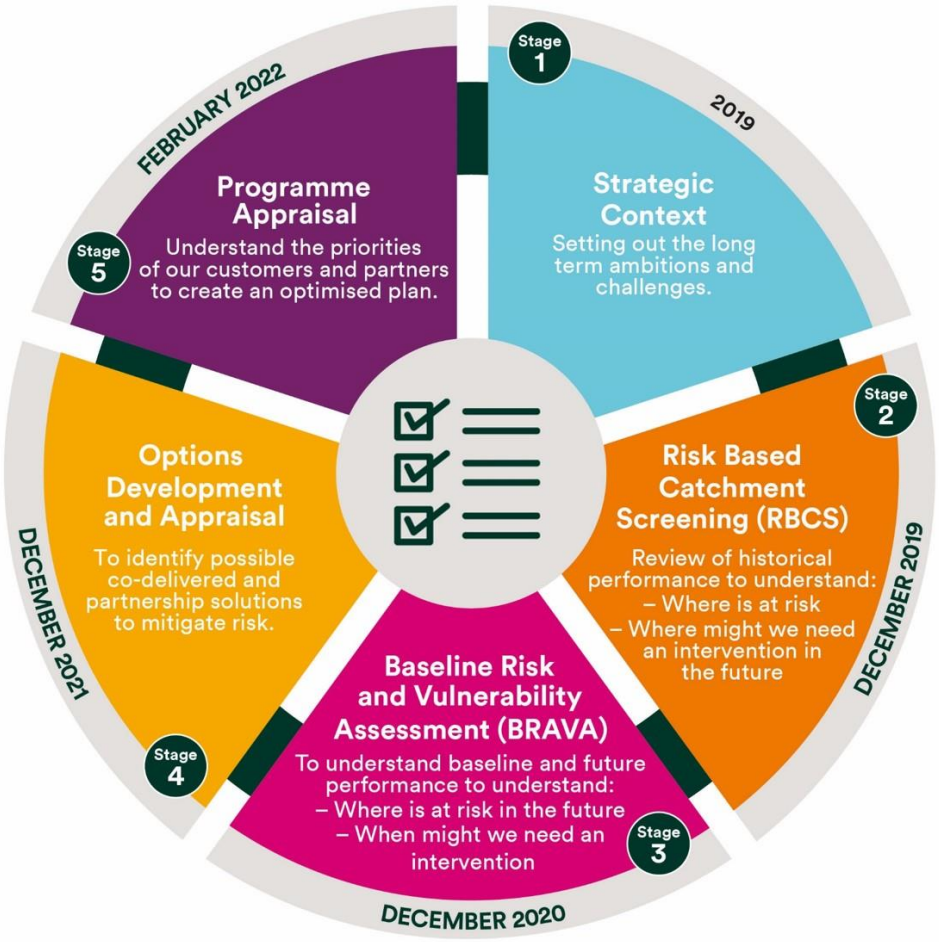
Throughout the DWMP process, we have engaged with stakeholders to share our data and findings, to ensure that the solutions delivered are co-created, drive efficiencies and will benefit the communities and environment that we live and work in.

The plan will be set out at three levels (Figure 1) to maximise the potential for partnership working and for effective engagement between regulators and stakeholders at both company-wide level and more locally.

Figure 1 Geographical scales applied for planning and collaboration within DWMP

The plan is made up of five main stages (Figure 2) which each contribute to developing the most sustainable and effective future for the North West. These stages include setting out the long-term ambition for the region, identifying risk and understanding the possible interventions and solutions that could be developed.

Figure 2 Five stages of the DWMP



Across the North West, there are 14 Strategic Planning Areas (SPAs) and the purpose of this document is to share local, place-based information.

We will share the results from the different stages of the DWMP and how the DWMP plans to make a difference in the Wyre SPA.

2. Background to the Wyre catchment

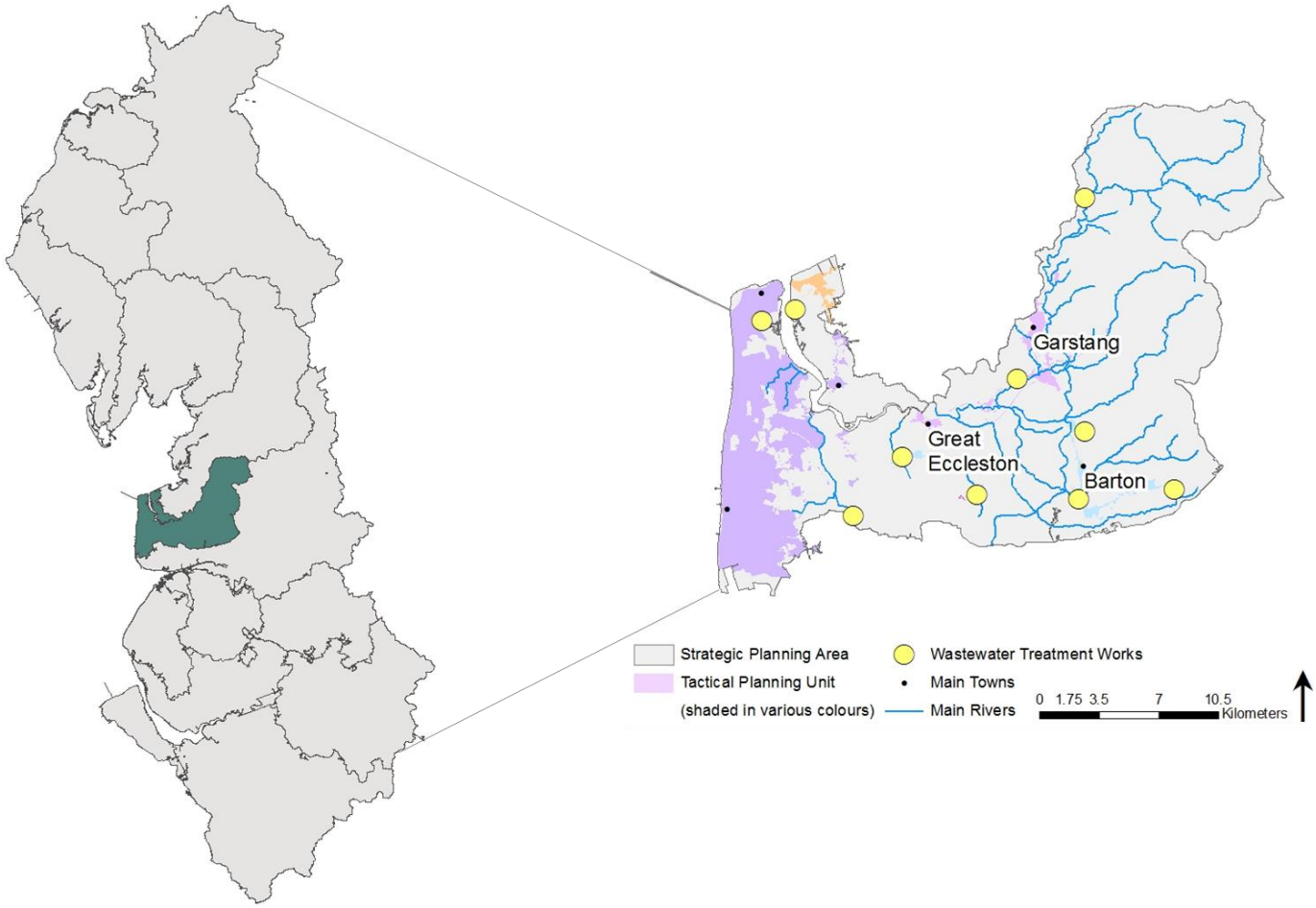
The Wyre catchment is located in North West Lancashire, it borders both the Lune and the Ribble catchment areas and is centred on the Bowland Fells. The majority of the Bowland Fells are located within the Forest of Bowland Area of Outstanding Natural Beauty. It is a mixture of industrial and agricultural land [1].

There are three main sub catchment areas:

- Brock and Trib – Located under the Lancaster canal, with the M6 and A6 roadways intersecting these waterbodies. It is popular area for residents and tourists due to the presence of Bleasdale Fell and Brock Bottom [2].
- Fleetwood Peninsula Trib – Located near the Wyre estuary, this catchment is a mixture of residential, agricultural and industrial land [3].
- Wyre and Calder – Located between the headwaters Wyre through to St. Michaels on Wyre, the area is mostly used for sheep farming [4].

There are 10 wastewater tactical planning units (TPU, also known as wastewater treatment work (WwTW) drainage catchments) within the Wyre SPA. A TPU is the drainage area including all the sewers and wastewater assets e.g. pumping stations, which drain to the associated wastewater treatment works. The TPUs within the SPA vary in size from larger catchments such as Fleetwood to smaller, rural catchments such as Elswick. The TPUs are highlighted in Figure 3.

Figure 3 Map of the Wyre SPA



There are numerous strategic management plans within the Wyre that are owned by various other organisations. Within the Wyre catchment, there are active management plans such as:

- The Environment Agency River Basin Management Plan (RBMP) and Flood Risk Management Plan (FRMP);
- Lead Local Flood Authority (LLFA) Surface Water Management Plans (SWMP);
- North West and North Wales Coastal Group Shoreline Management Plan (SMP); and
- Local council plans.

Each of these strategic plans focuses on managing particular risks and links to programmes of work. A high-level summary of these management plans is shown in Table 1.

The DWMP aims to collaborate, share best practice and to align with other strategic plans throughout the catchment. This will help to highlight common challenges, ambitions and goals where there are shared or interconnected risks and opportunities.

Table 1 Summary of stakeholder management plans

Management plan	Overview	Key aspects for the Wyre catchment
River Basin Management Plan (RBMP) [5] Owner: Environment Agency	A river basin district covers an entire river system, including river, lake, groundwater, estuarine and coastal water bodies. The RBMP aim is to improve the quality of our water environment to best support wildlife, agriculture, and businesses, and to boost regeneration and recreation.	The main reasons for not achieving good ecological status are due to pollution from rural areas, and to a lesser extent physical modifications, pollution from towns, cities, transport and wastewater. Future challenges predicted by the Environment Agency include invasive non-native species, changes in natural flow and water levels, physical modifications and pollution from agriculture and rural areas. Future challenge predicted by partnerships include invasive non-native species, physical modifications, pollution from agriculture and rural areas.
Flood Risk Management Plan (FRMP) [6] Owner: Environment Agency	The FRMP is a strategic plan, which reviews and develops measures to manage the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. The plan outlines flood risk areas, hazards, and sets out measures and objectives to manage flood risk.	The catchment is within the North West River Basin District (RBD). The area covers approximately 13,200km^2 and is occupied by close to seven million people. More than 370,000 of these people being at risk from flooding by rivers and the sea with a further 600,000 people at risk of surface water flooding. Around 35,000 people are thought to be living in areas that are deemed high risk of flooding from surface water with a further 97,500 at a moderate risk. 31,000 people are living in areas at are high risk of flooding due to rivers and the sea with a further 46,500 at a moderate risk. Areas of significant flood risk across the North West include Ambleside, Ashton under Lyne, Atherton, Blackburn, Burnley, Ellesmere Port, Formby, High Folds, Kendal and Liverpool. The North West RBD has a total of 800km of highly dynamic coastline demonstrated through areas such as Sefton which coastline is eroding by up to 4m per year. There are a large amount of reservoirs credited to its industrial history, there are currently approximately 290 in the RBD that are classed as large raised reservoirs. 300,000 people are at risk of flooding from reservoirs in the North West RBD.
Surface Water Management Plan (SWMP) [7] Owner: Lead Local Flood Authority (LLFA)	A SWMP is a plan which outlines the preferred surface water strategy for a location. Although owned and led by the LLFA, a SWMP is produced in collaboration with other drainage owners, water companies included. Partners work together to understand the surface water flood risk in an area and agree an approach to address these issues innovatively and in a cost-effective way, and where appropriate, in partnership. A SWMP is a long-term plan and should influence development. The decision on whether a SWMP is appropriate is down to the LLFA, generally they are produced for areas considered to experience a high flood risk. UUW continues to work closely with LLFAs and supports the development of SWMPs where required, and the delivery of SWMPs where they are published.	

Management plan	Overview	Key aspects for the Wyre catchment
Shoreline Management Plan (SMP) Owner: North West and North Wales Coastal Group	The SMP is a non-statutory, high level policy document for coastal flood and erosion risk management planning that was formally adopted in August 2016. It provides a large-scale assessment of the risks associated with coastal processes and helps to reduce these risks to people and the environment by identifying the most sustainable policies for managing flood and coastal erosion risks in the short term (0–20 years), medium term (20–50 years) and long term (50–100 years).	Hold the line approach in Rossall: • The Rossall scheme was identified in the Fylde Peninsula Coastal Programme. It is a £63million scheme which involved the replacement of concrete seawall to reduce the risk of flooding to 7,500 residential properties, major highway and tramway infrastructure, sewerage pumping station and public utilities. Wider benefits include benefits to tourism and recreation and the natural environment.
Catchment Based Approach (CaBA) Catchment Plan [5] [8] Owner: Wyre Waters Catchment Partnership	The aim of the partnership is to bring together stakeholders to create and deliver a focussed, sustainable and collaborative action plan to deliver benefits within the catchment.	The catchment partnership aims to support a thriving Wyre catchment that is home to a wide range of species that is resilient, and supports communities. They aim for a catchment that is home to natural environmental processes that are not impacted by pressures such as pollution, non-native species and flooding. The main issues in the catchment are due to point source and diffuse pollution, unsustainable abstraction, invasive non-native species, surface water, fluvial and coastal flooding, and channel modification resulting in habitat loss and barriers to migration.

2.1 Strategic Planning Group (SPG)

We appreciate that there are many organisations with formal roles and responsibilities relating to drainage, flooding and protection of the environment. By participating in the creation of a DWMP much more can be achieved compared to working on our plans in isolation.

Within DWMP, SPGs have been a key form of engagement with stakeholders across the region. SPGs have operated at a local, catchment scale to allow stakeholders to input into the identification of priority and shared risk locations, and develop an understanding of potential collaborative solutions to tackle shared risks. The SPGs have covered a wide range of issues including reducing flooding and improving water quality. A key driver is understanding where there may be potential to achieve multiple benefit through solutions.

Through the SPGs, we have been able to consult with strategic partners on the various stages of the DWMP (Figure 4) and share outputs as and when they become available. This has been a two-way process and stakeholders have had the opportunity to share information with us such as action plans, confirmed projects, priority areas and ambitions for the future which could be developed and delivered in partnership. We have been able to review and incorporate the information shared during the different stages of the DWMP process.

Within the Wyre catchment, we have engaged with stakeholders such as:

- The Environment Agency;
- Lancashire County Council;
- Fylde Council;
- Blackpool Council; and
- Wyre Rivers Trust (host of the Wyre Waters Catchment Based Approach (CaBA) partnership).

More information on co-creation activity undertaken with the SPG can be found in Technical Appendix 2 - Stakeholder Engagement (TA2). The outputs from this activity in the Wyre catchment are outlined in section 4.1.

Figure 4 DWMP framework for engagement

3. Risk identification

A key component of the DWMP has been around risk identification. This has been a mixture of both historical risk and forecast risk. Activities to understand this were completed through the Risk Based Catchment Screening (RBCS) and Baseline Risk and Vulnerability Assessment (BRAVA) stages. We have also undertaken numerous additional assessments to understand wider resilience and catchment risks.

Further detail on the approaches can be found in Technical Appendix 4 - Risk Based Catchment Screening (TA4) and Technical Appendix 5 - Understanding Future Risk (TA5).

3.1 Risk Based Catchment Screening (RBCS) and Horizon Scan

The RBCS stage is a series of high-level assessments that are used to review and screen each TPU to determine whether a more detailed assessment is required during the Baseline Risk and Vulnerability Assessment (BRAVA) stage.

The assessments are designed to span the key aspects of a wastewater company's responsibilities: from the network, to the treatment works, to its interaction with the environment. Examples of the assessments considered are internal sewer flooding, storm overflow performance, and pollution incidents. The assessments typically used three to five years of historical data.

Additional assessments termed 'horizon scanning' were undertaken to understand wider exogenous factors and opportunities that could inform future investment e.g. major infrastructure projects, private septic tank locations and potential major infrastructure projects (HS2 etc). Areas with potential future developments were also considered and further information on projected growth areas can be found within the associated Local Plans.

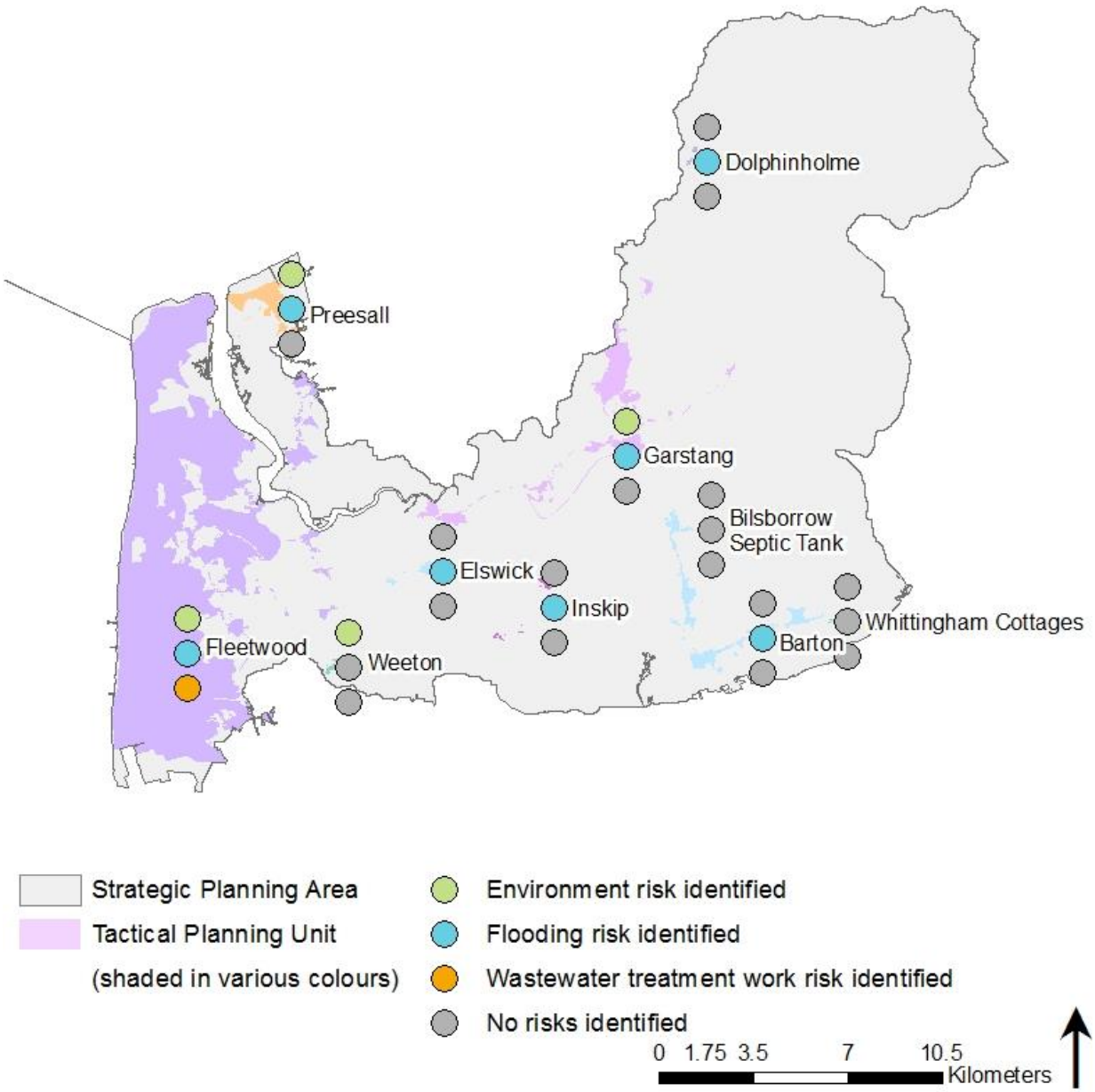
Within the Wyre catchment, the RBCS stage identified 8 out of 10 TPUs that required further investigation and therefore passed onto the BRAVA stage (outlined in section 3.2).

Figure 5 indicates which of the RBCS categories (environmental, flooding and wastewater treatment works capacity) have triggered within each TPU. Environmental and flooding categories are the most common within the Wyre, which is supported by the highest triggered RBCS assessments which are:

- Storm Overflow Assessment Framework - (4/10) – Environment; and
- External Sewer Flooding - (7/10) – Flooding.

Further detail on the approaches and assessment results can be found in Technical Appendix 4 (Risk Based Catchment Screening).

Figure 5 Map of the RBCS results for the Wyre. Risk categories indicate areas triggering further investigation following RBCS



3.2 Baseline Risk and Vulnerability Assessment (BRAVA) and Resilience

The TPUs that were identified during RBCS were then taken forward into BRAVA, which aims to assess the baseline and future position of system performance against the DWMP planning objectives, to understand where there may be issues. It is also to understand wider resilience issues that could also impact upon the DWMP planning objectives. This stage considers risk at 2020, 2030 and 2050 design horizons.

In addition to BRAVA, a range of resilience assessments were undertaken and will have been incorporated throughout the plan to allow us to expand our understanding of wider core risks, such as how the water quality of rivers may change as a result of climate change. We have also assessed risks such as fluvial and/or coastal flooding and fluvial and/or coastal erosion and land stability.

Further detail on the approaches and assessment results can be found in TA5 and Technical Appendix 6 – Resilience (TA6).

The BRAVA and resilience results for the Wyre catchment are outlined in Table 2 to Table 5.

Table 2 Environmental BRAVA results

Tactical Planning Unit	Environmental					
	Pollution Assessment	Storm Overflow Performance		Bathing and Shellfish Spill Assessment		
	2020	**2020**	**2050**	**2020**	**2030**	**2050**
Barton						
Dolphinholme						
Elswick						
Fleetwood						
Garstang						
Inskip						
Preesall						
Weeton						

BRAVA	
	No concern (forecast)
	Potential area of focus (forecast)
	Area of focus (forecast)
	Not assessed / Not applicable

Table 3 Flooding BRAVA results

Key

No concern (forecast)

Potential area of focus (forecast)

Area of focus (forecast)

Not assessed

Tactical Planning Unit	Flooding												
	Internal Flooding Risk			External Flooding Risk			Sewer Collapse Risk	Risk of flooding in a storm (1:50yr)		Flooding of open spaces			Blockage Assessment
	2020	2030	2050	2020	2030	2050	2020	2020	2050	2020	2030	2050	2020
Barton													
Dolphinholme													
Elswick													
Fleetwood													
Garstang													
Inskip													
Preesall													
Weeton													

Table 4 Wastewater treatment works BRAVA results

Tactical Planning Unit	Wastewater treatment works		
	Risk to wastewater treatment works (WwTW) capacity		
	2020	2030	2050
Barton			
Dolphinholme			
Fleetwood			
Garstang			
Inskip			
Preesall			
Weeton			

BRAVA	
	No concern (forecast)
	Potential area of focus (forecast)
	Area of focus (forecast)
	Not assessed

Table 5 Environmental and flooding resilience results

Tactical Planning Unit	Resilience Assessment		
	Environmental		Flooding
	Potential for changes in the water quality of rivers as a result of climate change	Potential for changes in catchment contributions as a result of climate change	Outfall locking
	2050	2050	2020
Barton			
Bilsborrow Septic Tank			
Dolphinholme			
Elswick			
Fleetwood			
Garstang			
Inskip			
Preesall			
Weeton			
Whittingham Cottages			

Resilience	
	More resilient
	Less resilient
	Not assessed

3.3 Problem characterisation

3.3.1 Complex catchment

Complex catchments were determined through problem characterisation using a combination of a complex and strategic catchment scores based on strategic need (largely derived from growth and climate forecast models) and modelled risks in each of the TPU (largely based on BRAVA).

Within the Wyre, no TPUs were identified to be 'complex' based on problem characterisation.

3.3.2 Strategic growth catchments

Through the various risk identification assessments, a number of locations were identified through opportunity workshops that require more strategic analysis. These are areas with high growth, a high number of risks and multiple potential scenarios. Different bespoke scenarios are applied to strategic catchments based on the needs and drivers of the catchments to understand the variability of risk as a first step for optioneering, so that the range of options developed can mitigate a different range of scenarios.

As a result of this assessment the following TPUs in the Wyre catchment have been identified as having 'strategic growth':

- Fleetwood Marsh.

3.3.3 Fleetwood Marsh

The Fleetwood Marsh TPU is in the west of the Wyre catchment along the coast (Figure 6). The TPU covers two large urban towns, serving a residential population of over 230,000 people and just under 108,000 properties, with approximately 2,600km of complex sewerage network that drains to Fleetwood Marsh Wastewater Treatment Works in the North of the TPU. Watercourses are classified as 'moderate' under the Water Framework Directive (WFD) 2019, which includes the Hillylaid Pool / tidal Wyre, which drains into the River Wyre estuary, and there are a number of designated bathing waters.

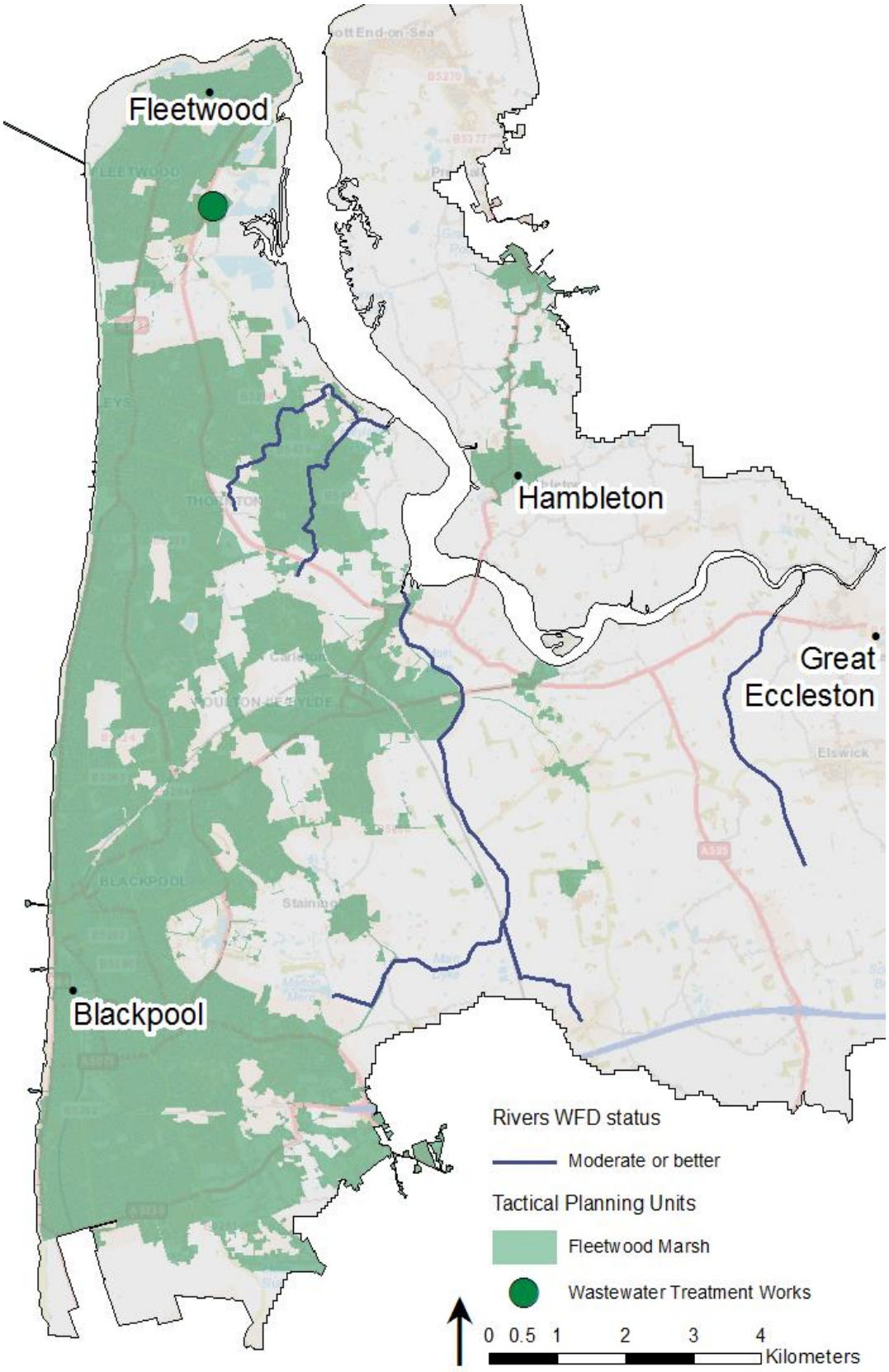
Fleetwood Marsh is a strategic TPU as a result of multiple modelling scenarios and a variety of possible options, with different adaptive pathways. The area is at risk from both coastal flooding and inland fluvial flooding from the Wyre, and significant risks were identified for internal (property) flooding, external flooding, sewer blockages, sewer collapses, and pollution.

This is against a backdrop of significant population growth, with the population projected to increase 8% by 2050, possibly driving new development and an associated increase in wastewater being sent to the wastewater treatment works. The majority of the sewer network is a combined system where surface water and wastewater are not separated, therefore surface water run-off from additional properties and paved surfaces will likely increase pressure on our network.

The Government's Storm Overflow Discharge Reduction Plan (SODRP) was published in August 2022, which we have aligned with through both the Water Industry National Environment Programme (WINEP) and DWMP development. This could lead to significant changes and investment to both wastewater treatment works and the drainage network.

Note: At the time of DWMP publication, the WINEP was not confirmed by regulators so is likely to change.

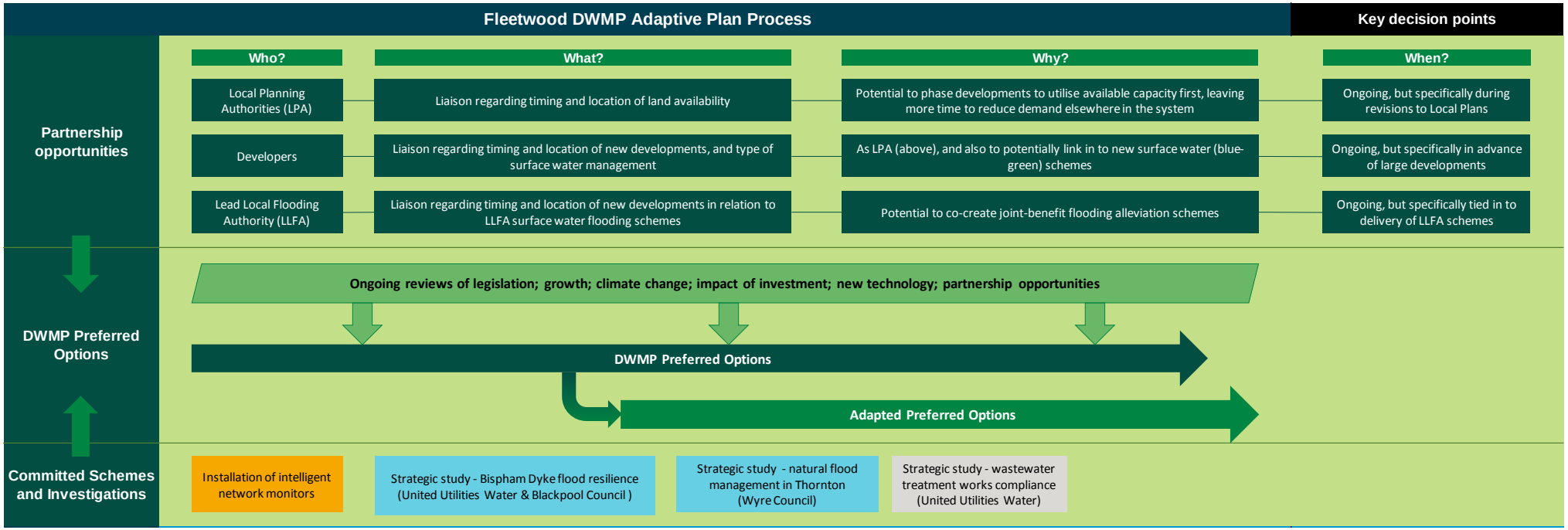
Figure 6 Map of the Fleetwood Marsh TPU



3.3.3.1 Fleetwood Marsh adaptive plan

The first part of the adaptive plan process (Figure 7) highlights the importance of partnership working and regular data reviews.

Figure 7 Fleetwood Marsh adaptive planning process



In a catchment where growth is a significant factor in future performance, it is key to maintain regular conversations with those stakeholders that have knowledge about future developments and can potentially influence their impact. Key organisations include:

- Local Planning Authority;
- The Environment Agency;
- Lead Local Flood Authorities; and
- Housing developers.

The DWMP plan for each TPU is developed based on a number of data sources. Some of these are prone to change over time, which means that original assessments can become out of date. As data from these sources change, it makes sense to re-evaluate the DWMP plan to check the impact on the plan. Examples of data that change over time are shown in Table 6.

Table 6 Examples of data that change over time and can impact upon the plan

Type of data or information	Possible impacts of changes
Government legislation	More or less stringent requirements or regulations, which may require different levels of investment, and policy changes that may drive better or worse incentives on demand.
Development growth projections	These will vary with time in line with economic conditions, changing demographics, or government policy. This can result in the number of new houses and businesses growing at a different rate than originally forecast.
Climate change projections	As more climate data becomes available, climate projections are modified, which may indicate changes to temperature and rainfall patterns.
Impact of investment	As new drainage schemes or new strategies are implemented, we will continue to evaluate their performance. If they turn out to be more or less successful than anticipated, this may allow the extent of another option type to be reduced or increased accordingly.
Development of new technology	Over time, new technology provides opportunities to address and resolve risks differently, or more efficiently.
Partnership opportunities	We will work closely with key stakeholders to address risks jointly. Over time, these stakeholders may see changes in their own risks and funding levels, which may present opportunities for greater collaboration.

Figure 8 shows the second part of the Fleetwood Marsh adaptive plan, reflecting the different option types identified as being appropriate for Fleetwood Marsh. Each line represents a different option type – e.g. schools education programme. The plan shows that each option type will be regularly reviewed in line with the method described in part one. This allows new information and opportunities to be used to adapt the plan by either increasing or reducing the extent of some option types.

Within Fleetwood Marsh, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

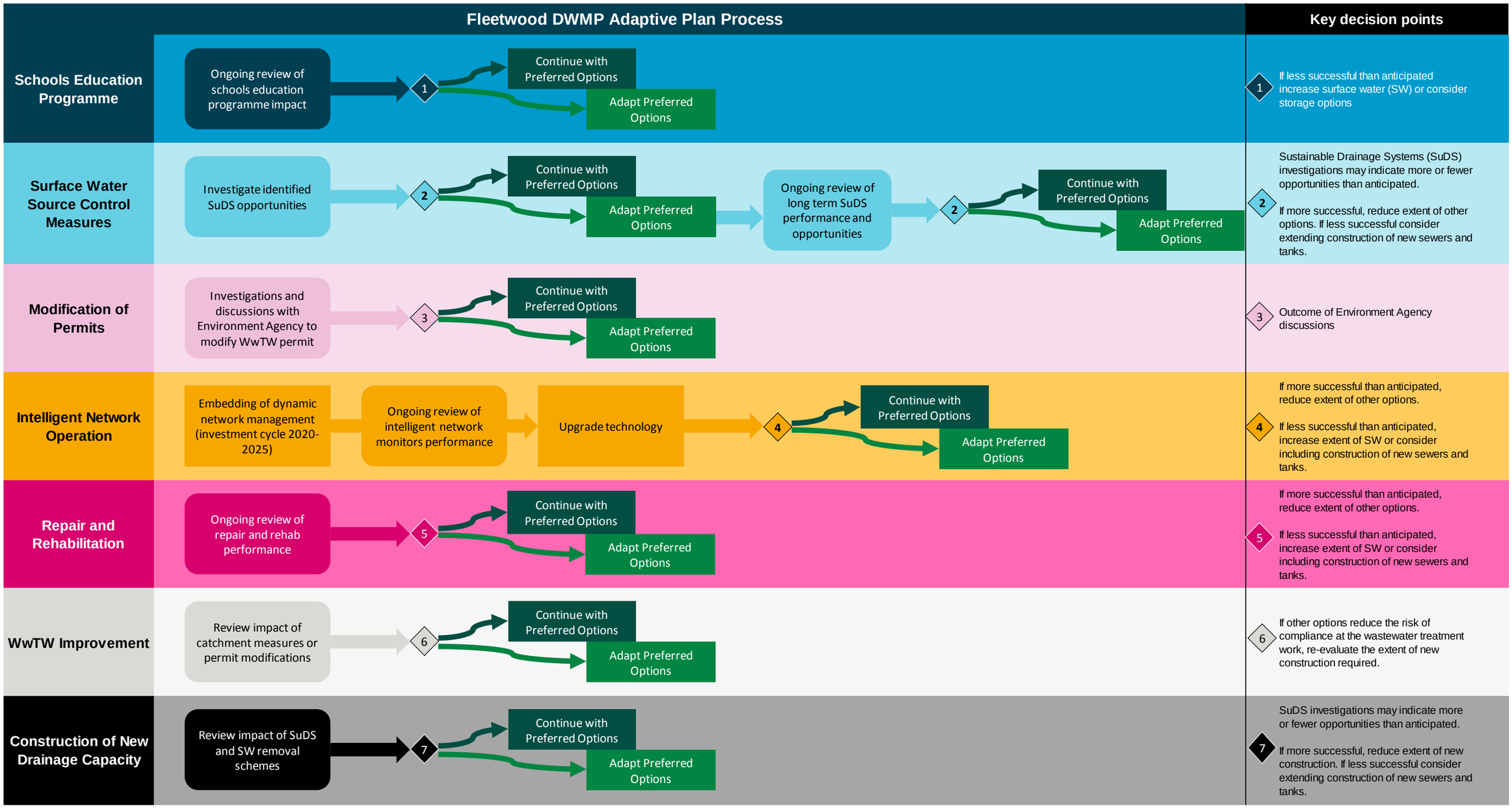
- Technical feasibility;
- Benefit of the work;
- Customer impact;

- Environmental impact; and
- Cost

The adaptive plan below demonstrates multiple potential scenarios and pathways, and should be read in conjunction with the optimised DWMP plan for the relevant TPU (refer to section 5.2).

The adaptive plan should be reviewed regularly in order to incorporate potential changes in key factors such as legislation, population growth and climate change, which could impact standards or targets, as highlighted in Figure 7. The adaptive plan may contain potential investigations which are currently excluded from the optimised DWMP plan (refer to section 5.2) until there is more certainty. It is therefore important that both the adaptive plan and the optimised plan are developed together.

Figure 8 Fleetwood Marsh adaptive plan – Possible adaptive pathways as knowledge and opportunities change over time



4. Options development

The approach for options development is an iterative screening process to identify most appropriate solutions for issues in each TPU. These solutions were taken forward for a best value assessment which will select the preferred option (Figure 9).

An options hierarchy was then used which has been endorsed by customers and stakeholders from across the North West to select preferred solutions (Figure 10). The hierarchy covers a range of option types from behavioural, to blue-green solutions e.g. SuDS and traditional grey solutions e.g. storage tanks across benefits such as reducing demand, better system management and creating capacity.

A key element to this has been built around co-development, co-funding and co-delivery through partnerships and third parties (for instances where a specific skill set is required).

Figure 9 Options development process

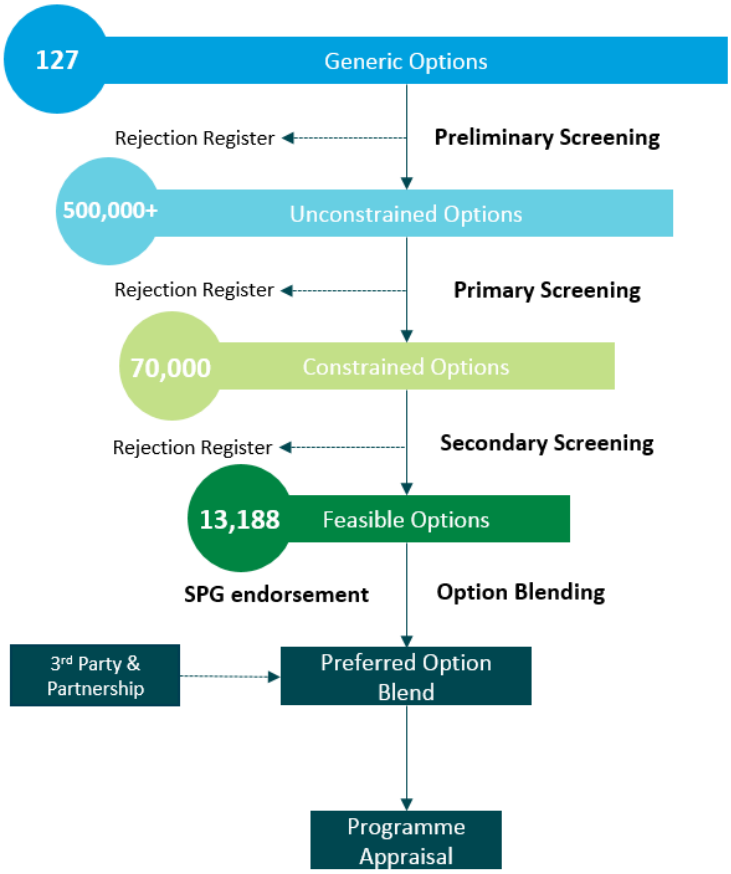
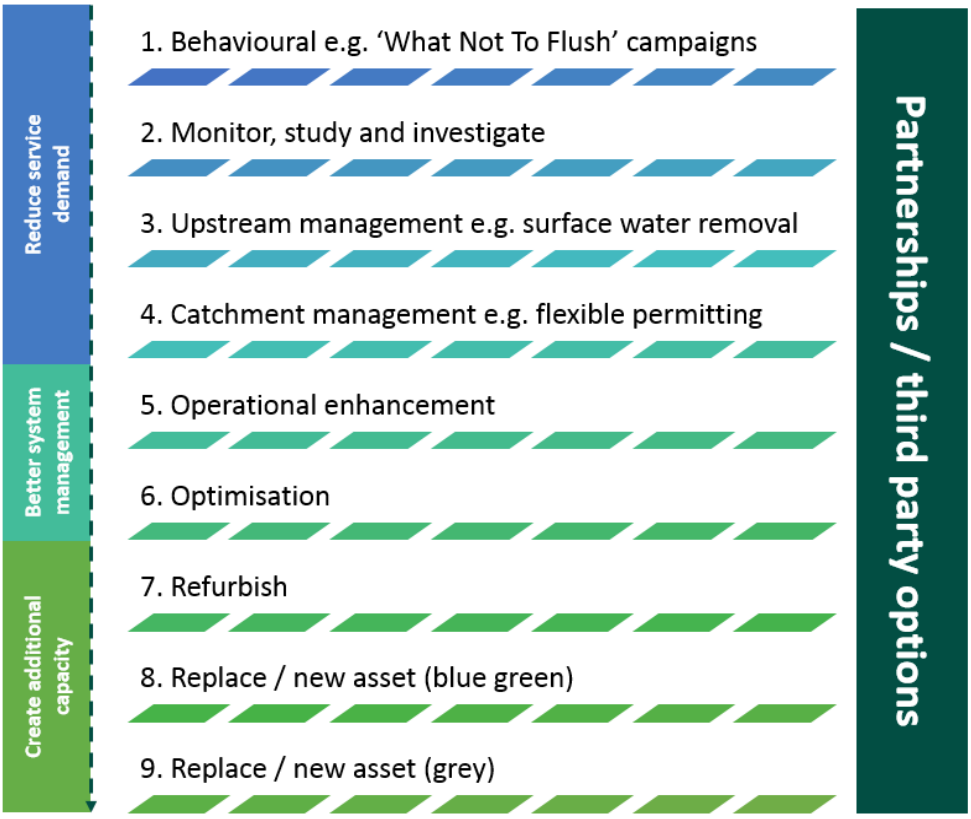


Figure 10 options hierarchy



4.1 Wyre partnership opportunities

In order to identify and develop potential partnership options in the Wyre, through the SPG we have shared the results from the risk identification stages such as BRAVA. This was done through a series of workshops and the purpose was to identify areas of shared risk and partnership opportunities.

The DWMP Partnership Opportunities Pipeline (PoP) was consequently created using the outputs of this engagement. The pipeline includes opportunities at a range of different levels of maturity and confidence in development, as such these are not confirmed or funded schemes at this time. However, they provide an indication of areas where we may be able to work collaboratively with stakeholders in the future when more certainty is available on need and funding.

From the initial suggestions made during the SPG workshops, the DWMP PoP has undergone various refinements as summarised below:

- Where possible, the potential partnership opportunities were mapped and this created over 1,000 opportunities for further investigation. The suggestions were screened depending on the opportunities timescales, proximity to UUW assets and the level of detail. This allowed UUW to refine the opportunities, which were believed to have the most potential;
- This refined list was presented back to the SPGs for updates, review and discussion. This further discussion allowed additional benefits to be identified and better mapping. This was particularly important for potential integrated drainage partnership opportunities as it helps to understand the holistic picture of the flooding mechanism. This refined the list further to approximately 500 potential partnership opportunities;
- Following the SPG events, we mapped the updated DWMP partnership opportunities against asset locations and UUW areas of interest e.g. flooding clusters and mutual natural flood management, to identify those most suited to the DWMP. This produced the list of key DWMP partnership opportunities; and
- The key list of opportunities have been reviewed against the wider DWMP options development process.

The remaining opportunities that did not make it into the key DWMP PoP, for example in areas with no wastewater assets, were captured in our organisation-wide partnership opportunity pipeline where they are considered alongside all other partnership opportunities. Another key reasons for opportunities not being included in the DWMP PoP is where projects may be more imminent as the DWMP is a longer-term plan.

Examples of potential partnership opportunities that were shared during the Wyre SPG workshops are shown in Figure 11 and Table 7.

We are further developing the organisation-wide partnership opportunity pipeline and are developing a central partnership prioritisation process which comprises of two elements; the partnership solution identification stage and a specific partnership assessment activity which aims to support decision making for partnership schemes against a set of specific criteria. This will allow UUW to harness scheme specific collaboration opportunities as we recognise the need for more strategic partnerships, and we will build on successes from historic partnerships in the North West.

For further information on our approach to partnership working, refer to TA2.

Figure 11 Overview of the potential partnership opportunities in the Wyre

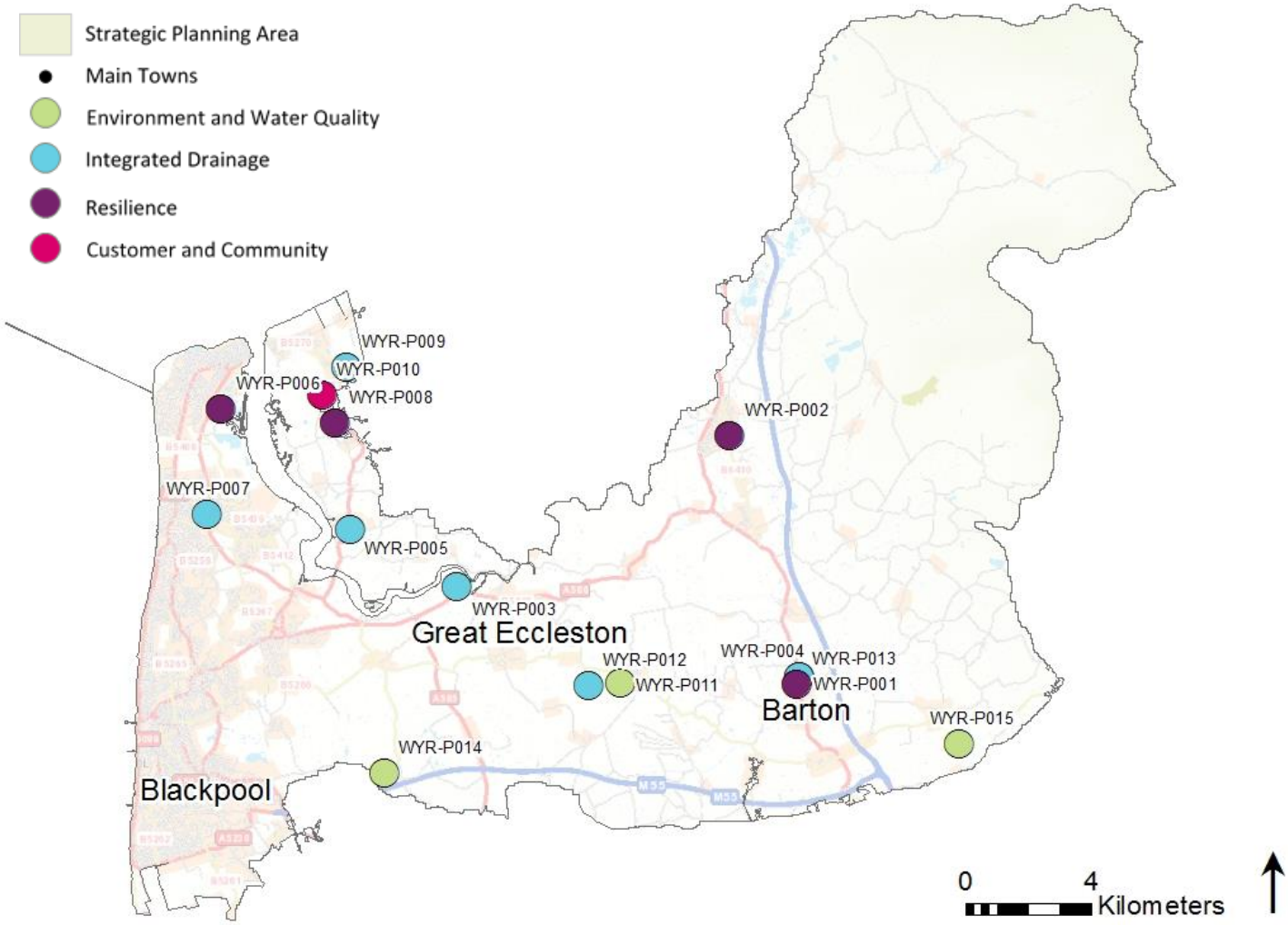


Table 7 Partnership opportunities identified within the Wyre

ID	Partnership Opportunity	Theme	Organisation Type
WYR-P001	Wetland restoration project	Environment and Water Quality	Non-Governmental Organisations
WYR-P002	Natural flood management project	Resilience	Non-Governmental Organisations
WYR-P003	Surface water management project	Integrated Drainage	Non-Governmental Organisations
WYR-P004	Drainage system improvement project	Integrated Drainage	Local Councils and Planning Authorities
WYR-P005	Flood risk management project	Integrated Drainage	Local Councils and Planning Authorities
WYR-P006	Natural flood management project	Resilience	Non-Governmental Organisations
WYR-P007	Highway drainage improvements project	Integrated Drainage	Local Councils and Planning Authorities
WYR-P008	Natural flood management opportunities project	Resilience	Non-Governmental Organisations
WYR-P009	Drainage improvements project	Integrated Drainage	Local Councils and Planning Authorities
WYR-P010	Citizen science and monitoring programmes project	Customer and Community	Non-Governmental Organisations
WYR-P011	Water quality improvement project	Environment and Water Quality	Non-Governmental Organisations
WYR-P012	Sustainable drainage solutions project	Integrated Drainage	Undisclosed
WYR-P013	Natural flood management project	Resilience	Non-Governmental Organisations
WYR-P014	Water quality improvement project	Environment and Water Quality	Non-Governmental Organisations
WYR-P015	Community engagement and education project	Environment and Water Quality	Undisclosed

Note: The above are suggestions made by stakeholders but not all of them meet DWMP criteria for potential partnership working. Suggestions made that do not meet DWMP criteria have been added to UUW companywide partnership pipeline for further consideration.

4.1.1 Wider partnerships within the Wyre catchment

Within the Wyre catchment, there are numerous challenges such as flood risk, water quality, climate change and population growth. In order to mitigate the risks and to protect both communities and the environment, there is an opportunity for partnership working.

This is something that we have strongly supported in the past and will continue to support moving forwards both through the DWMP and other avenues within the business.

Figure 12, Figure 13 and Figure 14 are some examples of partnerships that we are proud to have been involved in, and opportunities which are currently being developed.

Figure 12 Overview of the Wyre Catchment Community Interest Group

The Wyre Catchment Community Interest Company

A new commercial business model was created to accelerate work to address flood risk through landscape and nature recovery in the River Wyre. Initiated by United Utilities, the Environment Agency and the Rivers Trust, the Wyre Catchment Community Interest Company was set up to as an independent entity to attract investment and deliver the flood risk interventions needed.

The enterprise combines private financing and innovative contracting structures to supplement public funding:

- Five key beneficiaries contracted to pay for flood reduction services.
- The beneficiaries promised to make an annual payment, which can be used to leverage investment, and then used to deliver mitigation measures.
- Extra revenue was secured through a woodland grant for the carbon credits, and a reduced interest rate on the finance based on the delivery of agreed biodiversity benefits.

FLOODRE Environment Agency North West Regional Flood & Coastal Committee United Utilities wyre council

Figure 13 Overview of Natural Course and the Wyre Partnership Investment

Natural Course

Natural Course is a collaboration of public, private and third sector organisations working together to help to deliver real improvements to rivers and the water environment across North West England.

This includes projects to better understand and overcome some of the biggest barriers preventing the achievement of 'good ecological status' under the EU Water Framework Directive.

NATURAL COURSE OUR WATER. OUR FUTURE Life

Wyre Natural Capital Approach Delivering Partnership Investment

The Wyre Natural Flood Management (NFM) investment readiness project brought together existing and new partners to create an **ecosystem service-based market.**

It offers a very serious solution for investing in natural capital improvements in our landscape, at scale, with **multiple environmental benefits for nature, climate change mitigation and adaptation**, based on repayment for social impacts valued by wider society.

A simple transaction structure was developed where a **Special Purpose Vehicle (SPV) will draw down external investment finance**, to fund the capital delivery. This will be repaid over a 9-year period through ecosystem service contracts with **buyers** (those who will benefit from the intervention) and **sellers** (farmers and landowners) who will host the NFM on the ground.

The project is one of the **first examples of an ecosystem service-based market**. It has been developed over the last 18 months and is in its final, legal stages of development prior to drawing down **£1.5 million of external investment.**

Figure 14 Wyre fluvial flood risk alleviation project case study

Wyre Fluvial Flood Risk Alleviation Project

There are significant fluvial flood risks experienced by communities and that are also impacting our assets in the area.

What are we doing…

- Formed a partnership between UU, EA, The Rivers Trust, FloodRE and Coop Insurance
- Exploring how a business case could be developed to attract investment from multiple sources into NFM
- Commissioned an innovative flood modelling tool to identify the best locations to deliver NFM and quantify the benefits
- Identifying other benefits that could also be delivered and monetised
- Funding was secured from Esmee Fairbairn, DEFRA and the EA to get the project investment ready

Beneficiaries

- United Utilities
- Flood Re
- Environment Agency
- RFCC
- Organisations looking for carbon offsets
- Developers or people looking to deliver biodiversity net gain

Benefits

- 600m^3 of water retained
- 25,600 Tonnes of carbon sequestered
- 283 biodiversity units created
- 56 properties protected from flooding (1 in 50 year)
- Learning on how to deliver an investment approach

Activity completed

- Business cases developed to secure the funding
- Contracts signed by 5 key flood beneficiaries
- Wider benefits identified in water resources / carbon / BNG
- Landowner contracts agreed and investment secured

5. Options for the Wyre

The DWMP's purpose is to provide a long-term view of potential interventions and opportunities up to 2050. We acknowledge that planning this far in the future can be uncertain. This is why it is important that the DWMP is also aligned with nearer term activities which could influence and change the trajectory of future risks and opportunities.

The success of the DWMP through investment across the North West will depend on continued and new partnership working which is at the heart of both the DWMP, and the development of the business plan for investment cycle 2025 – 2030 (also known as AMP8). We are aligned to ensure that decisions made support the continued growth of the North West for customers and communities, and allow the environment to thrive for future generations.

This section provides a high level overview of the potential benefits and investment that can be delivered across the North West through key activities such as the Water Industry National Environment Programme (WINEP) for investment cycle 2025 – 2030, longer-term measures identified through the DWMP, and other projects such as Better Rivers: Better North West which is our commitment to improving river health.

5.1 WINEP development

Note: At the time of DWMP publication, the WINEP was not confirmed by regulators so is likely to change. The WINEP data presented below aligns to the formal submission from UUW in January 2023.

The WINEP is a programme of works that is jointly developed between water companies and regulators to meet statutory requirements and deliver environmental improvements to customers and communities. It sets out how the water industry will contribute to improving the natural environment.

The water industry has undertaken significant investment in the last three decades to improve the water environment and thus aquatic life. The WINEP drives the largest investment programme in the water environment nationally. For investment cycle 2020 to 2025, it includes activities such as asset improvements, investigations, monitoring and catchment interventions.

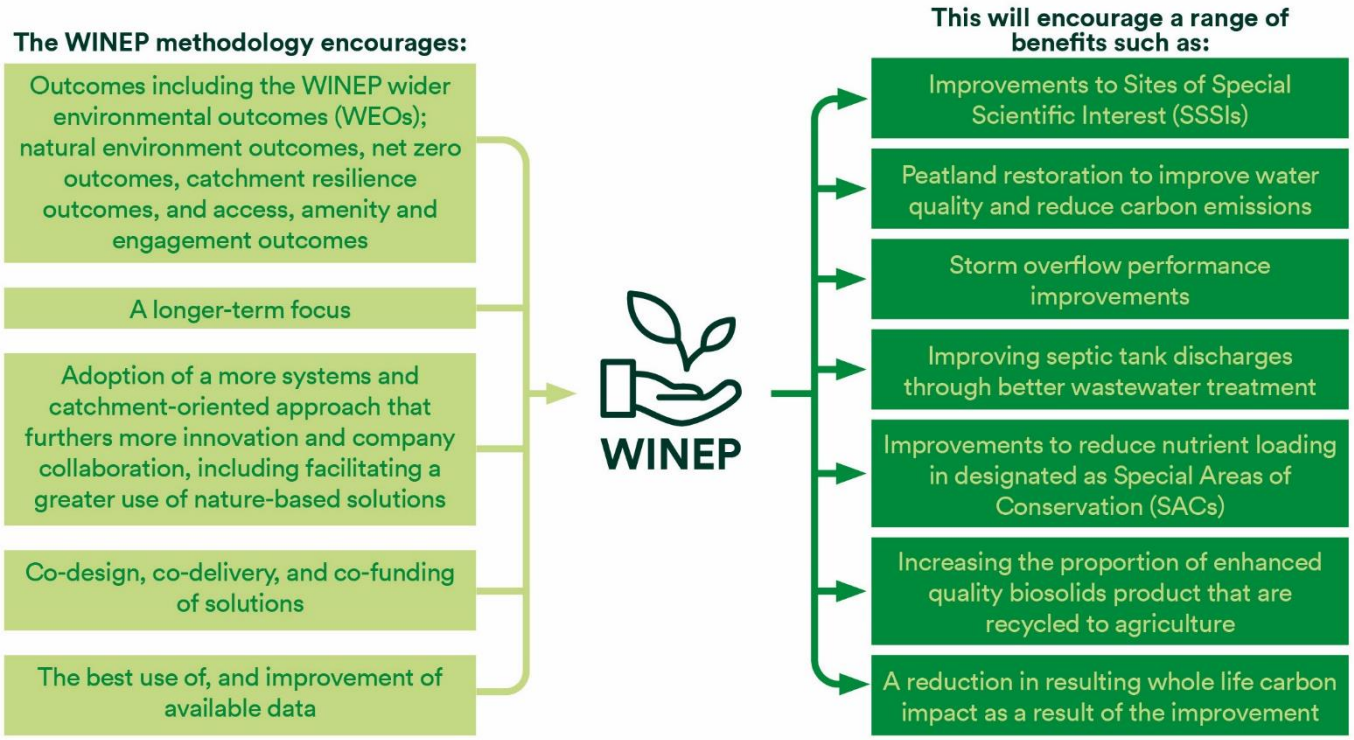
The next WINEP for investment cycle 2025 – 2030 (AMP8) is still to be confirmed (after the publication of the DWMP) and you will be able to find out more about what this means for the Wyre when we publish our AMP8 submission in autumn 2023.

Moving forwards, there is a collective ambition for the WINEP to deliver even more for the environment, for customers and for communities. This reflects society's high expectations and the UK government's ambition to leave the environment in a better state for the next generation.

As part of this, a large portion of the WINEP for the next investment cycle (2025 – 2030) aims to improve storm overflow performance. The programme has been designed to meet the Government's Storm Overflow Discharge Reduction Plan (SODRP) trajectory targets, address proven harm where we have been able to identify the best value solution and then the remainder includes action at the most cost effective overflows to achieve a reduction in spill frequency to around 20 spills per annum average by 2030. Subsequent investment periods will see further reductions in line with the Government requirements. The scale of transition required to meet the SODRP targets means that UUW will be delivering substantial WINEP investment programmes for the next 25 years.

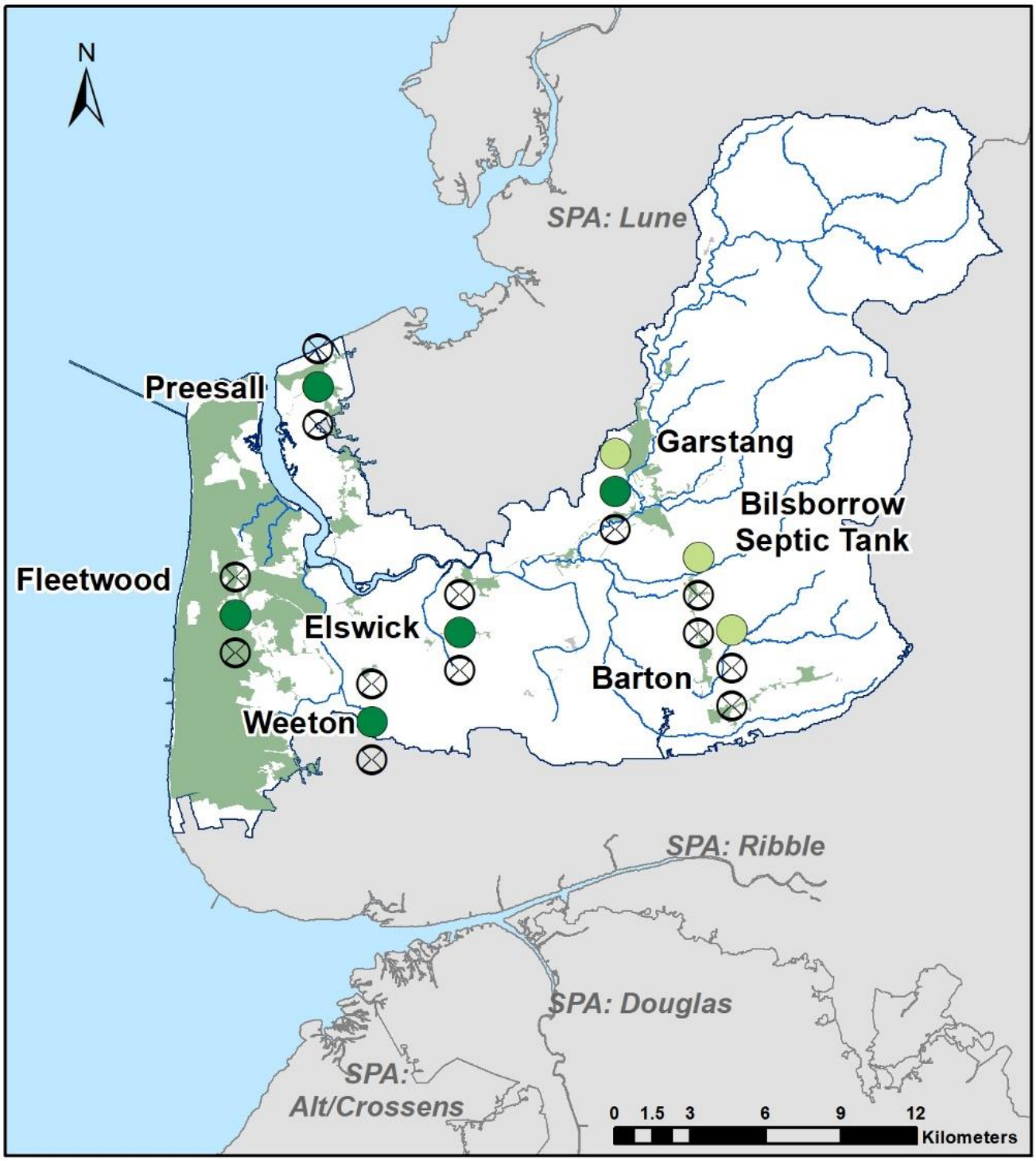
Figure 15 highlights some of the potential benefits as a result of the WINEP.

Figure 15 Potential benefits to the North West as a result of the WINEP



The WINEP will provide great opportunities to drive and deliver benefits across the North West region, and Figure 16 shows which locations within the Wyre have the potential for investment cycle 2025 – 2030 WINEP schemes, based on the January 2023 WINEP submission.

Figure 16 Potential WINEP investment in the Wyre for investment cycle 2025-2030



All potential WINEP interventions are subject to a regulatory decision making process that is ongoing at time of DWMP publication.

5.2 Options considered within the DWMP

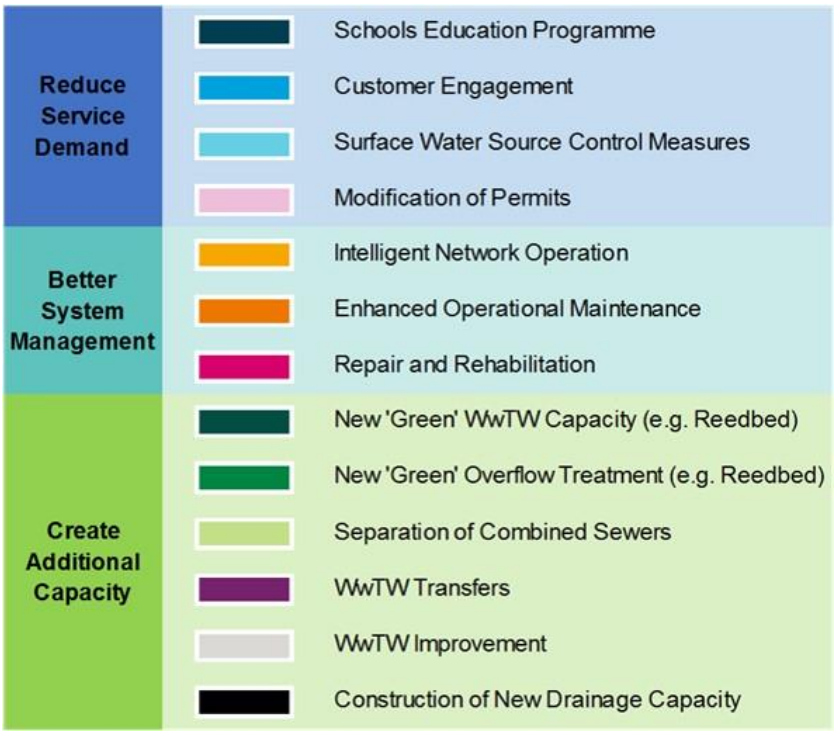
As highlighted above, the delivery of the WINEP will drive improvements and deliver benefits across the North West in the nearer-term. The DWMP is closely aligned with the ambitions and targets included within the WINEP, and included below are potential further enhancement schemes to be delivered over the next 25-years as part of the DWMP.

The development of the DWMP has utilised various data sources across the different stages of the plan, such as risk identification and BRAVA, partnership opportunities, and option development. This has allowed us to understand what options and interventions could be introduced to mitigate shared risks and harness opportunities for collaboration. This aspect of the DWMP is known as preferred options and has been developed using a decision support tool and by following the option hierarchy. The preferred options are high-level potential interventions up to 2050.

The development of the DWMP preferred options followed an iterative screening processes (outlined in section 4) which have been grouped into option types as shown in Figure 17. There are three main categories which are:

- 'Reducing Service Demand' which focusses on either reducing the amount of wastewater that is produced, or preventing it from reaching the sewer network;
- 'Better System Management' which focusses on managing and operating the existing assets in a more efficient or effective manner; and
- 'Create Additional Capacity' which focusses on building new assets, for example storage tanks or new treatment work process units, where it is not possible or economical to reduce demand or improve operations any further.

Figure 17 Option types



Potential opportunities for investment as part of the DWMP can be summarised as:

- Level 1: Regional measures (section 5.2.1);
- Level 2: Options for the Wyre (section 5.2.2); and
- Level 3: Options for each location within the Wyre (section 5.2.3).

Across these three levels, there are numerous opportunities over the next 25 years for continued and new partnerships in addition to new innovative technology.

The following sections provides an overview of the outputs from the DWMP. This includes all potential interventions that could be undertaken over the next 25-years to deliver benefit to the North West under the assumption of unconstrained funding. Therefore, it is likely that the interventions implemented will vary.

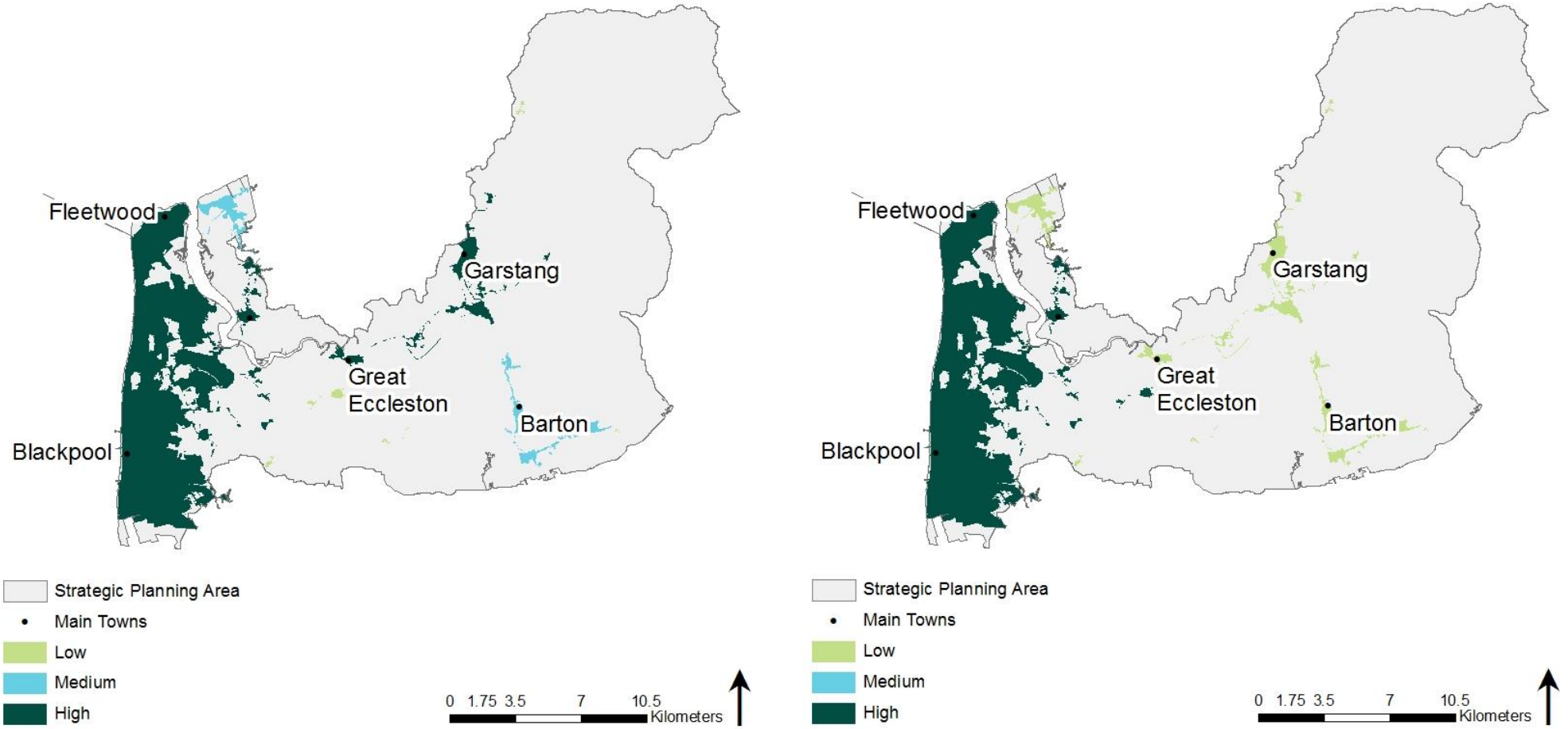
5.2.1 Level 1: Regional measures

Across the option types, a number can be considered regional options – those which could be implemented across the North West but may bring tangible benefits in some areas more than others. These can be investigated further ahead of investment cycle 2025 – 2030 where viable.

Across the Wyre catchment, customer engagement options (Figure 18) comprising of options to work with customers to reduce demand and increase awareness of 'what not to flush' have been identified as having the potential to deliver the highest benefit in Garstang and Fleetwood TPUs.

Sustainable Drainage System (SuDS) options have been assessed, these form a key part of the strategy to manage rainwater from entering the sewer system in Elswick and Fleetwood TPUs (Figure 18).

Figure 18 Maps show the benefit of implementing regional customer engagement (left) and sustainable drainage solutions (right) options across the Wyre



5.2.2 Level 2: Options for the Wyre

The DWMP preferred options can also be summarised as the potential investment and associated benefits across the Wyre. These can be demonstrated by:

- The potential options to address environmental planning objectives as shown in Figure 19. This incorporates elements such as wastewater treatment work permit compliance, WINEP compliance and pollution of watercourses;
- The potential options to address flooding planning objectives as shown in Figure 20. This incorporates elements such as internal flooding, external flooding, highway and open space flooding and 1 in 50-year flooding; and
- The distribution of the potential options that could contribute to addressing the above planning objectives as shown in Figure 21.

Figure 19 Distribution of environmental investment by option type within the Wyre

This is an example of how investment in different options types may be used to address the environmental planning objectives. The vast majority of potential investment could be through surface water source control measures (e.g. SUDS), improvements in wastewater treatment works, and construction of new drainage capacity.

Reduce Service Demand	Schools Education Programme
	Customer Engagement
	Surface Water Source Control Measures
	Modification of Permits
Better System Management	Intelligent Network Operation
	Enhanced Operational Maintenance
	Repair and Rehabilitation
Create Additional Capacity	New 'Green' WwTW Capacity (e.g. Reedbed)
	New 'Green' Overflow Treatment (e.g. Reedbed)
	Separation of Combined Sewers
	WwTW Transfers
	WwTW Improvement
	Construction of New Drainage Capacity

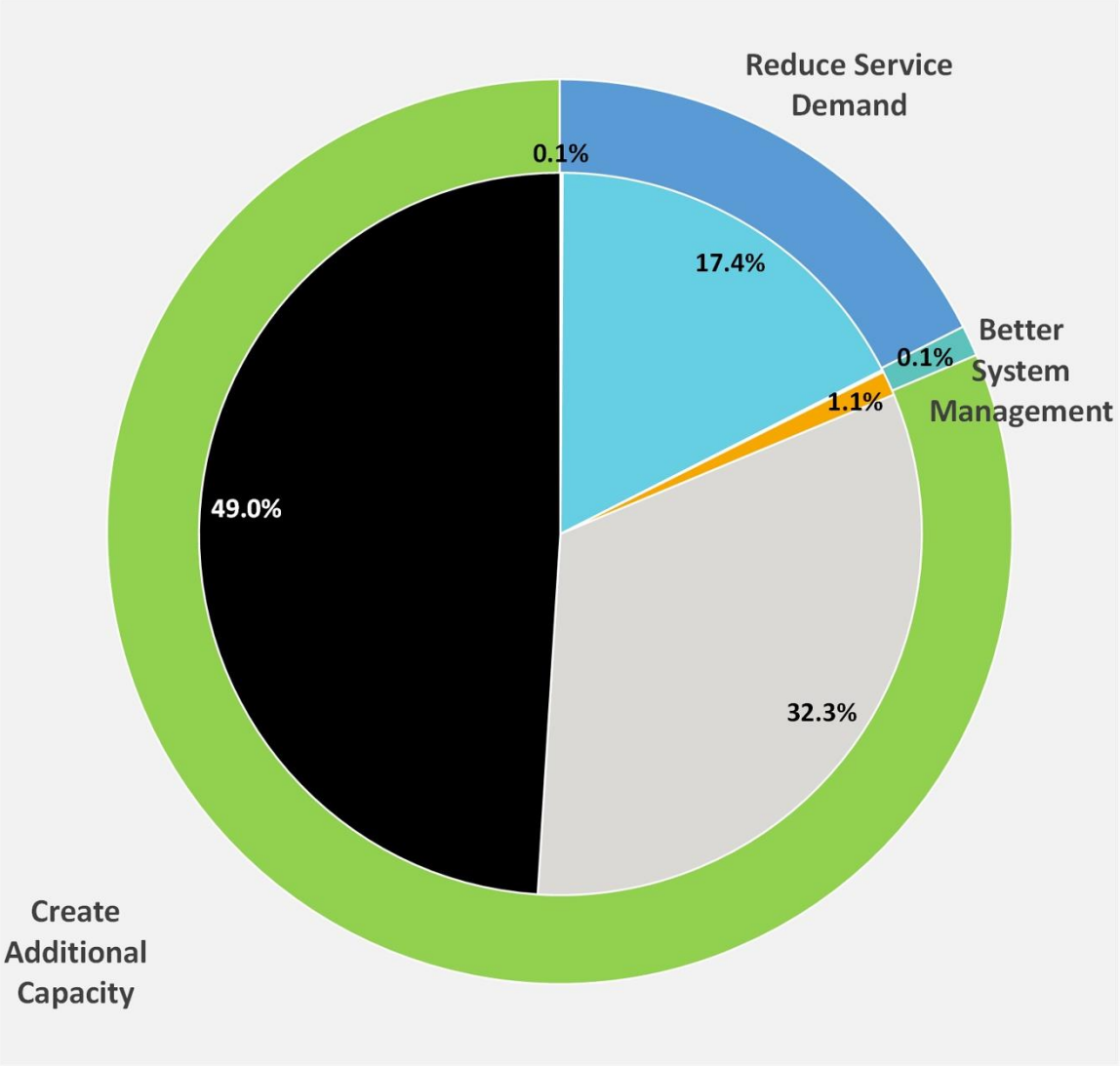


Figure 20 Distribution of flooding investment by option type within the Wyre

This is an example of how different options types may be used to address flooding planning objectives. Around 2% of potential investment could be through a strategy to reduce demand on the sewer system, seen here though surface water source control measures such as SuDS and schools and engagement programmes.

Around 89% of potential investment could be used on the construction of new stormwater storage tanks, and around 8% could be spent in improving existing system management, with options such as enhanced maintenance and rehabilitation.

Reduce Service Demand	Schools Education Programme
	Customer Engagement
	Surface Water Source Control Measures
	Modification of Permits
Better System Management	Intelligent Network Operation
	Enhanced Operational Maintenance
	Repair and Rehabilitation
Create Additional Capacity	New 'Green' WwTW Capacity (e.g. Reedbed)
	New 'Green' Overflow Treatment (e.g. Reedbed)
	Separation of Combined Sewers
	WwTW Transfers
	WwTW Improvement
	Construction of New Drainage Capacity

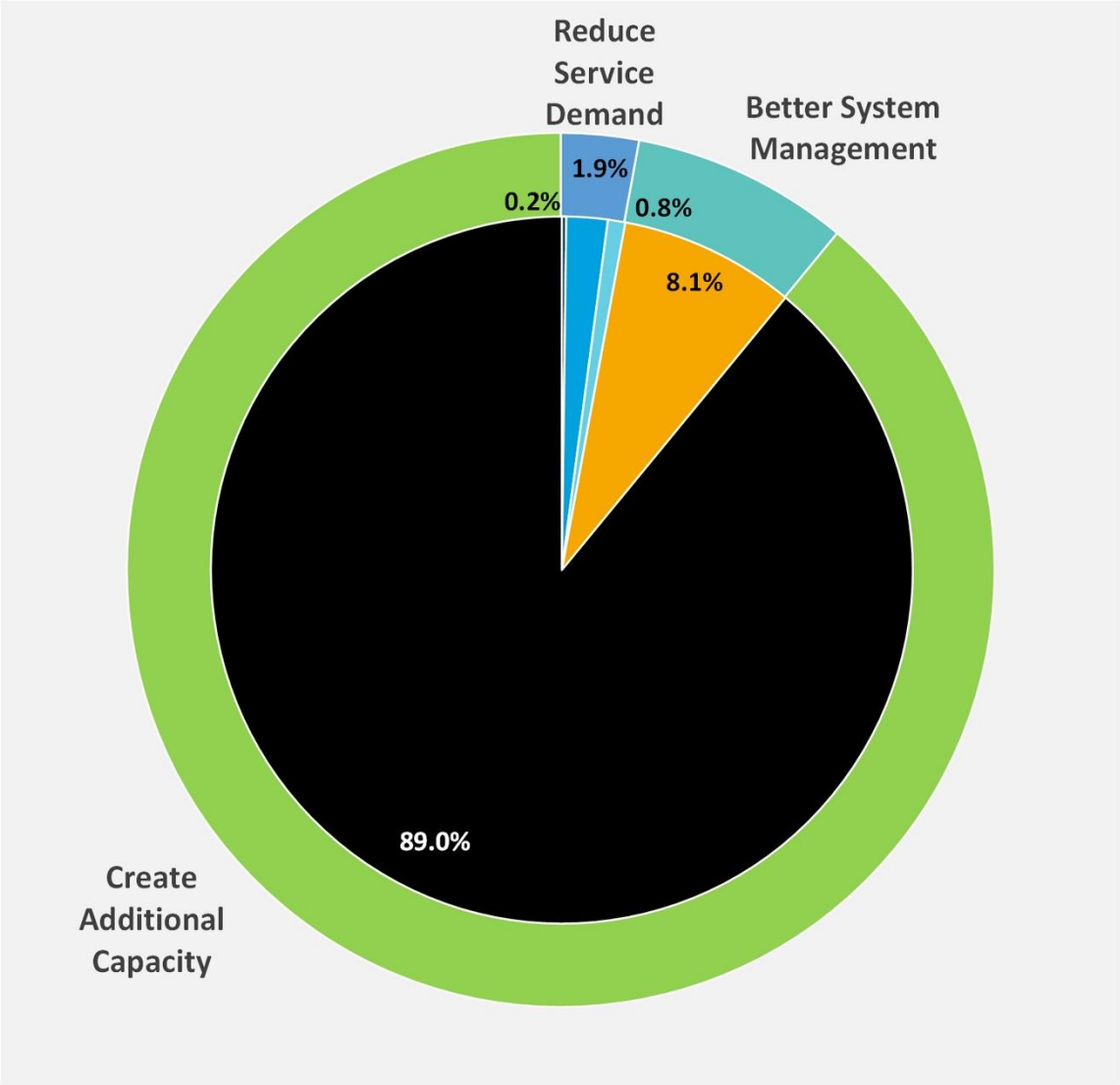
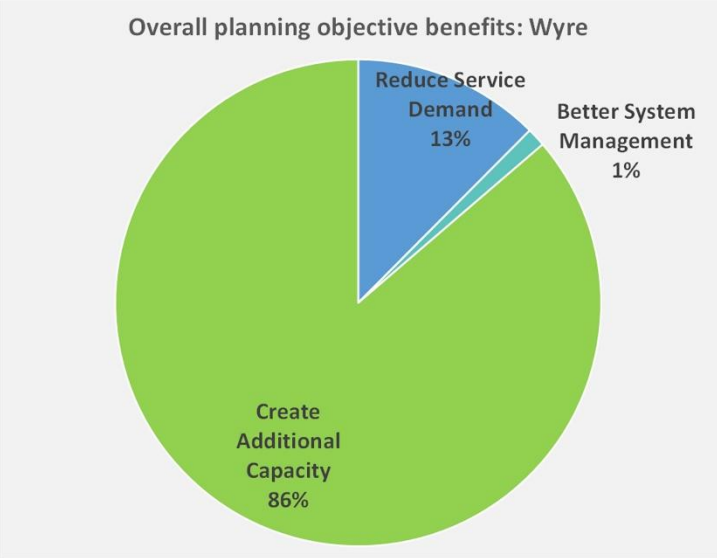


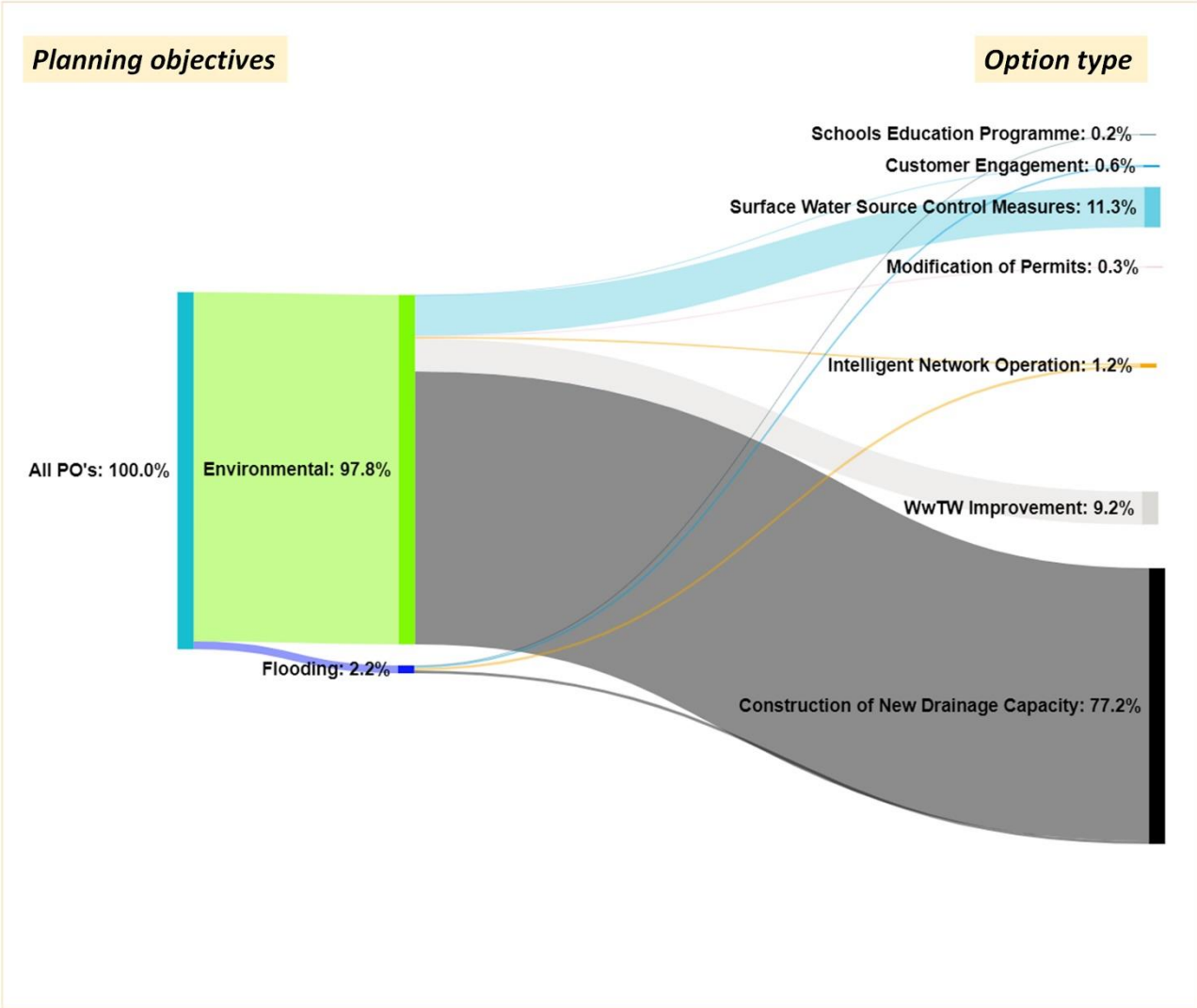
Figure 21 Distribution of benefit by option type within the Wyre

This is an example of how different option types may be used to demonstrate potential benefits against different planning objectives within the Wyre SPA.

United Utilities Water (UUW) commitments to improving flooding performance could be met through the repair and rehabilitation of the current system and the updates to the intelligent network monitoring systems that are already in place, reduction of surface water flows and schools education programmes.

Environmental planning objectives could be met mainly through the provision of wastewater treatment works improvements including modification of permits, repair and rehabilitation of the current system, intelligent network operation systems and new stormwater storage capacity.





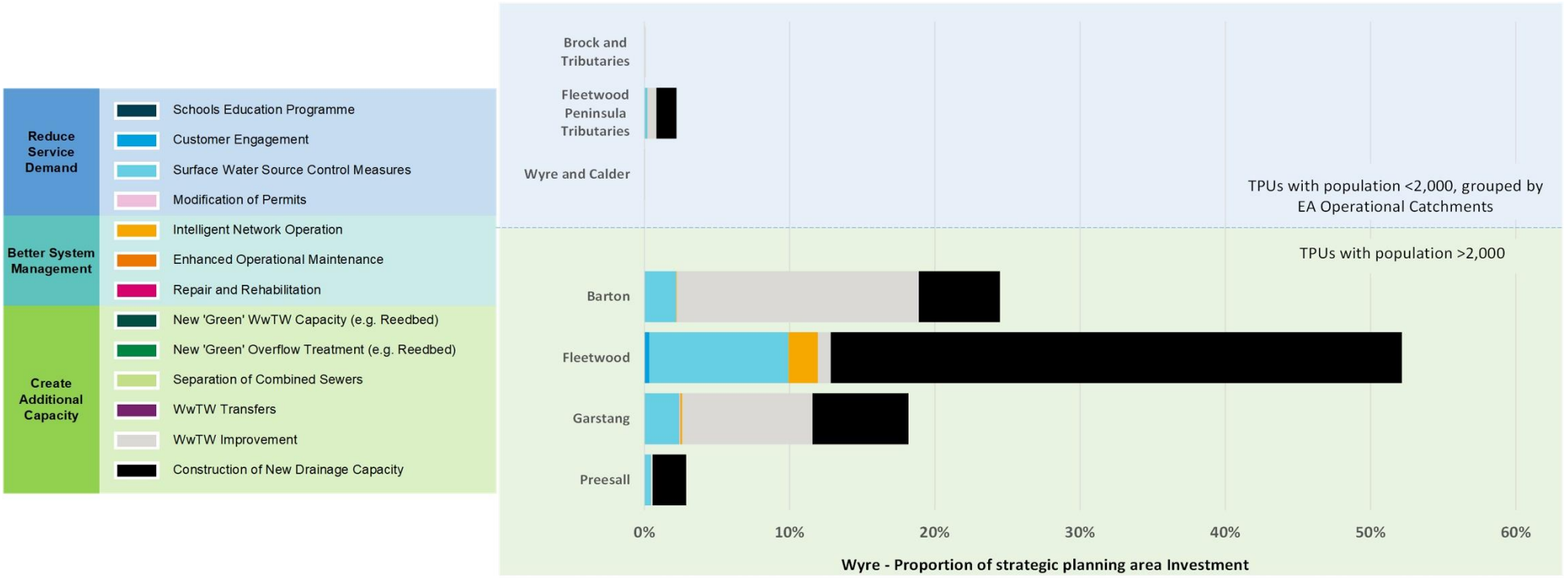
5.2.3 Level 3: Local options within each TPU in the Wyre

The proportion of the Wyre's potential investment in each TPU, split up by option type, is shown in Figure 22. Note that the smaller TPUs within the catchment (those with less than 2,000 population) have been reported together at the top of the chart, grouped by sub catchment (Environment Agency Operational Catchment boundaries).

It can be seen that in the Wyre catchment, the largest TPUs see the largest potential investment, which is split predominantly between surface water control, improved system management, improvement at wastewater treatment works and construction of new storm water storage capacity.

Figure 22 Proportion of investment seen in each TPU within the Wyre

The following sub-sections show how investment will be split between different types of options to bring benefits to each TPU over the short, medium and long term. Some options, such as construction of new storm water storage tanks, occur at a single point in time; however the benefit of reduced flooding may be seen long into the future. Other options such as school education, are continual programmes that could help to encourage long-term sustainable behaviours, such as reduction in water use.



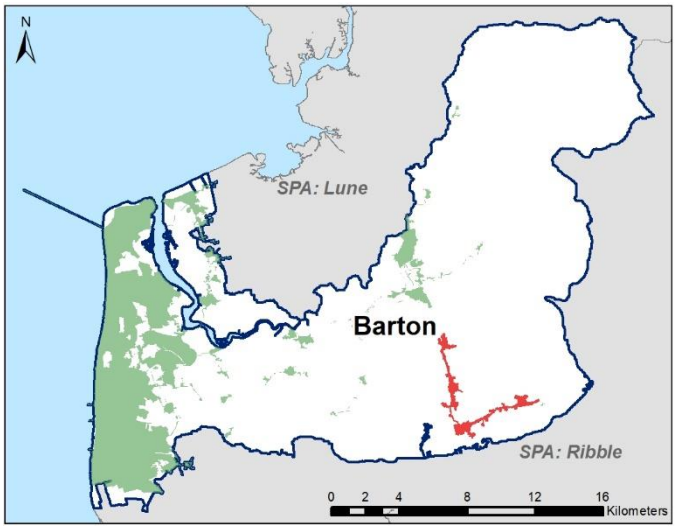
5.2.3.1 Barton

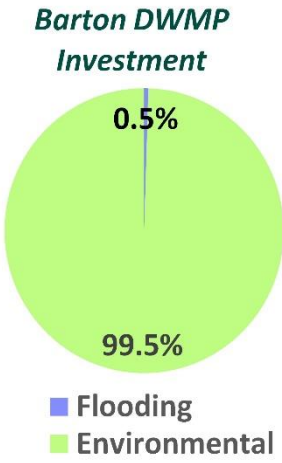
Figure 23 Details of the DWMP investment plan for Barton

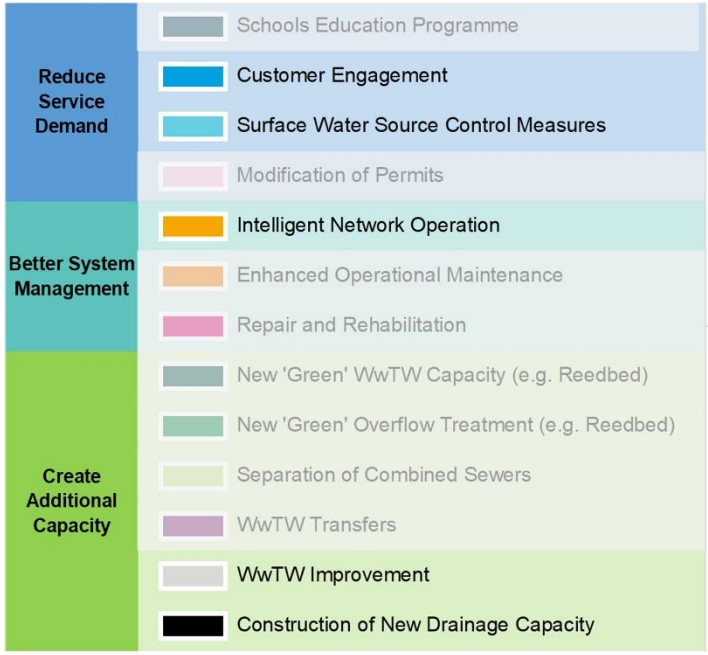
The data on this page gives details of the investment plan for Barton TPU. The plan shows the geographic location of Barton within the Wyre catchment.

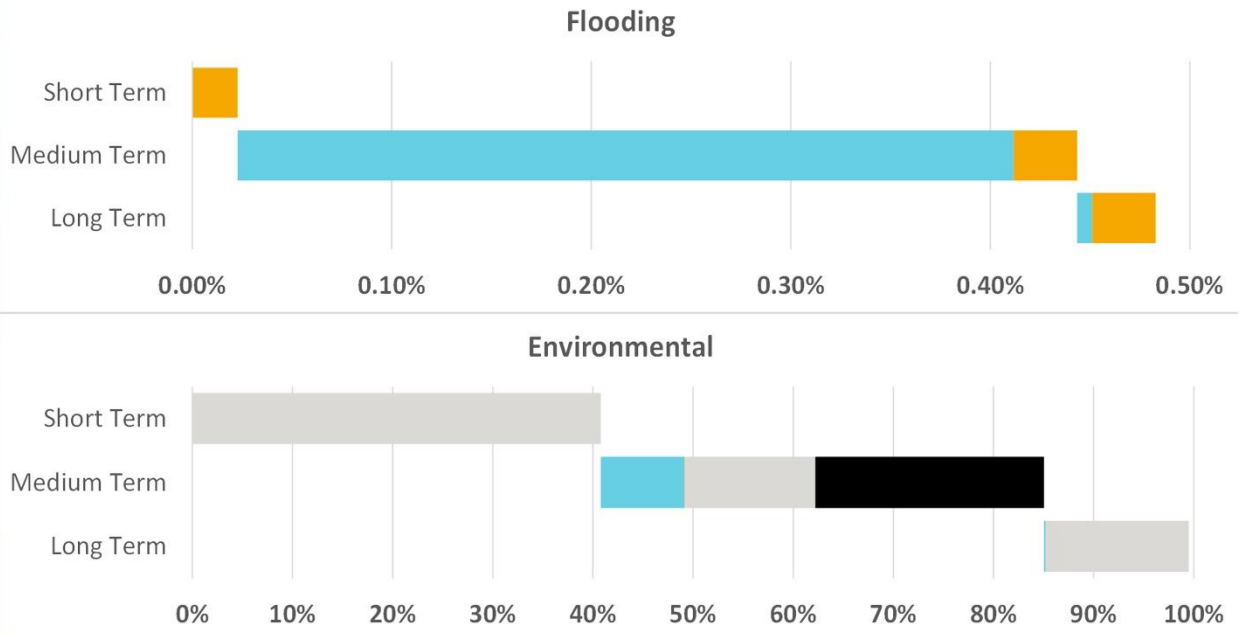
The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.









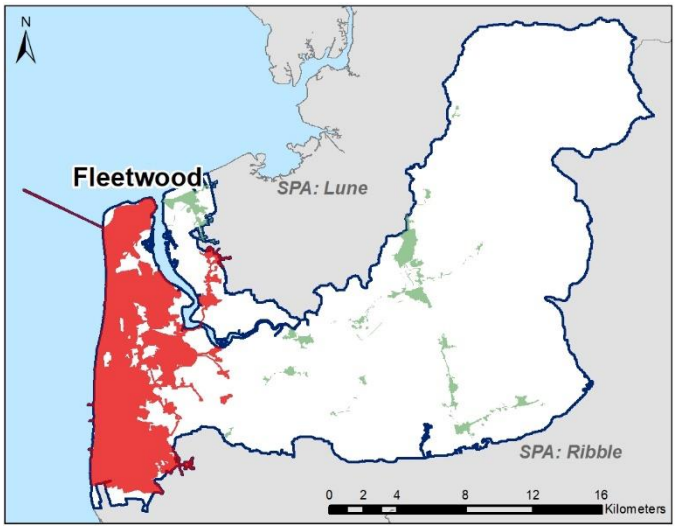
5.2.3.2 Fleetwood Marsh

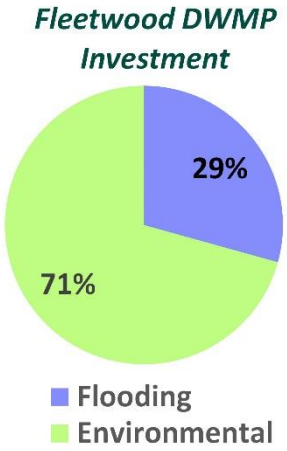
Figure 24 Details of the DWMP investment plan for Fleetwood Marsh

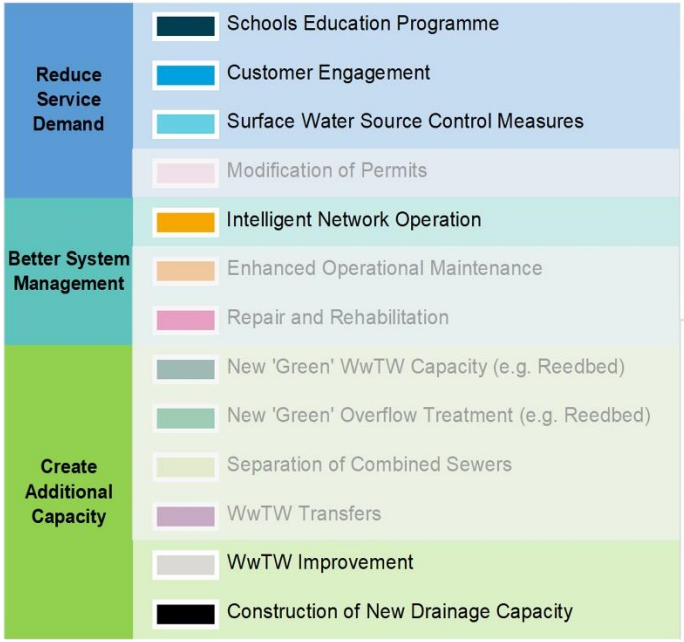
The data on this page gives details of the investment plan for Fleetwood TPU. The plan shows the geographic location of Fleetwood within the Wyre catchment.

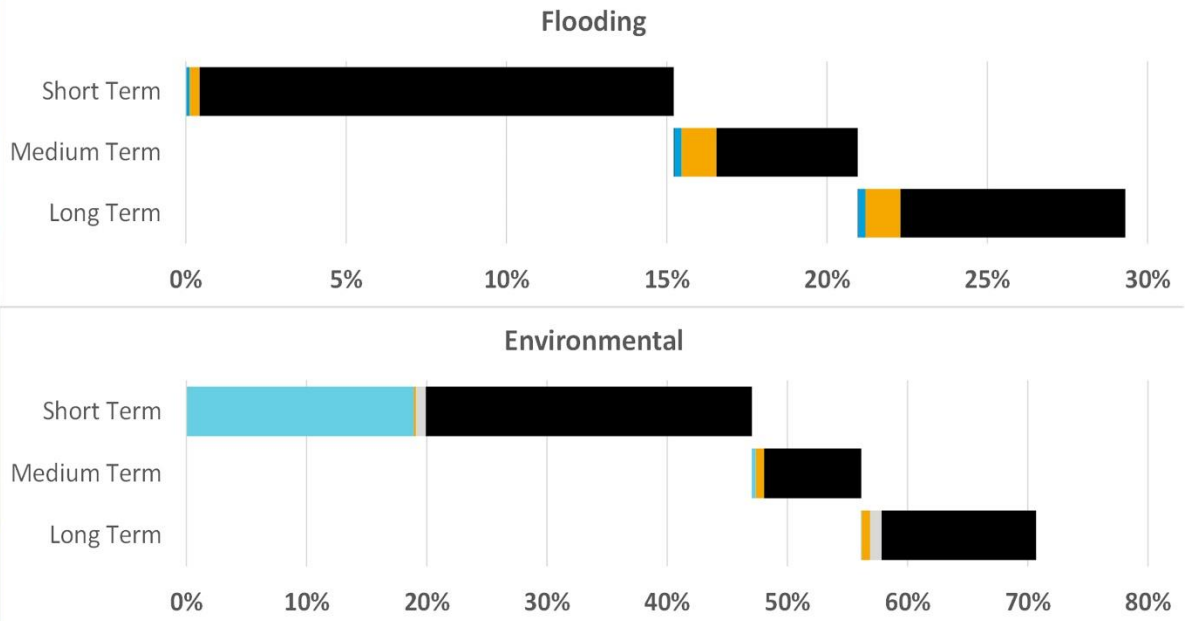
The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.









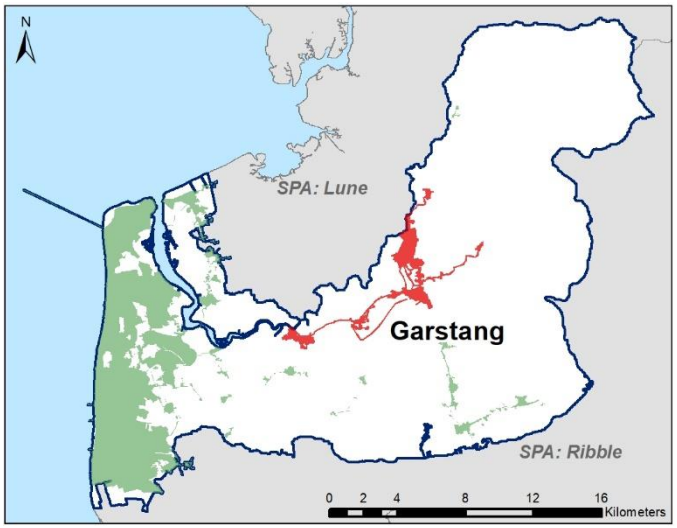
5.2.3.3 Garstang

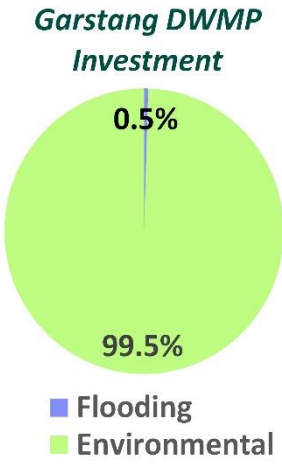
Figure 25 Details of the DWMP investment plan for Garstang

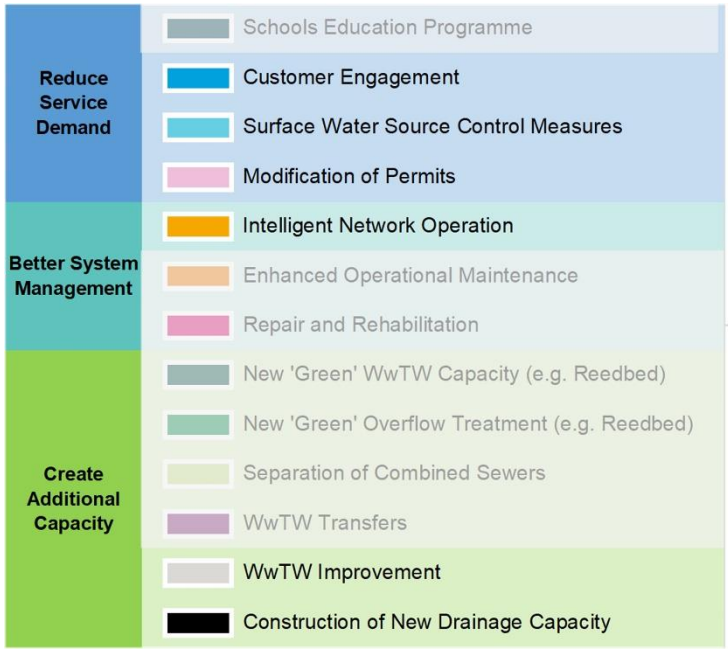
The data on this page gives details of the investment plan for Garstang TPU. The plan shows the geographic location of Garstang within the Wyre catchment.

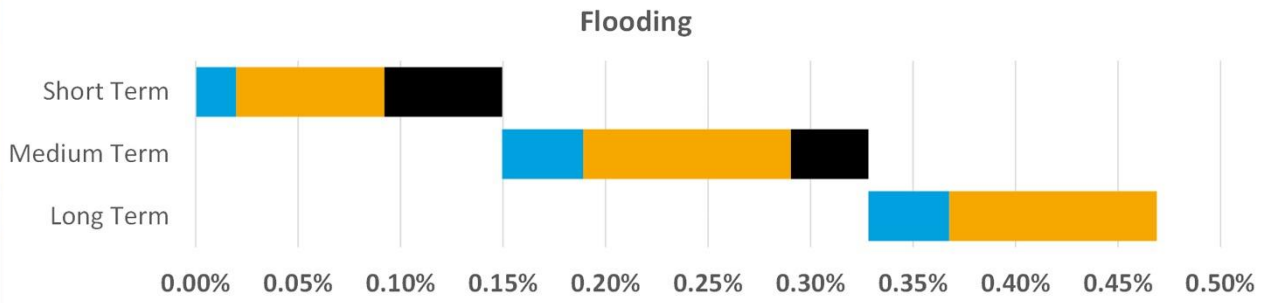
The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

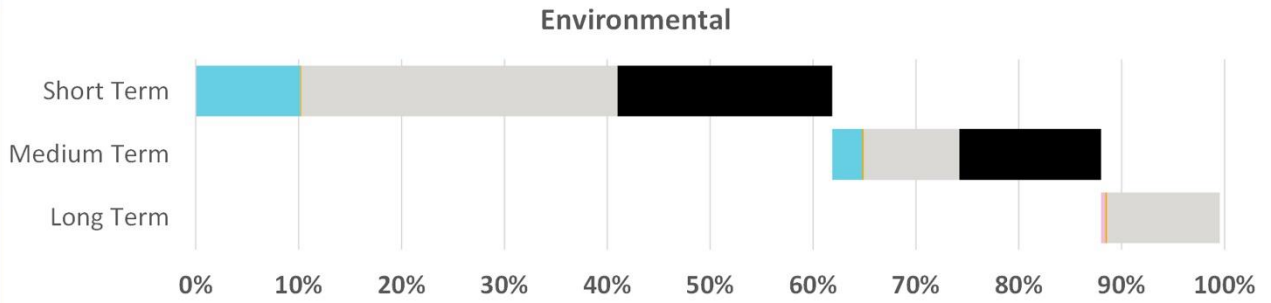
The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.











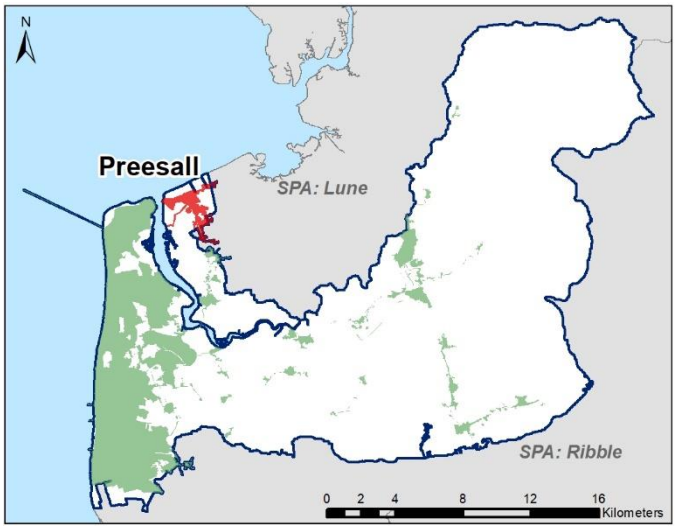
5.2.3.4 Preesall

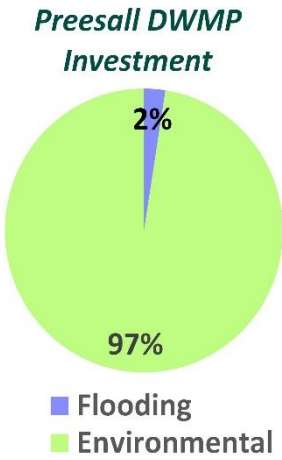
Figure 26 Details of the DWMP investment plan for Preesall

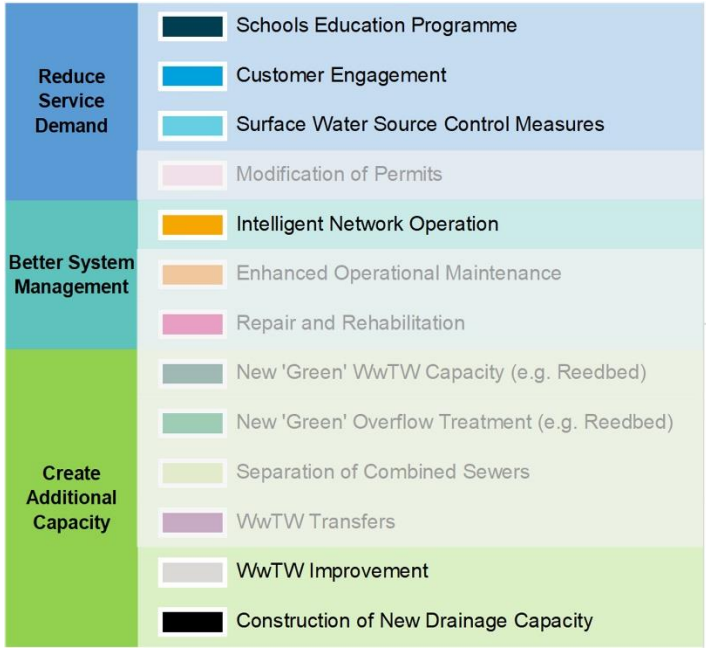
The data on this page gives details of the investment plan for Preesall TPU. The plan shows the geographic location of Preesall within the Wyre catchment.

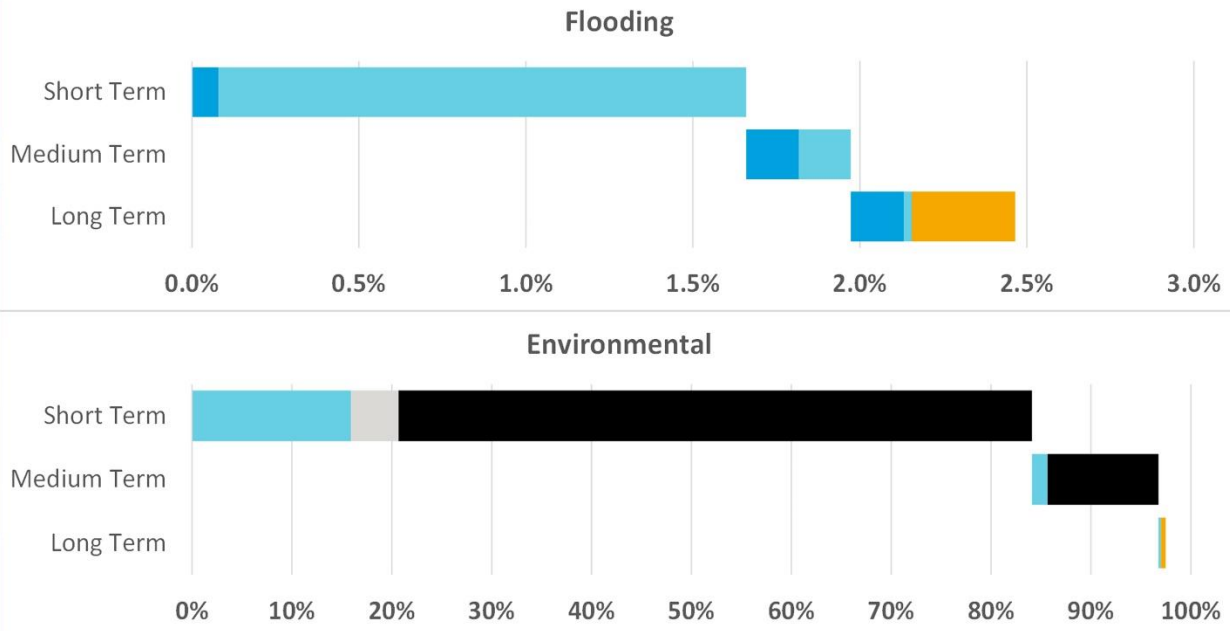
The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.





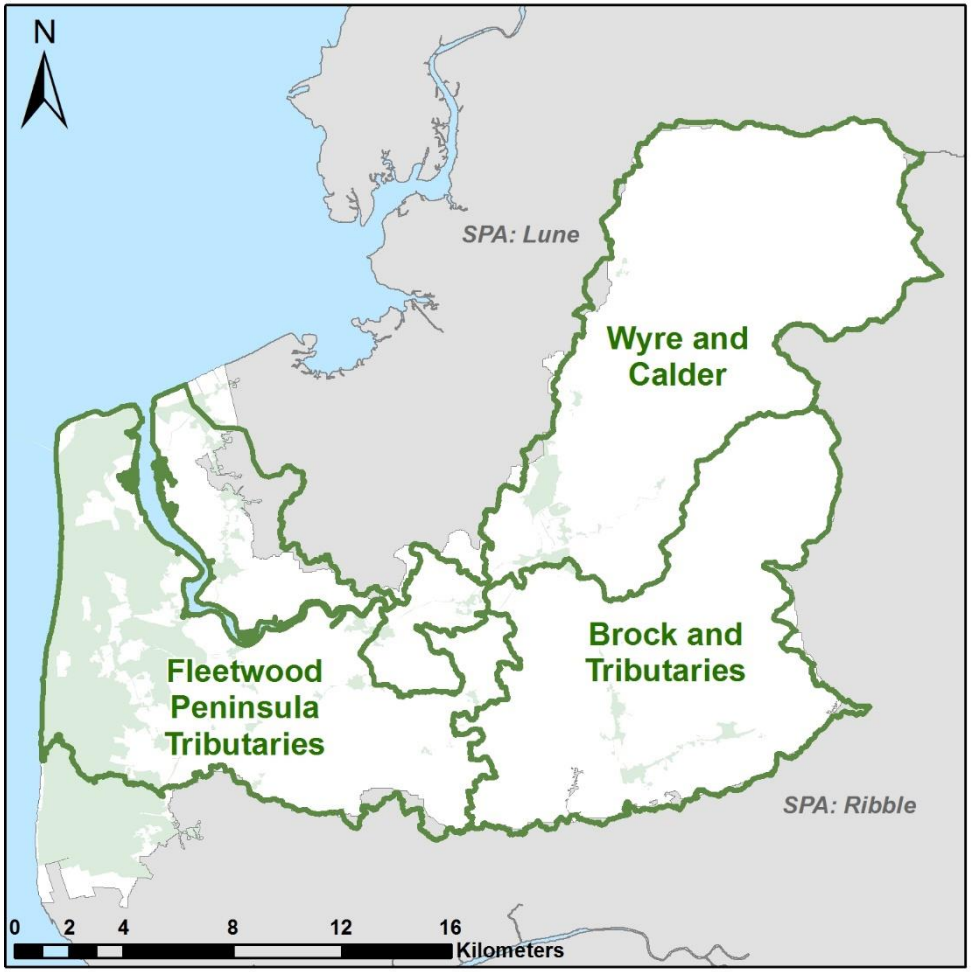




5.2.4 TPUs with population less than 2,000

Within the Wyre catchment, there are a number of small TPUs, each with a population of less than 2,000. For the purpose of reporting, these have been grouped together within Environment Agency operational catchment (OC) boundaries, which are sub-divisions of the overall SPA, aligned to local river systems. Within the Wyre SPA, there are three Environment Agency operational catchment areas, which can be seen in Figure 27.

Figure 27 Location of Environment Agency operational catchments within Wyre SPA



Environment Agency Operational Catchment	TPUs
Brock and Tributaries	Bilsborrow Septic Tank Whitttingham Cottages
Fleetwood Peninsula Tributaries	Elswick Inskip Weeton
Wyre and Calder	Dolphinhome

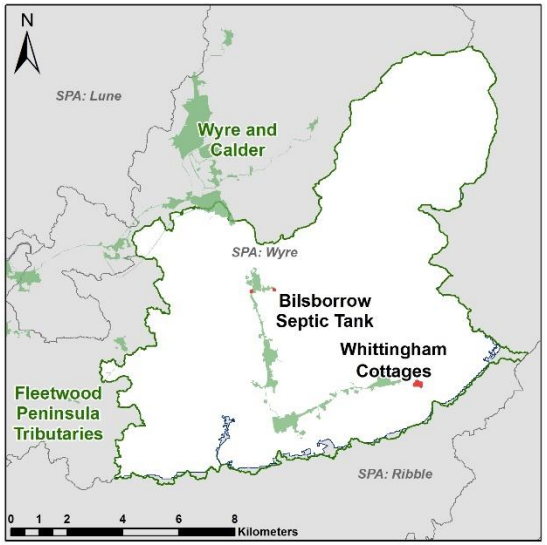
5.2.4.1 TPUs with population less than 2,000: Brock and Tributaries Operational Catchment (OC)

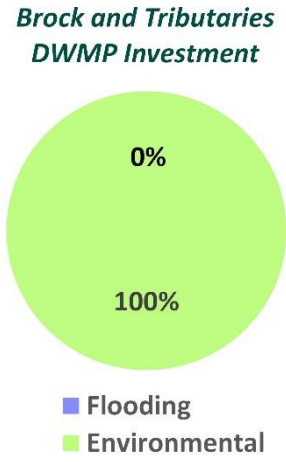
Figure 28 Details of the DWMP investment plan for the Brock and Tributaries OC

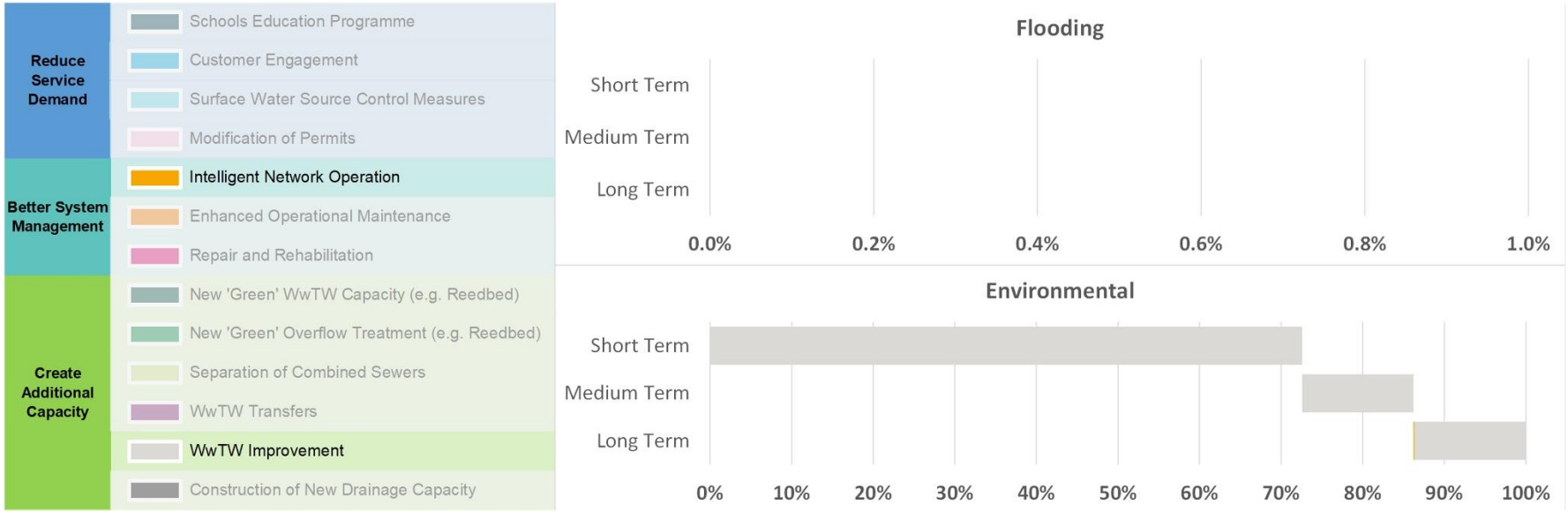
The data on this page gives details of the investment plan for the TPUs within the Brock and Tributaries OC. The plan shows the geographic location of these TPUs within the Brock and Tributaries OC.

The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.







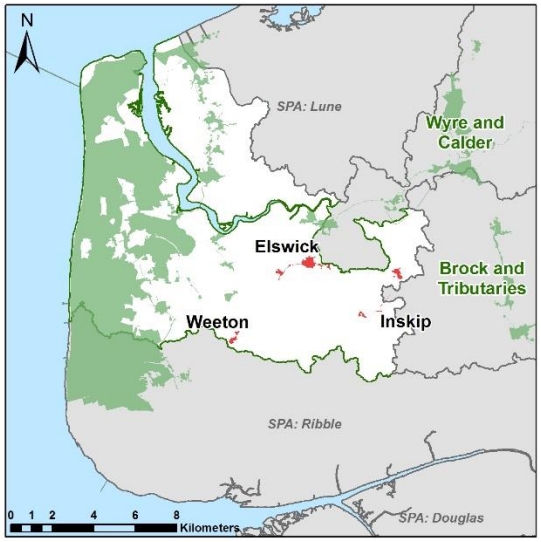
5.2.4.2 TPUs with population less than 2,000: Fleetwood Peninsula Tributaries Operational Catchment (OC)

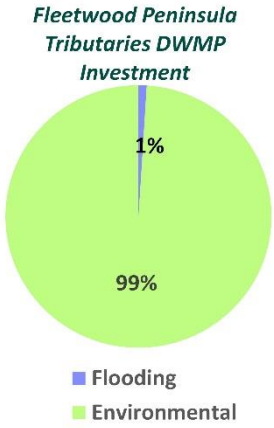
Figure 29 Details of the DWMP investment plan for the Fleetwood Peninsula Tributaries OC

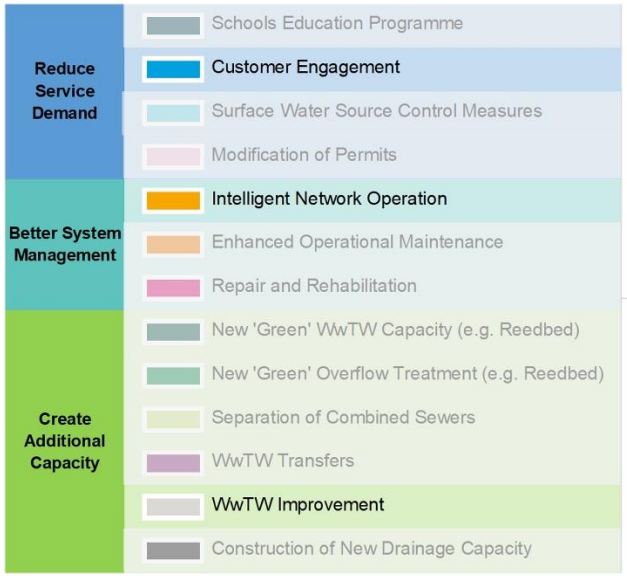
The data on this page gives details of the investment plan for the TPUs within the Fleetwood Peninsula Tributaries OC. The plan shows the geographic location of these TPUs within the Fleetwood Peninsula Tributaries OC.

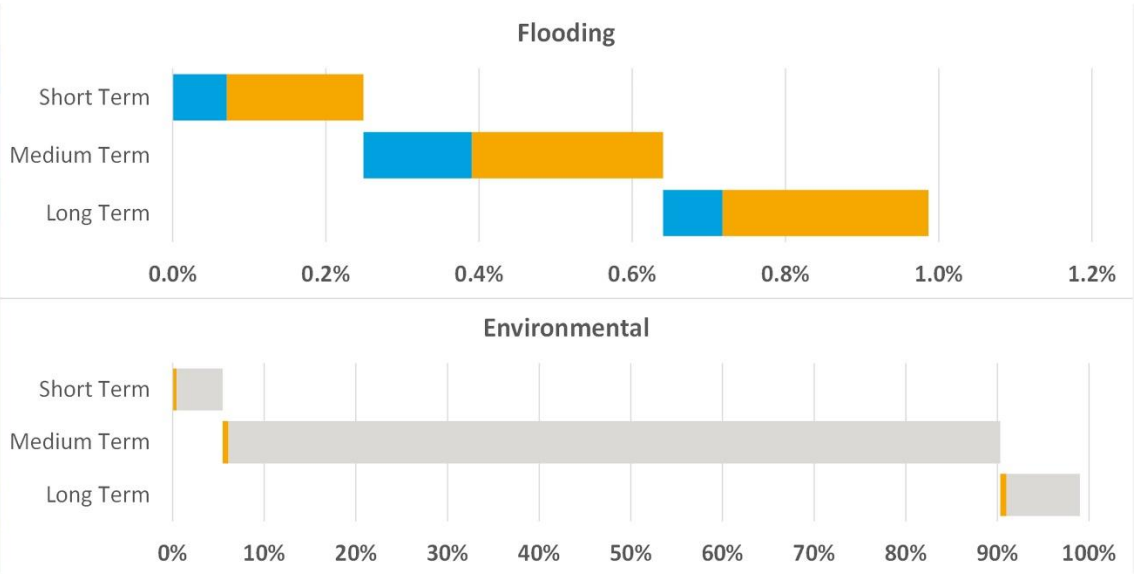
The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.









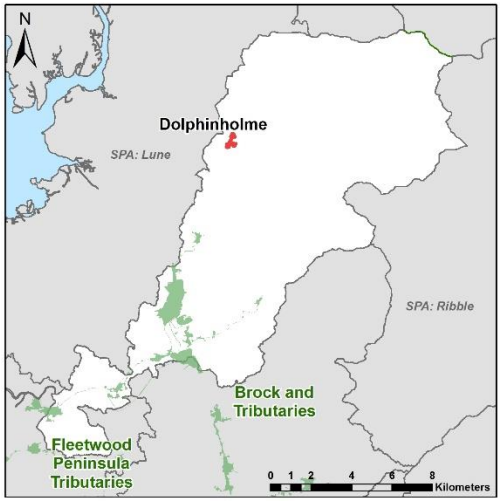
5.2.4.3 TPUs with population less than 2,000: Wyre and Calder Operational Catchment (OC)

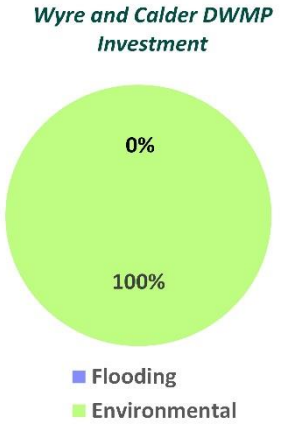
Figure 30 Details of the DWMP investment plan for the Wyre and Calder OC

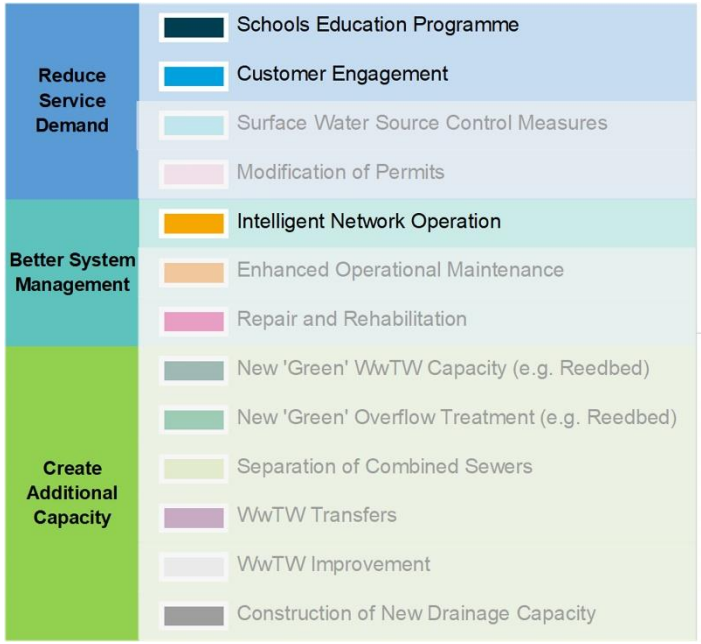
The data on this page gives details of the investment plan for the TPUs within the Wyre and Calder OC. The plan shows the geographic location of these TPUs within the Wyre and Calder OC.

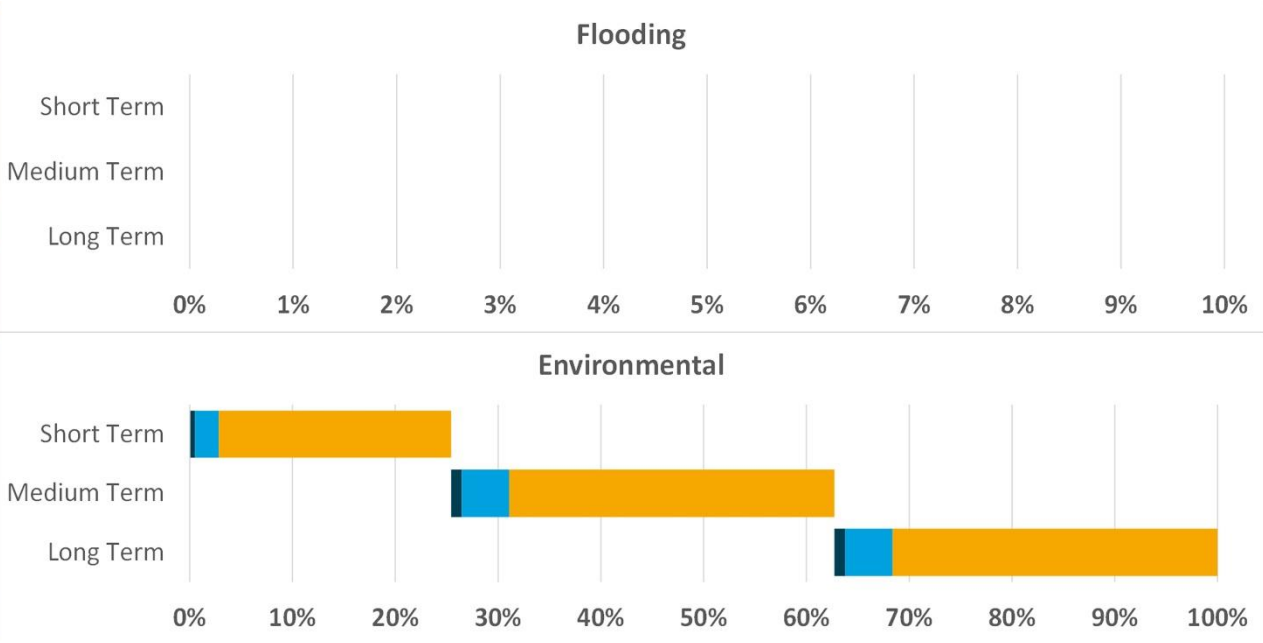
The pie chart to the right of the plan indicates the percentage spilt of proposed flooding and environmental investment. Environmental investment includes work to address storm overflows, wastewater treatment works and pollution of watercourses.

The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in the short, medium or long term.









5.3 Other projects and investment

In addition to the improvements and benefits that the WINEP and the DWMP will drive in the years to come, there are also other projects that will help to achieve our ambitions. One of which is our Better Rivers: Better North West project which aims to improve the region's river water quality.

5.3.1 Better Rivers: Better North West

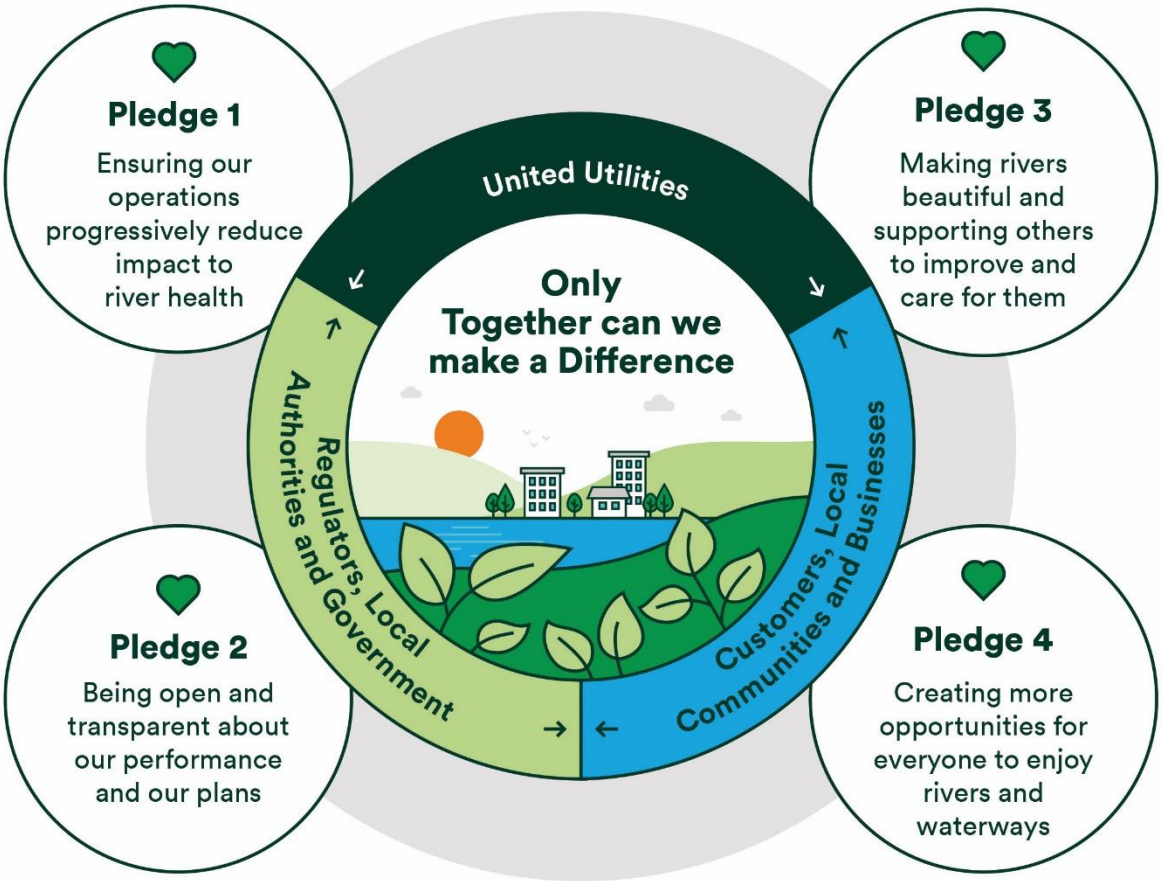
The North West is home to some of the most beautiful natural landscapes. We take our role in protecting them very seriously so they can be enjoyed by all. We are investing significantly to reduce the impact that wastewater has on the natural environment and our long-term ambition is to eliminate pollution incidents.

We want to demonstrate how we are addressing concerns regarding storm overflows and making our contribution to improving river health. Through our Better Rivers: Better North West plan, we have made four pledges which will include improving our wastewater network and treatment assets, collecting more data and sharing it, greater innovation and more use of nature-based solutions (Figure 31).

We are determined to build a coalition of the willing to improve the region's river water quality and catalyse action from many parties. At the heart of this will be addressing surface water management at scale and securing continued investment in effective end-to-end wastewater management is necessary to improve river water quality. This programme sets out our ambitions for the next three years and beyond.

You can find out more about the Better Rivers: Better North West plan on our website (https://www.unitedutilities.com/corporate/responsibility/environment/reducing-pollution/storm-overflows/our-commitments-to-river-health/).

Figure 31 Overview of the Better Rivers: Better North West project



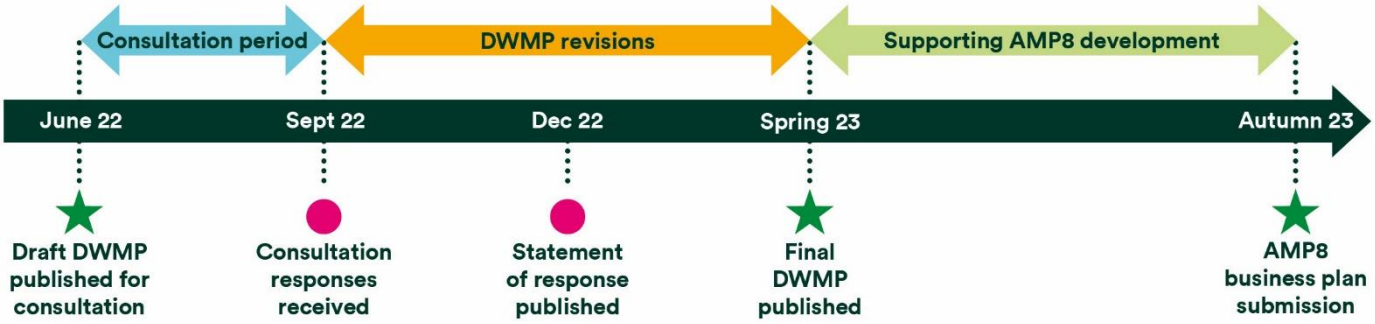
6. Embedding the DWMP

Since we began our DWMP journey when the framework was published in 2018, we have now produced our first ever plan. We have done this with the support from customers and stakeholders where we have listened to, reflected upon and made changes to different views, priorities and ambitions that we have for the North West, now and in the future.

The DWMP encompasses a host of documents covering different topic areas from assessing risks to identifying opportunities, and the SPA documents like this one for the Wyre catchment. The DWMP is not a static programme and will continue to work with stakeholders to develop partnership options and strategies, which will make a difference within the Wyre catchment.

Moving forwards, the DWMP will be a key component in the development of our business plan for investment cycle 2025 – 2030 (AMP8, Figure 32). Here, we will be able to continue to work in partnership to identify joint opportunities to mitigate risk, to improve the environment and create spaces for communities to enjoy.

Figure 32 Timeline of key milestones



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[8] https://wyreriverstrust.org/

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Water for the North West