

**United Utilities Water**

# **Drainage and Wastewater Management Plan 2023**

## **Eden and Esk DWMP**

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## Glossary

For the glossary, refer to document C003.

# 1. Introduction to the 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.

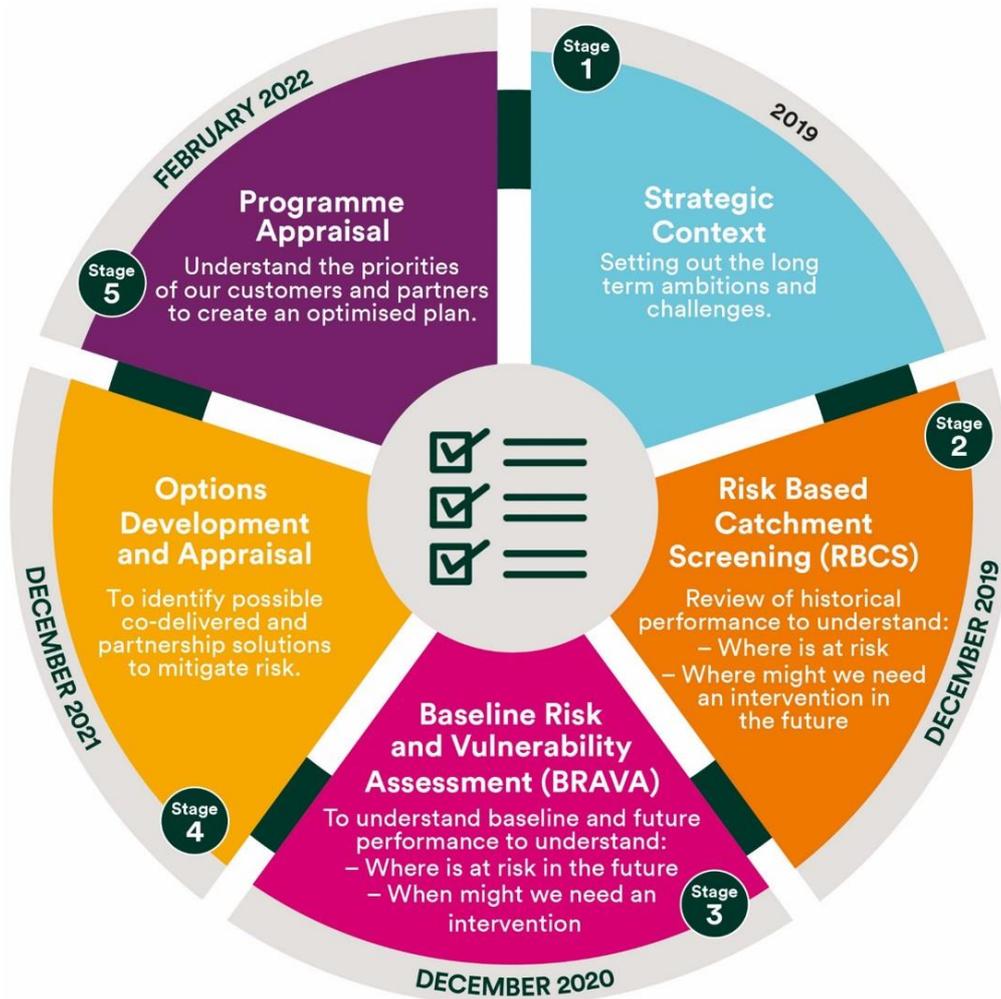
The plan will be set out at three levels ( Figure 1) to maximise the potential for partnership working and for effective engagement between regulators and stakeholders at both company-wide level and more locally.

**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 Eden and Esk SPA.

## 2. Background to the Eden and Esk catchment

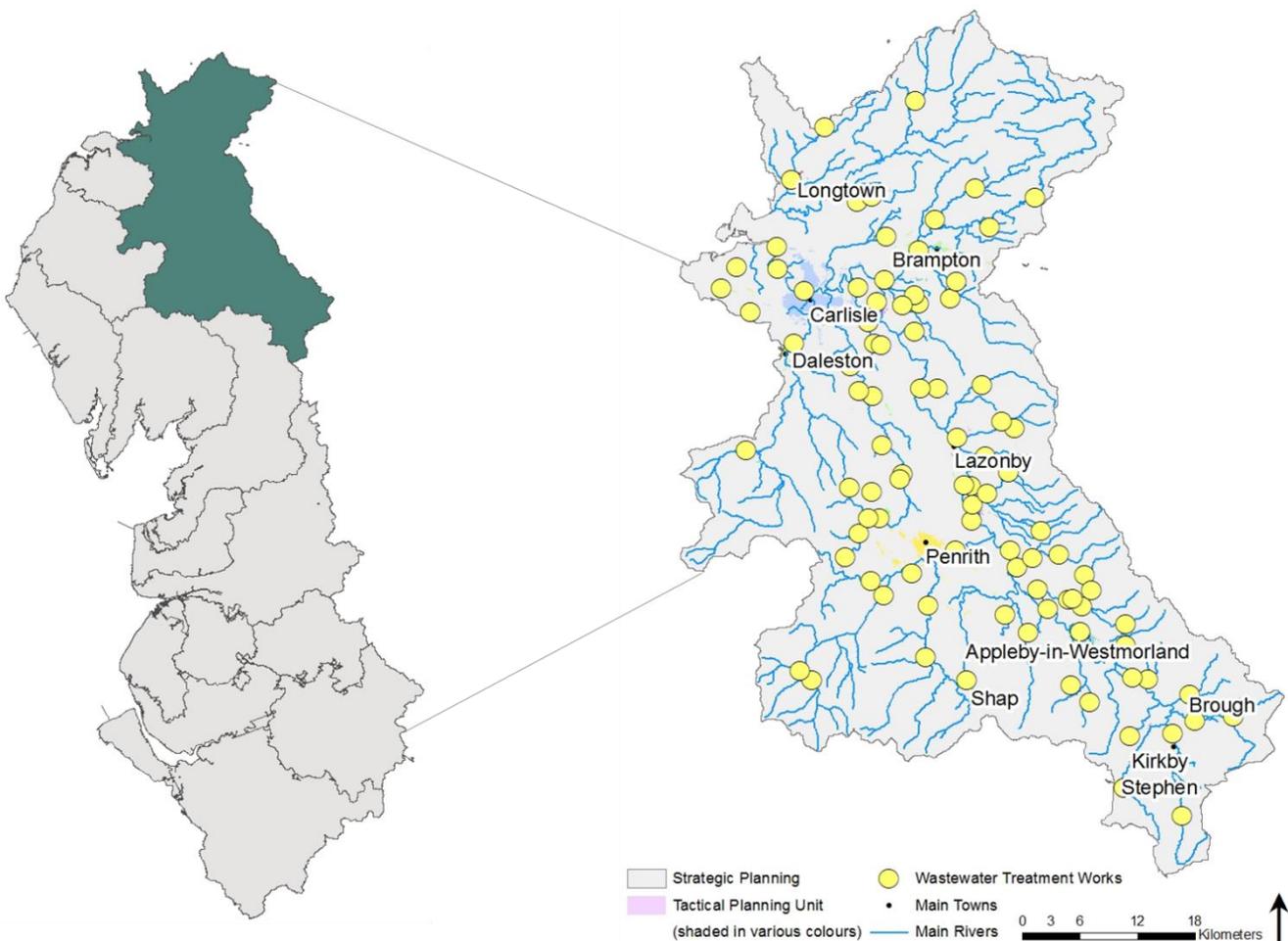
The Eden and Esk catchment area covers 2715.3km<sup>2</sup> between the fells of the Lake District and the Pennines. The land within this catchment is dominated mostly by agriculture, with the Eden Valley providing some of the most productive agricultural land in Cumbria <sup>[1]</sup>.

There are six main sub catchments:

- Caldew – West of the catchment, the Caldew is located within the fells to the north of Keswick <sup>[2]</sup>.
- Eamont – South west of the catchment, Eamont contains two main rivers; Lowther and Eamont. These rivers run through Bampton and Askham <sup>[3]</sup>.
- Eden Lower – Central area of the catchment, found downstream of Penrith. The Eden join the Esk and Irthing, flowing through Carlisle and enters into Solway Firth <sup>[4]</sup>.
- Eden Upper – South East of the catchment, flows through Kirkby Stephen and Appleby <sup>[5]</sup>.
- Esk and Irthing – North east of the catchment, along the border with Scotland <sup>[6]</sup>.
- Petteril – Centre of the catchment, flowing northward from Penrith to Carlisle <sup>[7]</sup>.

There are 95 wastewater tactical planning units (TPU, also known as wastewater treatment work (WwTW) drainage catchments) within the Eden and Esk 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 Carlisle to smaller, rural catchments such as Warcop. The TPUs are highlighted in Figure 3.

**Figure 3 Map of the Eden and Esk SPA**



There are numerous strategic management plans within the Eden and Esk that are owned by various other organisations. Within the Eden and Esk 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); 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 Eden and Esk. 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 Eden and Esk catchment
<p>River Basin Management Plan (RBMP) <sup>[8]</sup></p> <p>Owner: Environment Agency</p>	<p>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.</p>	<p>The main reasons for not achieving good ecological status are physical modifications and pollution from rural areas.</p> <p>Future challenges predicted by the Environment Agency include invasive non-native species, changes to natural flow and levels, physical modification and pollution from agriculture and rural areas.</p> <p>Future challenges predicted by partnerships include changes to the natural flow and water levels, pollution from wastewater, agriculture and rural areas.</p>
<p>Flood Risk Management Plan (FRMP) <sup>[9]</sup></p> <p>Owner: Environment Agency</p>	<p>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.</p>	<p>The Eden and Esk SPA covers both the Solway Tweed and the North West River Basin Districts (RBDs).</p> <p>The Solway Tweed RBD catchment is a cross border river basin that includes both English and Scottish waterbodies and covers an area of approximately 17,500km<sup>2</sup>. The area is home to around 450,000 people with important economic activities including agriculture, tourism, forestry and manufacturing. In the English section of the catchment, there are approximately 29,000 people living in estimated areas of flood risk with 2,500 of these people living in areas deemed a high risk (1 in 30 chance of flooding in any given year). The main river flood risks identified in the Eden catchment are areas such as Carlisle, Appleby and Penrith.</p> <p>In relation to coastal and tidal flood risk, the Solway coast is overall low-lying and due to it being a soft sedimentary coast with a large tidal range, this coastline is deemed highly dynamic.</p> <p>Surface water flood risk is a general problem for the Solway Tweed catchment area due to reasons such as run-off from fields and roads or due to insufficient capacity of sewers and drains.</p> <p>The flood risk from groundwater and sewer flooding in the Solway Tweed area is deemed low due to the issues being localised. Reservoir flood risk poses a threat to downstream areas within the Solway Tweed.</p> <p>The North West RBD covers an area of approximately 13,200km<sup>2</sup> 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.</p>

Management plan	Overview	Key aspects for the Eden and Esk catchment
		<p>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.</p>
<p>Surface Water Management Plan (SWMP) <sup>[10]</sup></p> <p>Owner: Lead Local Flood Authority (LLFA)</p>	<p>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.</p> <p>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. United Utilities Water (Uuw) continues to work closely with LLFAs and supports the development of SWMPs where required, and the delivery of SWMPs where they are published.</p>	
<p>Catchment Based Approach (CaBA) Catchment Plan <sup>[8]</sup> <sup>[11]</sup> <sup>[12]</sup></p> <p>Owner: The Eden Catchment Partnership</p>	<p>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.</p>	<p>The Eden Catchment Partnership along with its partners work by the following principles in order to deliver environmental and flooding outcomes:</p> <ul style="list-style-type: none"> <li>• Collaborative working;</li> <li>• Catchment approach;</li> <li>• Integrated solutions;</li> <li>• Community-focussed decision making; and</li> <li>• Evolution and learning.</li> </ul> <p>The catchment partnership has developed the Revitalising Eden: The Eden Catchment Plan which is a local response to water management issues across the Eden and Esk. The plan aims to identify and prioritise the action needed to manage the rivers sustainably whilst improving the natural ecosystem services of the catchment. There is a focus on the climate crisis and flooding.</p> <p>Throughout the catchment, there are opportunities for water quality, water quantity, ecological networks, carbon capture and storage and combining ecosystem services improvements.</p>

## 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 Eden and Esk catchment we have engaged with stakeholders such as:

- The Environment Agency;
- Cumbria County Council;
- Carlisle Council;
- Eden Borough Council; and
- Eden Rivers Trust (host of the Eden and Esk 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 Eden and Esk catchment are outlined in section 4.1.

*Figure 4 DWMP framework for engagement*

### A framework for engagement in the North West



## 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.

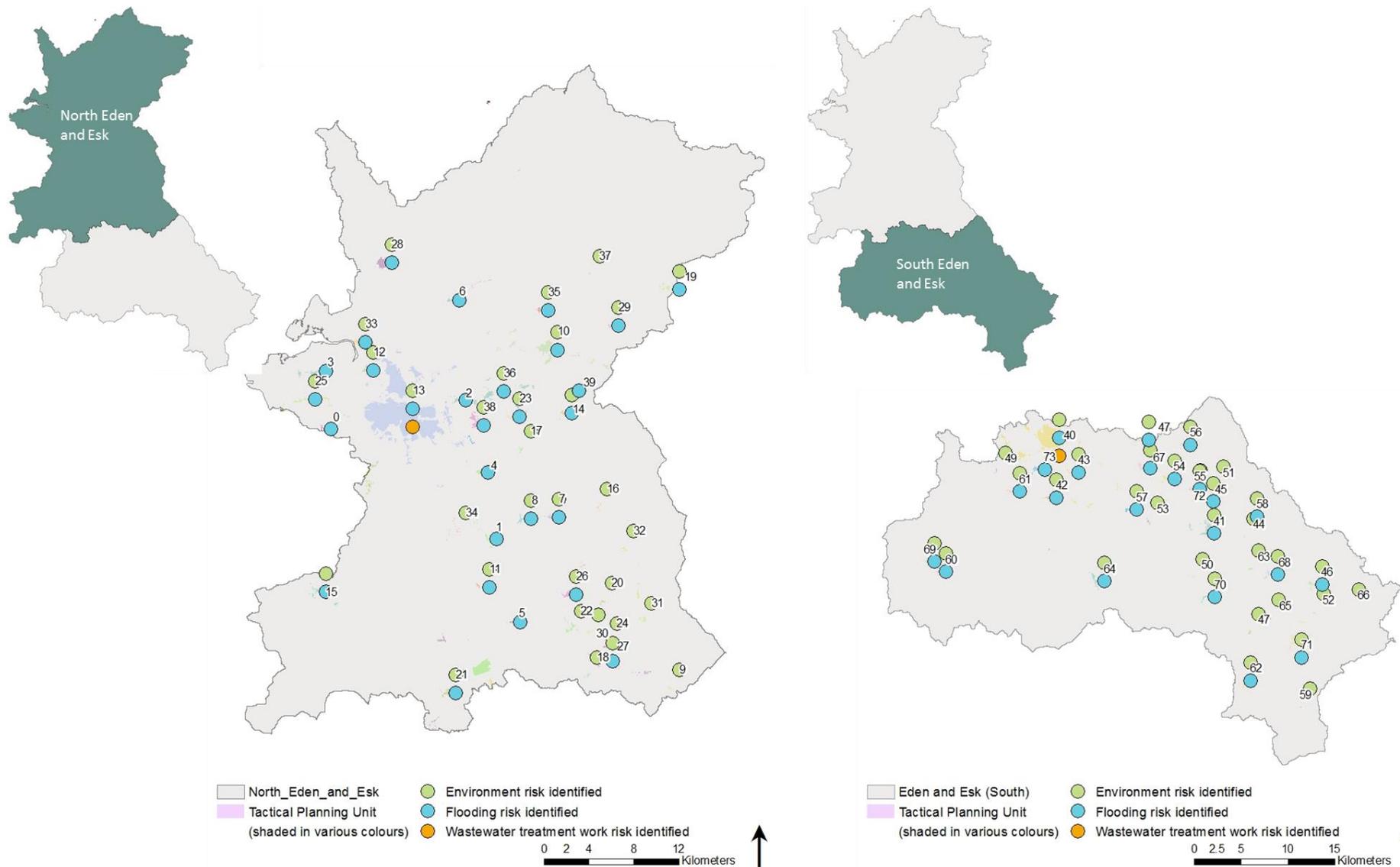
Within the Eden and Esk catchment, the RBCS stage identified 76 out of 95 TPUs that required further investigation and therefore passed onto the BRAVA stage (outlined in section 3.2).

Figure 5 indicates which of the RBCS categories (environmental, flooding and wastewater treatment works capacity) have triggered within each TPU. There are numerous TPUs which did not trigger for RBCS across any of the categories and are therefore not shown in Figure 5. A list of these TPUs can be found in Table A.1 and Table A.2 in the Appendix. Environmental and flooding categories are the most common within the Eden and Esk catchment (Figure 5), which is supported by the highest triggered RBCS assessments which are:

- Storm Overflow Assessment Framework - (66/95) – Environment;
- External Sewer Flooding - (51/95) – Flooding.

Further detail on the approaches and assessment results can be found in TA4.

**Figure 5 Map of the Risk Based Catchment Screening (RBCS) results for the Eden and Esk catchment. Risk categories indicate areas triggering further investigation following Risk Based Catchment Screening. The TPU names corresponding to the numbers in the map can be found in Table A.1 in the Appendix**



## 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 Eden and Esk 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
Aglionby						
Ainstable						
Appleby						
Armathwaite						
Askham						
Blencarn						
Bolton Penrith						
Brackenber						
Brampton (Eden)						
Brampton Carlisle						
Brough						
Burgh by Sands						
Caldbeck						
Calthwaite						
Cargo						
Carlisle						
Castle Carrock						
Cote Hill						
Croglin						
Crosby Garret						
Culgaith						
Cumwhitton						
Dacre						

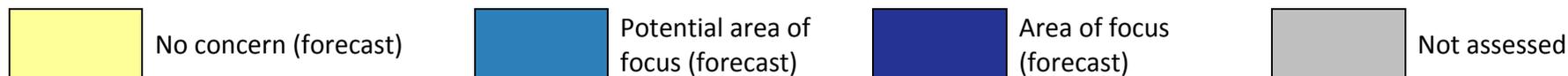
BRAVA	
	No concern (forecast)
	Potential area of focus (forecast)
	Area of focus (forecast)
	Not assessed/not applicable

Tactical Planning Unit	Environmental					
	Pollution Assessment	Storm Overflow Performance		Bathing and Shellfish Spill Assessment		
	2020	2020	2050	2020	2030	2050
Dalston						
Dry Beck						
Dufton						
Edenhall						
Gil Island						
Glassonby Village						
Glenridding						
Great Asby						
Great Orton						
Great Salkeld						
Greystoke						
Heads Nook						
Hunsonby						
Kaber						
Kings Meaburn						
Kirk Bampton						
Kirkby Stephen						
Kirkby Thore						
Kirkoswald						
Langwathby						
Laversdale						
Little Salkeld						
Long Marton East						
Long Marton West						
Longtown						
Low Hesket						
Low Row						
Melmerby						
Milburn						

Tactical Planning Unit	Environmental					
	Pollution Assessment	Storm Overflow Performance		Bathing and Shellfish Spill Assessment		
	2020	2020	2050	2020	2030	2050
Morland						
Motherby						
Murton East						
Outhgill						
Patterdale						
Penrith						
Plumpton North						
Pooley Bridge East						
Ravenstonedale						
Renwick						
Rockcliffe						
Sandford Village						
Shap						
Skelton						
Smithfield						
Sockbridge						
Soulby						
South Stanmore						
Southwaite						
Talkin						
Temple Sowerby						
Walton						
Warcop						
Warwick Bridge						
West Hall						
Wetheral & Great Corby						

**Table 3 Flooding BRAVA results**

**Key**



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	
Aglionby	Blue	Blue	Blue	Yellow	Yellow	Blue	Yellow	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Ainstable	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Dark Blue	
Appleby	Dark Blue	Dark Blue	Dark Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Armathwaite	Blue	Blue	Blue	Yellow	Yellow	Yellow	Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Askham	Blue	Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	
Blencarn	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Yellow	
Bolton Penrith	Blue	Blue	Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Brackenber	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Dark Blue	
Brampton (Eden)	Blue	Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow	
Brampton Carlisle	Blue	Blue	Blue	Yellow	Blue	Dark Blue	Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Brough	Blue	Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Dark Blue	
Burgh by Sands	Blue	Blue	Blue	Blue	Yellow	Dark Blue	Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Caldbeck	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Calthwaite	Blue	Blue	Blue	Yellow	Yellow	Yellow	Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow	
Cargo	Blue	Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Blue	
Carlisle	Blue	Dark Blue	Dark Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Yellow	
Castle Carrock	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Dark Blue	
Cote Hill	Blue	Blue	Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Yellow	
Croglin	Blue	Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Blue	

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
Crosby Garret													
Culgaith													
Cumwhitton													
Dacre													
Dalston													
Dry Beck													
Dufton													
Edenhall													
Gilsland													
Glassonby Village													
Glenridding													
Great Asby													
Great Orton													
Great Salkeld													
Greystoke													
Heads Nook													
Hethers Gill													
Hunsonby													
Kaber													
Kings Meaburn													
Kirk Bampton													
Kirkby Stephen													
Kirkby Thore													
Kirkoswald													

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
Langwathby													
Laversdale													
Little Salkeld													
Long Marton East													
Long Marton West													
Longtown													
Low Hesket													
Low Row													
Melmerby													
Milburn													
Morland													
Motherby													
Murton East													
Outhgill													
Patterdale													
Penrith													
Plumpton North													
Pooley Bridge East													
Ravenstonedale													
Renwick													
Rockcliffe													

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
Sandford Village													
Shap													
Skelton													
Smithfield													
Sockbridge													
Soulby													
South Stanmore													
Southwaite													
Talkin													
Temple Sowerby													
Walton													
Warcop													
Warwick Bridge													
West Hall													
Wetheral & Great Corby													

**Table 4 Wastewater treatment works BRAVA results**

Tactical Planning Unit	Wastewater Treatment Works		
	Risk to wastewater treatment works (WwTW) capacity		
	2020	2030	2050
Aglionby			
Ainstable			
Appleby			
Armathwaite			
Askham			
Bolton Penrith			
Brampton (Eden)			
Brampton Carlisle			
Brough			
Burgh by Sands			
Calthwaite			
Cargo			
Carlisle			
Castle Carrock			
Cote Hill			
Culgaith			
Dalston			
Glenridding			
Great Asby			
Great Orton			
Greystoke			
Heads Nook			
Kirk Bampton			
Kirkby Stephen			

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

Tactical Planning Unit	Wastewater Treatment Works		
	Risk to wastewater treatment works (WwTW) capacity		
	2020	2030	2050
Kirkby Thore			
Kirkoswald			
Langwathby			
Long Marton West			
Longtown			
Low Hesketh			
Low Row			
Milburn			
Morland			
Murton East			
Penrith			
Plumpton North			
Pooley Bridge East			
Ravenstonedale			
Rockcliffe			
Shap			
Smithfield			
Sockbridge			
Talkin			
Temple Sowerby			
Walton			
Warcop			
Warwick Bridge			
Wetheral & Great Corby			

**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
Aglionby	More resilient	More resilient	Not assessed
Ainstable	Less resilient	Less resilient	Not assessed
Appleby	More resilient	More resilient	Not assessed
Armathwaite	More resilient	More resilient	Not assessed
Askham	More resilient	More resilient	Not assessed
Bampton	More resilient	More resilient	Less resilient
Blencarn	More resilient	More resilient	Not assessed
Brampton (Eden)	More resilient	More resilient	Not assessed
Brampton Carlisle	Less resilient	Less resilient	Not assessed
Brough	More resilient	More resilient	Not assessed
Busk	Less resilient	More resilient	Not assessed
Caldbeck	Less resilient	Less resilient	Not assessed
Calthwaite	Less resilient	Less resilient	Not assessed
Cargo	Less resilient	More resilient	Less resilient
Carlisle	Less resilient	Less resilient	Less resilient
Castle Carrock	More resilient	More resilient	More resilient
Cocklakes	Less resilient	Less resilient	Not assessed
Cote Hill	More resilient	More resilient	Not assessed

Resilience	
More resilient	More resilient
Less resilient	Less resilient
Not assessed	Not assessed

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
Croglin			
Crosby Garret			
Culgaith			
Cumwhitton			
Dacre			
Dalston			
Dry Beck			
Dufton			
Edenhall			
Faugh			
Gilsland			
Glassonby Village			
Glenridding			
Great Asby			
Great Orton			
Great Salkeld			
Greystoke			
Heads Nook			
Hunsonby			
Hutton In The Forest			
Kaber			
Kings Meaburn			
Kirkandrews			
Kirkby Stephen			
Kirkby Thore			

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
Kirkoswald			
Laithes			
Langwathby			
Laversdale			
Little Blencowe			
Little Salkeld			
Long Marton East			
Long Marton West			
Longtown			
Low Hesketh			
Low Row			
Melmerby			
Milburn			
Morland			
Motherby			
Murton East			
Newbiggin (Eden)			
Outhgill			
Patterdale			
Penrith			
Plumpton North			
Plumpton South			
Pooley Bridge East			
Ravenstonedale			
Renwick			
Rockcliffe			

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
Sandford Village			
Shap			
Skelton			
Sleet Beck			
Smithfield			
Sockbridge			
Soulby			
South Stanmore			
Southwaite			
Talkin			
Temple Sowerby			
The How			
Walton			
Warcop			
Warwick Bridge			
West Hall			
Wetheral & Great Corby			
Wreay			

## 3.3 Problem characterisation

### 3.3.1 Complex catchments

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 Eden and Esk, two TPUs were identified to be 'complex' based on problem characterisation.

- Carlisle; and
- Penrith.

### 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 Eden and Esk have been identified as having 'strategic growth':

- Carlisle.

### 3.3.3 Carlisle

The Carlisle TPU (Figure 6) is to the West of the Eden and Esk, consisting of just under 1,000km of sewer network serving approximately 39,000 properties and a residential population of approximately 83,000 people. The majority of watercourses in the TPU are classed as 'moderate' under the Water Framework Directive (WFD) 2019, except for the Caldew (downstream of Caldbeck) which is classed as 'poor' and Pow Maughan Beck which is classed as 'bad'.

The Carlisle TPU is considered both a strategic and complex catchment. It is of strategic concern due to significant growth, with an average growth of 500 houses per year in the last four years<sup>[13]</sup>, and a projected 17% increase in residential population by 2050. This could drive a significant amount of further development to meet housing need, and increase pressure on the network and wastewater treatment works.

The St. Cuthbert's garden village development to the south of the TPU (Figure 6) could include over 10,000 residential units and 46,000sqm of commercial space<sup>[14]</sup>, and could drive a high number of new connections and increase the amount of wastewater needing treatment. Carlisle Wastewater Treatment Works is across the city, and connecting the development to the works would require either an enormous infrastructure project laying a new sewer across the city, or to connect an existing sewer that lies in the riverbed of the Caldew and significantly increasing its loading. Another option is to build a new, dedicated wastewater treatment works for the development. Deciding which option would be best is a challenge and all options will require significant investment in both the network and wastewater treatment works to ensure protection of the environment and water quality.

Carlisle is also a complex catchment, with a number of storm overflows within the area, and uncertainty around medium and long term performance particularly with regards to meeting future new targets. Alongside this the BRAVA process identified risks for internal flooding, external flooding, flooding of open spaces, flooding in 1-in-50-year storm events, pollution, sewer collapse, and blockages by 2050. Areas for further investigation are highlighted in Figure 7. 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 Carlisle TPU, including St Cuthbert's Garden Village

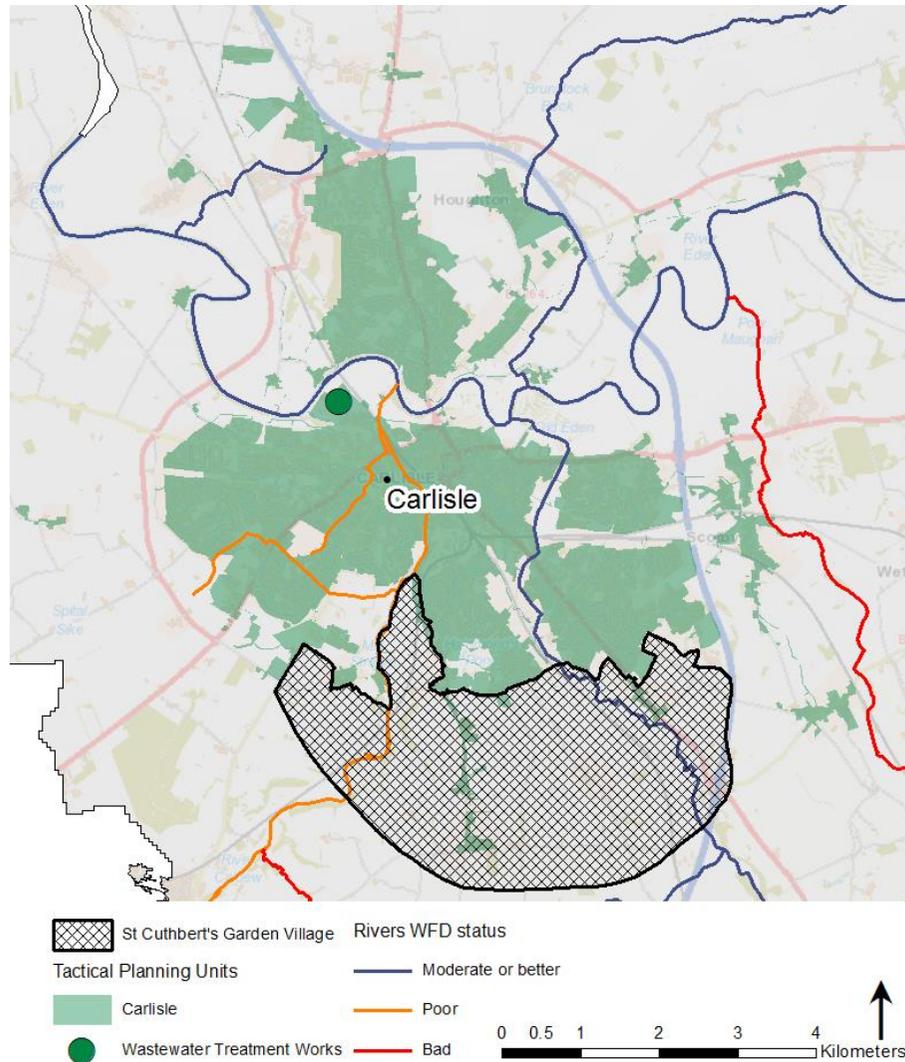
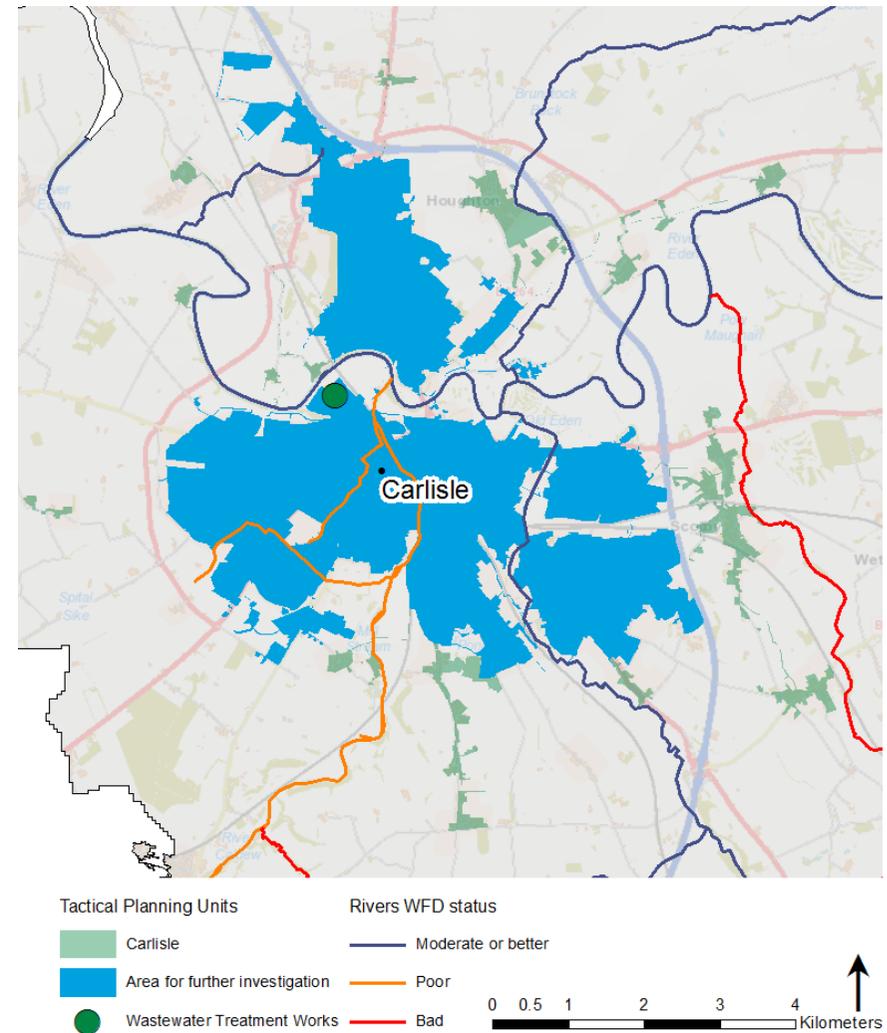


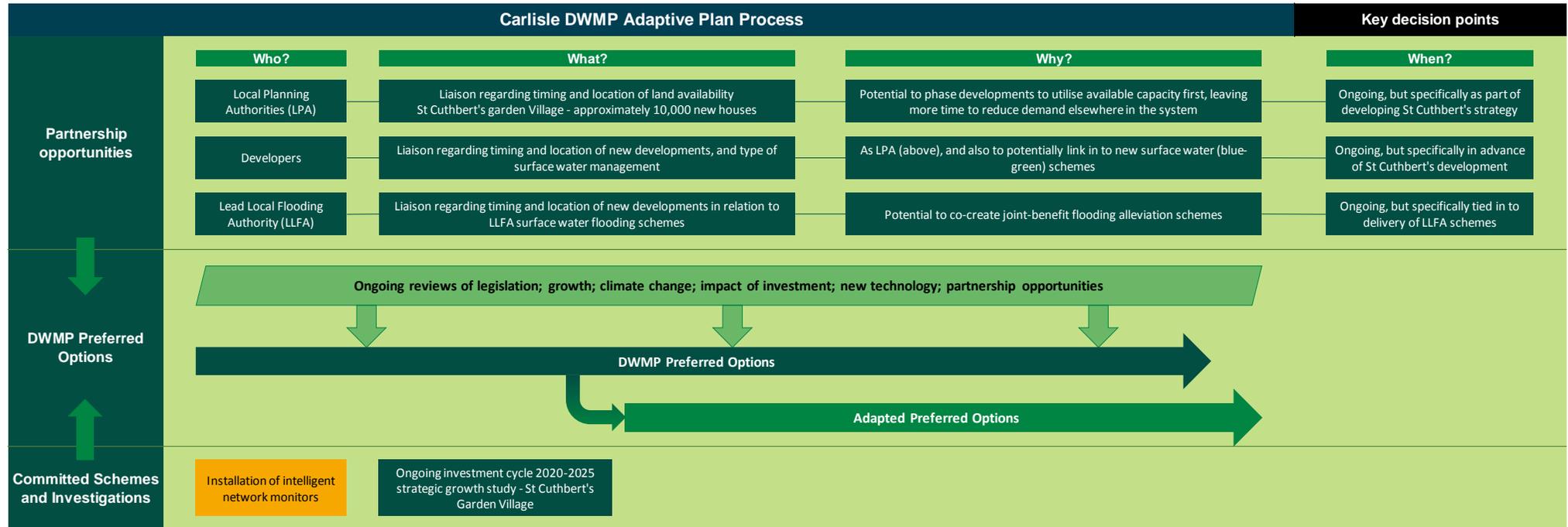
Figure 7 Map of Carlisle TPU with areas for further investigation highlighted in blue



### 3.3.3.1 Carlisle adaptive plan

The first part of the adaptive plan process (Figure 8) highlights the importance of partnership working and regular data reviews.

Figure 8 Carlisle 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
<b>Government legislation</b>	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.
<b>Development growth projections</b>	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.
<b>Climate change projections</b>	As more climate data becomes available, climate projections are modified, which may indicate changes to temperature and rainfall patterns.
<b>Impact of investment</b>	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.
<b>Development of new technology</b>	Over time, new technology provides opportunities to address and resolve risks differently, or more efficiently.
<b>Partnership opportunities</b>	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 9 shows the second part of the Carlisle adaptive plan, reflecting the different option types identified as being appropriate for Carlisle. 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.

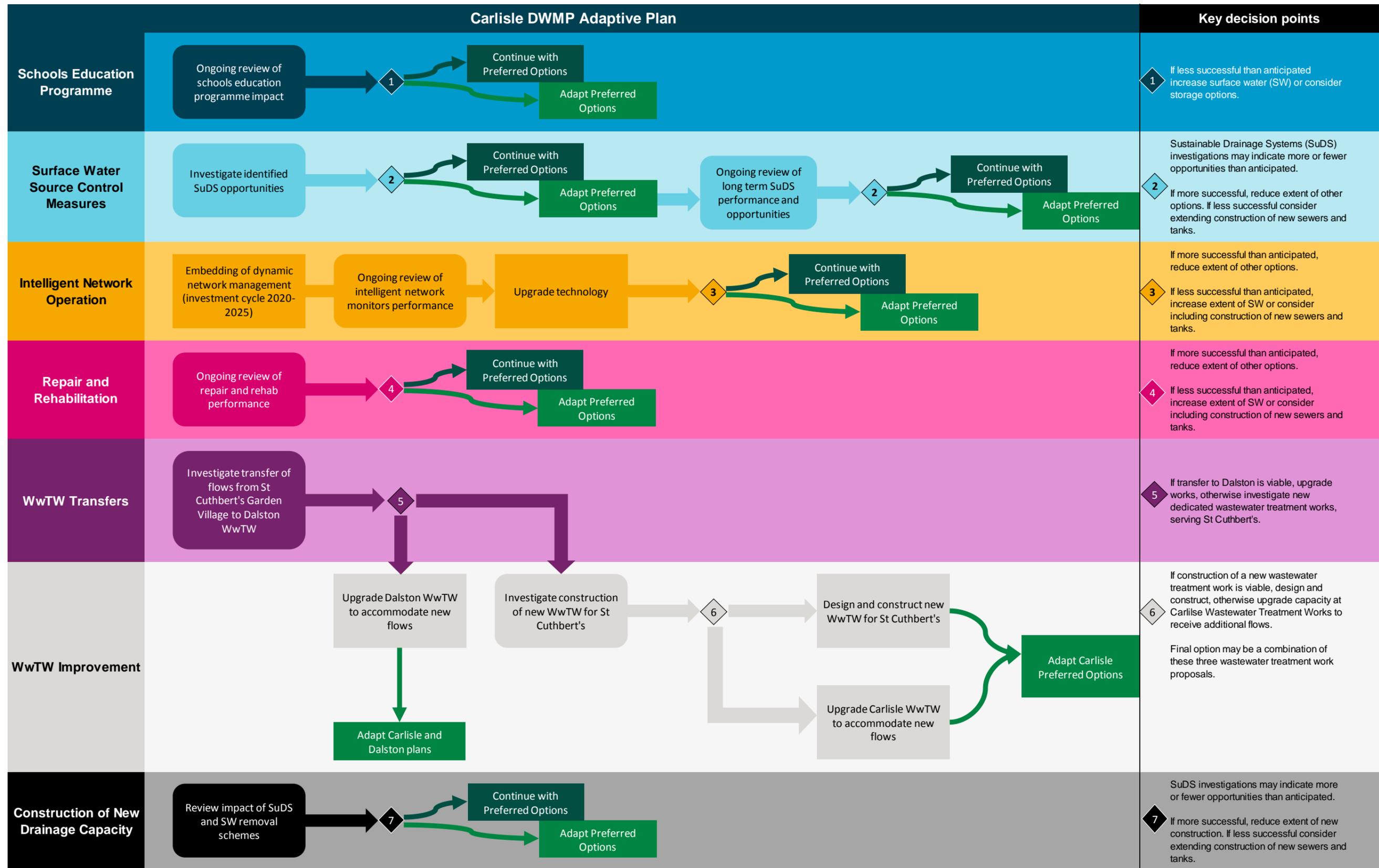
Within Carlisle, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 above in Figure 8. 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 9 Carlisle Adaptive Plan – Possible adaptive pathways as knowledge and opportunities change over time



### 3.3.4 Penrith

The Penrith TPU (Figure 10) is in the middle of the Eden and Esk. The TPU consists of approximately 280km of sewer network, serving just over 8,500 properties and a residential population of approximately 18,000 people. All of the watercourses in the TPU are classed as 'moderate' under the WFD 2019.

Penrith TPU is a complex catchment, with a number of storm overflows within the area, and uncertainty around medium and long term performance particularly with regards to meeting future new targets. Alongside this the BRAVA process identified risks for internal flooding, external flooding, flooding of open spaces, flooding in 1-in-50-year storm events, pollution, sewer collapse, and blockages by 2050. Areas for further investigation are highlighted in Figure 11. This is against a backdrop of a projected 18% increase in residential population by 2050, which could drive associated development and increase pressure on the drainage 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, to ensure protection of the environment and water quality.

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

Figure 10 Map of the Penrith TPU

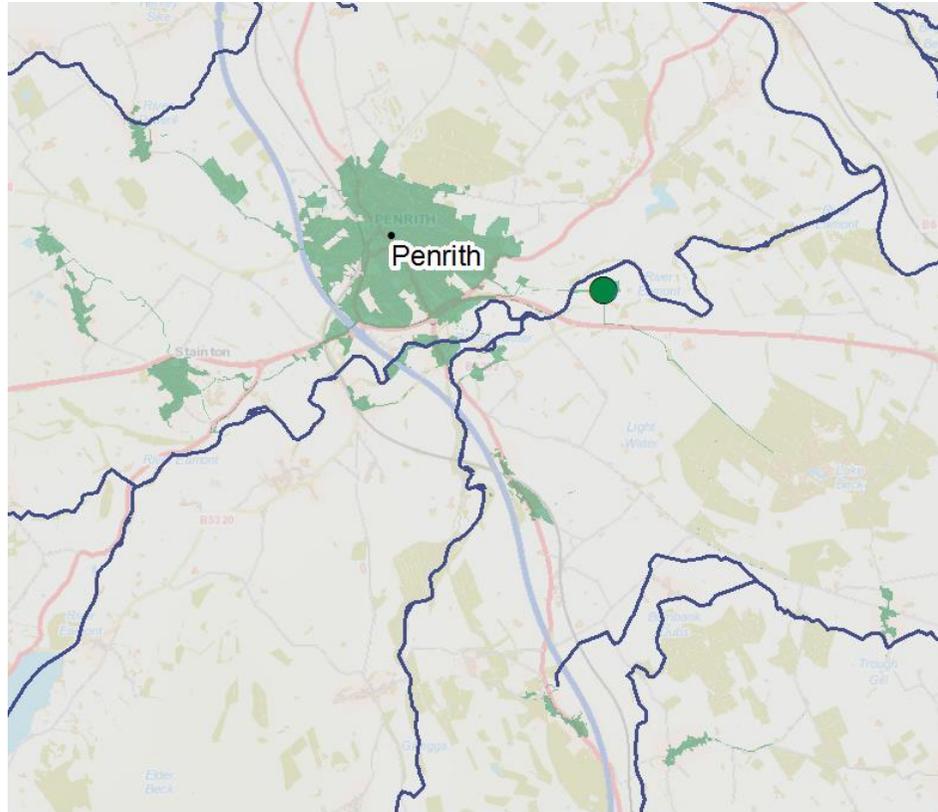
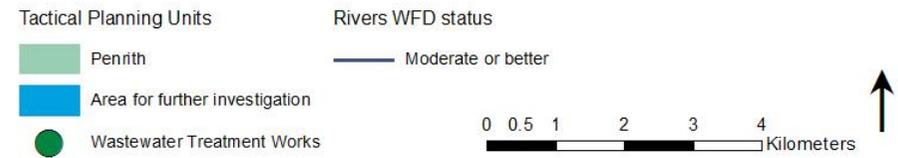
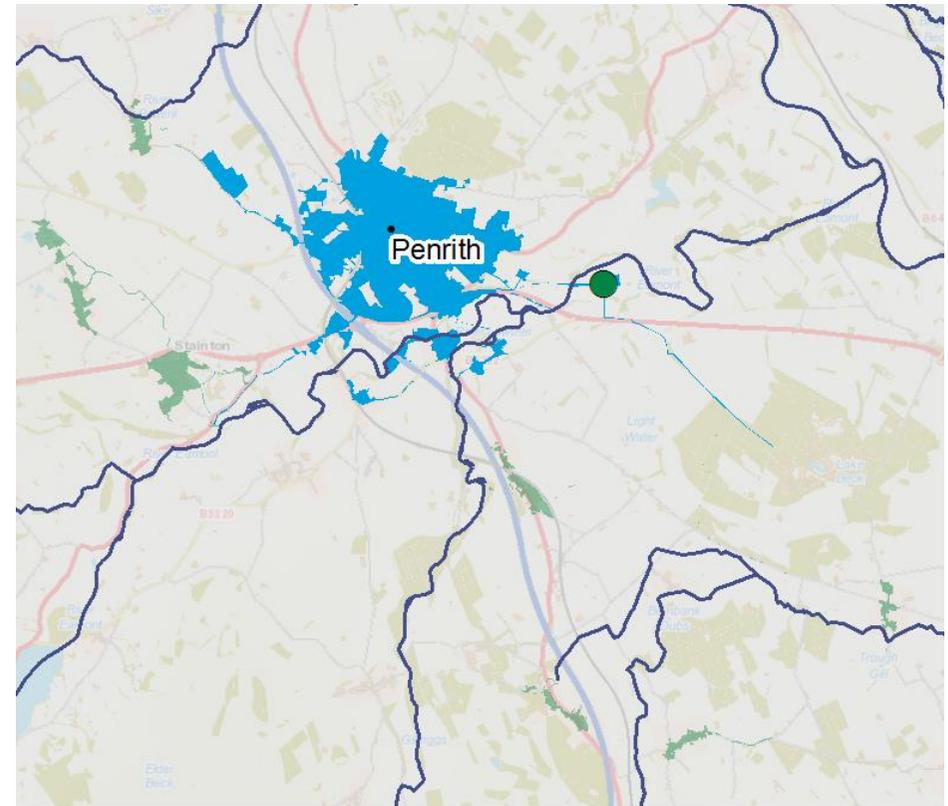


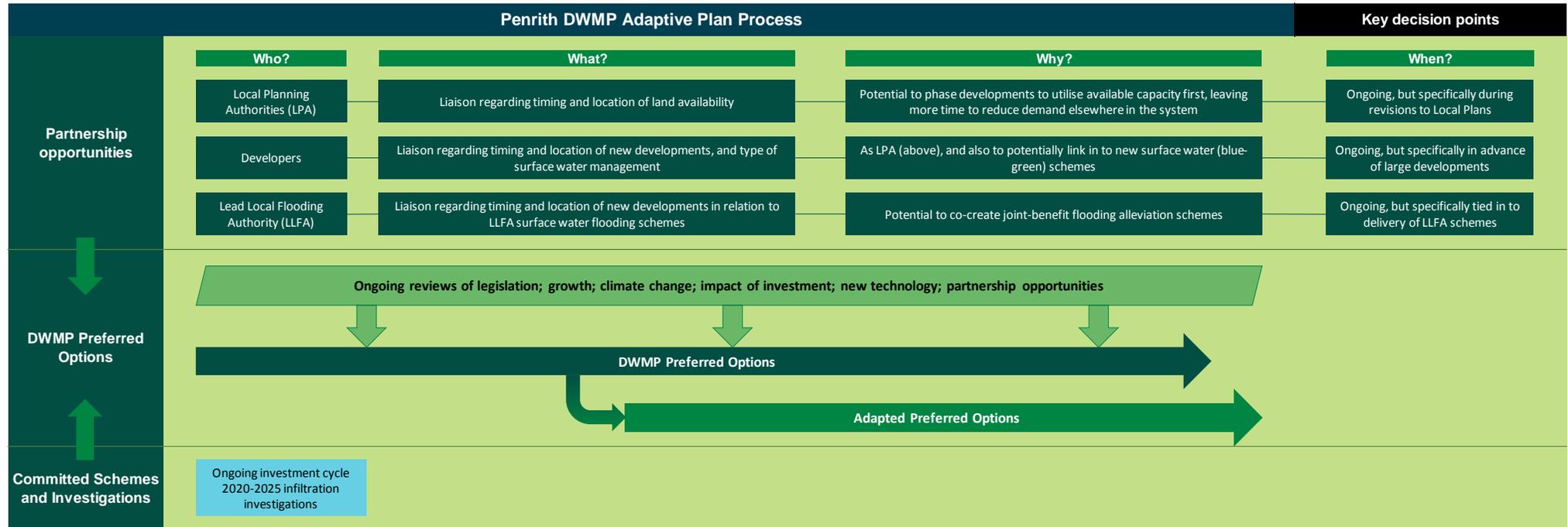
Figure 11 Map of the Penrith TPU with areas for further investigation highlighted in blue



### 3.3.4.1 Penrith adaptive plan

The first part of the adaptive plan process (Figure 12) highlights the importance of partnership working and regular data reviews

Figure 12 Penrith 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 7.

**Table 7 Examples of data that change over time and can impact upon the plan**

Type of data or information	Possible impacts of changes
<b>Government legislation</b>	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.
<b>Development growth projections</b>	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.
<b>Climate change projections</b>	As more climate data becomes available, climate projections are modified, which may indicate changes to temperature and rainfall patterns.
<b>Impact of investment</b>	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.
<b>Development of new technology</b>	Over time, new technology provides opportunities to address and resolve risks differently, or more efficiently.
<b>Partnership opportunities</b>	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 13 shows the second part of the Penrith adaptive plan, reflecting the different option types identified as being appropriate for Penrith. 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.

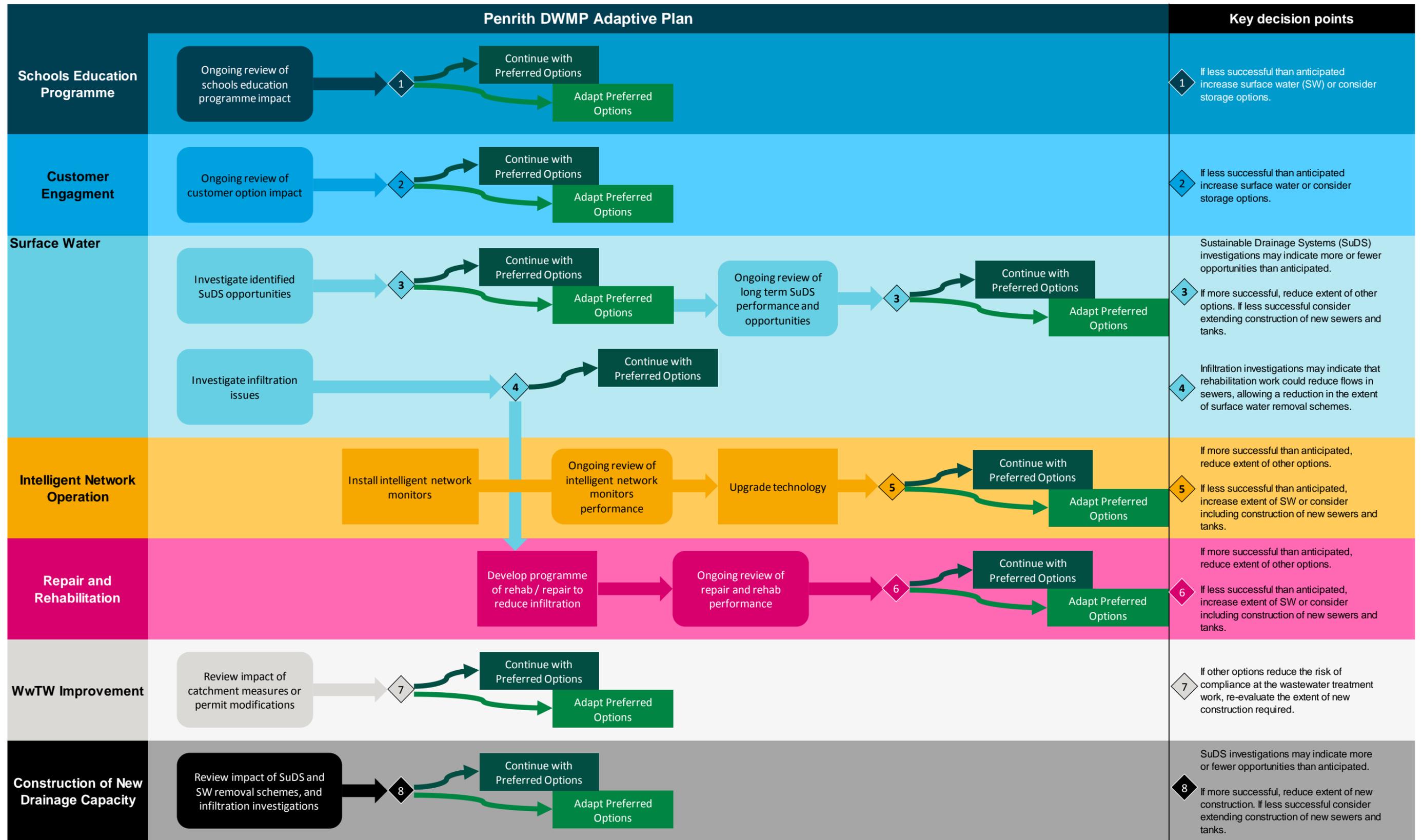
Within Penrith, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 above in Figure 12. 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 13 Penrith 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 14).

An options hierarchy was then used, which has been endorsed by customers and stakeholders from across the North West to select preferred solutions (Figure 15). 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 14 Options development process

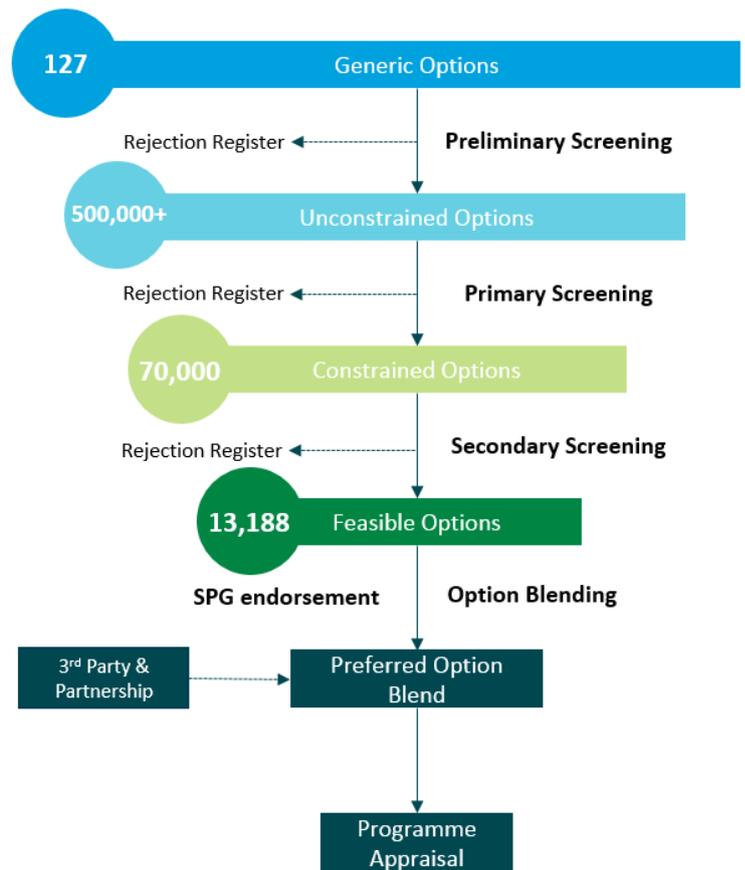


Figure 15 Options hierarchy



## 4.1 Eden and Esk partnerships options

In order to identify and develop potential partnership options in the Eden and Esk, 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.

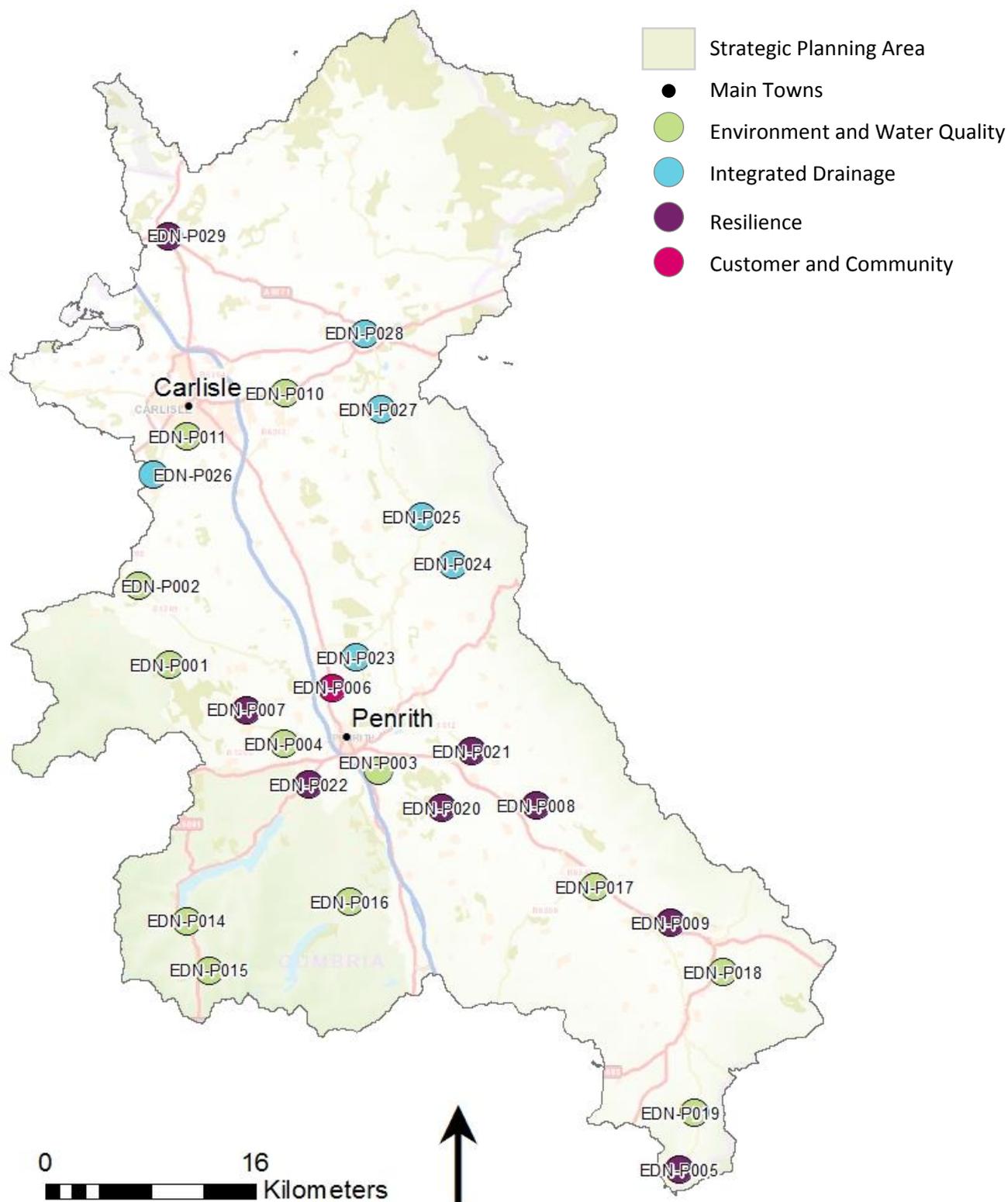
The remaining opportunities that did not make it into the key DWMP PoP, for example in areas with no wastewater assets, were captured in our organisation-wide partnership opportunity pipeline where they are considered alongside all other partnership opportunities. Another key reasons for opportunities 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 Eden and Esk SPG workshops are shown in Figure 16 and Table 8.

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 16 Overview of the potential partnership opportunities in the Eden and Esk



**Table 8 Partnership opportunities identified in the Eden and Esk**

<b>ID</b>	<b>Partnership Opportunity</b>	<b>Theme</b>	<b>Organisation Type</b>
EDN-P001	Water quality improvements project	Environment and Water Quality	Undisclosed
EDN-P002	River restoration project	Environment and Water Quality	Undisclosed
EDN-P003	Nutrient management project	Environment and Water Quality	Undisclosed
EDN-P004	Pollution management project	Environment and Water Quality	Private Sector
EDN-P005	Natural flood management opportunities project	Resilience	Undisclosed
EDN-P006	Campaign to improve water quality project	Customer and Community	Private Sector
EDN-P007	Natural flood management opportunities project	Resilience	Non-Governmental Organisations
EDN-P008	River restoration and natural flood management opportunities project	Resilience	Non-Governmental Organisations
EDN-P009	Natural flood management opportunities project	Resilience	Non-Governmental Organisations
EDN-P010	River restoration project	Environment and Water Quality	Non-Governmental Organisations
EDN-P011	River restoration project	Environment and Water Quality	Undisclosed
EDN-P012	River restoration project	Environment and Water Quality	Undisclosed
EDN-P013	River restoration project	Environment and Water Quality	Undisclosed
EDN-P014	River restoration project	Environment and Water Quality	Undisclosed
EDN-P015	River restoration project	Environment and Water Quality	Undisclosed
EDN-P016	River restoration project	Environment and Water Quality	Undisclosed
EDN-P017	River restoration project	Environment and Water Quality	Undisclosed
EDN-P018	River restoration project	Environment and Water Quality	Undisclosed
EDN-P019	Flood risk management project	Environment and Water Quality	Undisclosed
EDN-P020	Sustainable drainage solutions and natural flood management opportunities project	Resilience	Local Councils and Planning Authorities
EDN-P021	Sustainable drainage solutions and natural flood management opportunities project	Resilience	Local Councils and Planning Authorities
EDN-P022	Sustainable drainage solutions and natural flood management opportunities project	Resilience	Local Councils and Planning Authorities
EDN-P023	Surface water flood management project	Integrated Drainage	Local Councils and Planning Authorities
EDN-P024	Surface water flood management project	Integrated Drainage	Local Councils and Planning Authorities

ID	Partnership Opportunity	Theme	Organisation Type
EDN-P025	Surface water flood management project	Integrated Drainage	Local Councils and Planning Authorities
EDN-P026	Surface water flood management project	Integrated Drainage	Local Councils and Planning Authorities
EDN-P027	Surface water flood management project	Integrated Drainage	Local Councils and Planning Authorities
EDN-P028	Surface water flood management project	Integrated Drainage	Local Councils and Planning Authorities
EDN-P029	Natural flood management opportunities project	Resilience	Local Councils and Planning Authorities

**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 Eden and Esk catchment

Within the Eden and Esk 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 17 and Figure 18 are examples of partnerships that we are proud to have been involved in, and opportunities which are currently being developed in the Eden and Esk catchment.

*Figure 17 RSPB Partnership case study*

## RSPB Partnership – Wild Haweswater

### Background

Since 2011 the RSPB has been managing the land in partnership with United Utilities for the benefit of biodiversity, water quality and to develop a sustainable farming model for the future. The Haweswater estate has been the site of a pilot project over the last ten years which is returning the land to a more natural state.

### Project Details

CEOs at United Utilities and the RSPB have formalised a working relationship to encourage benefits delivered through nature-based solutions. Under the new shared vision, additional areas of opportunity could include help and support for farming tenancies, the creation and management of new wetland, peatland and woodland, and work to improve the visitor experience.

To date, a new native tree and wildflower nursey has been established at Haweswater, with £250,000 of funding from Defra’s Green Recovery Challenge Fund in addition to £150,000 from United Utilities.



### Outcome

This partnership will improve climate resilience and visitor experience at multiple sites across North West England.

We are already seeing the benefits of our joint vision with the RSPB at Haweswater and this is a perfect example of what the Environment Act is trying to achieve.

*Figure 18 Beyond Water Series case study*

## Beyond Water Series – Natural Flood Management

### Background

Natural Flood Management (NFM) is the utilisation of natural resources and natural elements to protect against flooding. It has been used at United Utilities for a considerable period, helping combat flooding and successfully maintain and improve water quality.

NFM aids in either significantly enhancing water storage capabilities of the land or to slow down the transition of water into the watercourse. For NFM to be truly effective, it must be implemented alongside traditional engineering solutions, in a joined-up system.

### Project Details

Restoration of meanders is a form of NFM. A river meander is a series of curves and bends in a river. River re-meandering involves the creation of a new winding course or the reconnection of cut off meanders, effectively slowing down the river flow.

An example of this is Swindale Beck. In the past, Swindale Beck was restructured to be straight to allow for more space for farming. This over time had a negative impact on wildlife, and it has increased the risk of flooding downstream. We worked in collaboration with the Environment Agency, RSPB, and Natural England to aid in the restoration of Swindale Beck.



### Outcome

The work done in Swindale Beck is an example of how nature conservation and water quality improvements can work alongside farming.

By reconnecting the watercourse to its floodplain at Swindale Beck, it allows us to keep more water in the landscape and slows water flow downstream during storm events.

## 5. Options for the Eden and Esk

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 U UW 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.

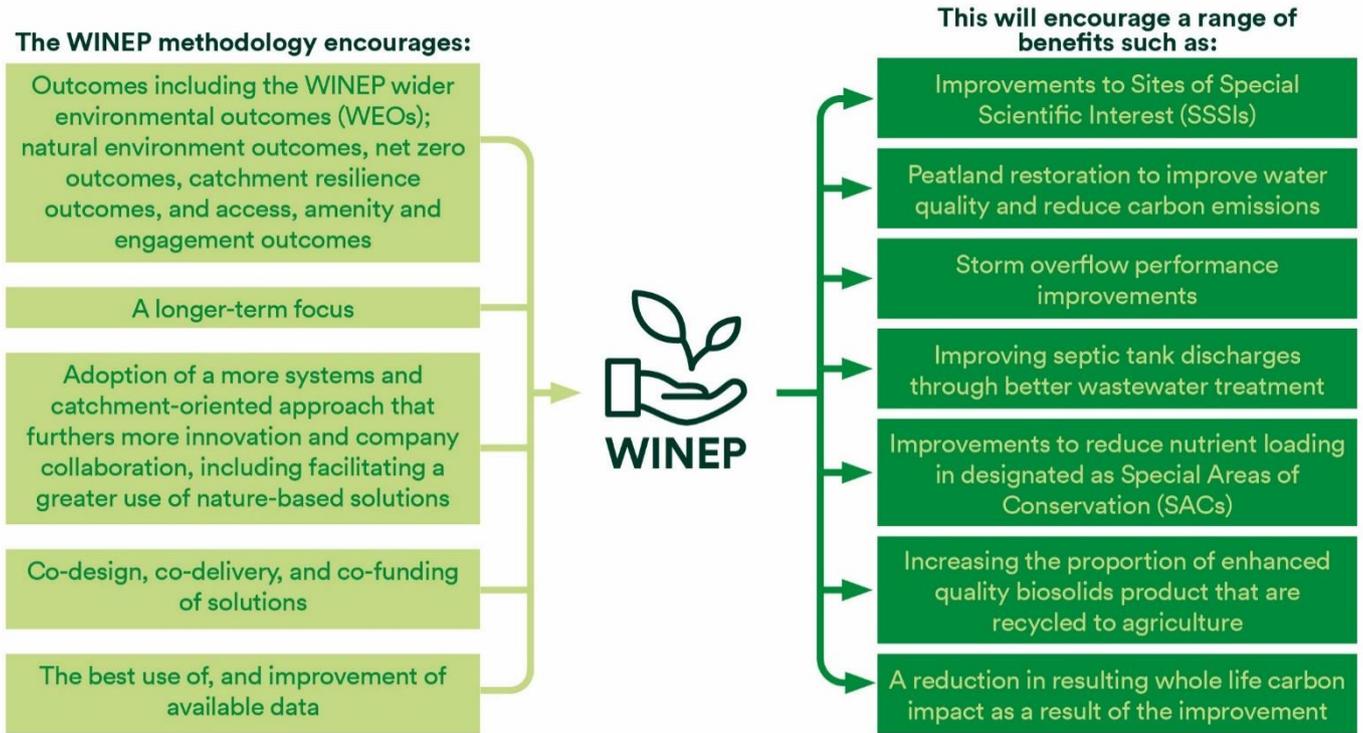
The next WINEP for investment cycle 2025 – 2030 (AMP8) is still to be confirmed (after the publication of the DWMP) and you will be able to find out more about what this means for the Eden and Esk when we publish our AMP8 submission in autumn 2023.

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 U UW will be delivering substantial WINEP investment programmes for the next 25 years.

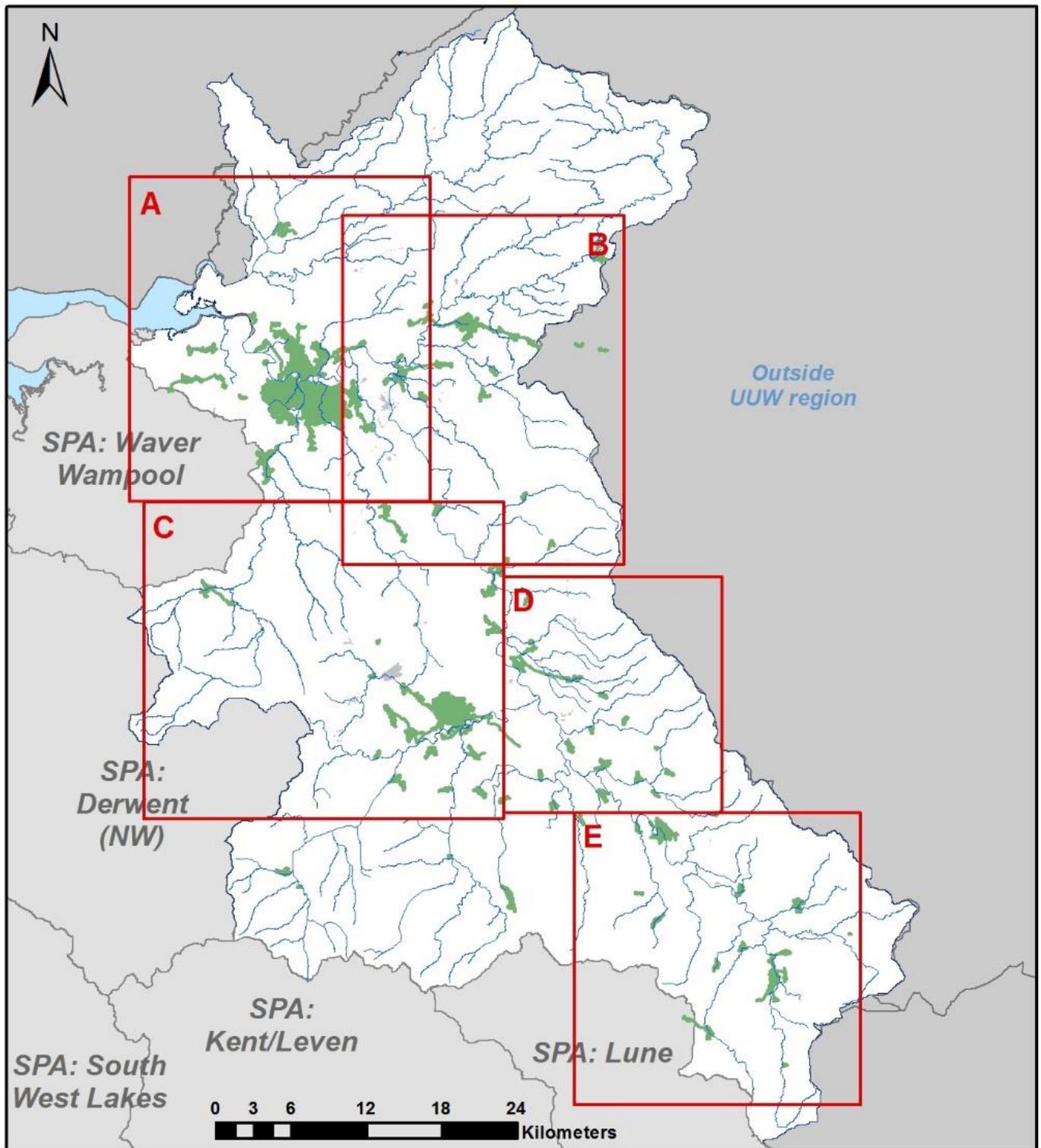
Figure 19 highlights some of the potential benefits as a result of the WINEP.

Figure 19 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 20 shows which locations within the Eden and Esk have the potential for investment cycle 2025 – 2030 WINEP schemes, based on the January 2023 WINEP submission.

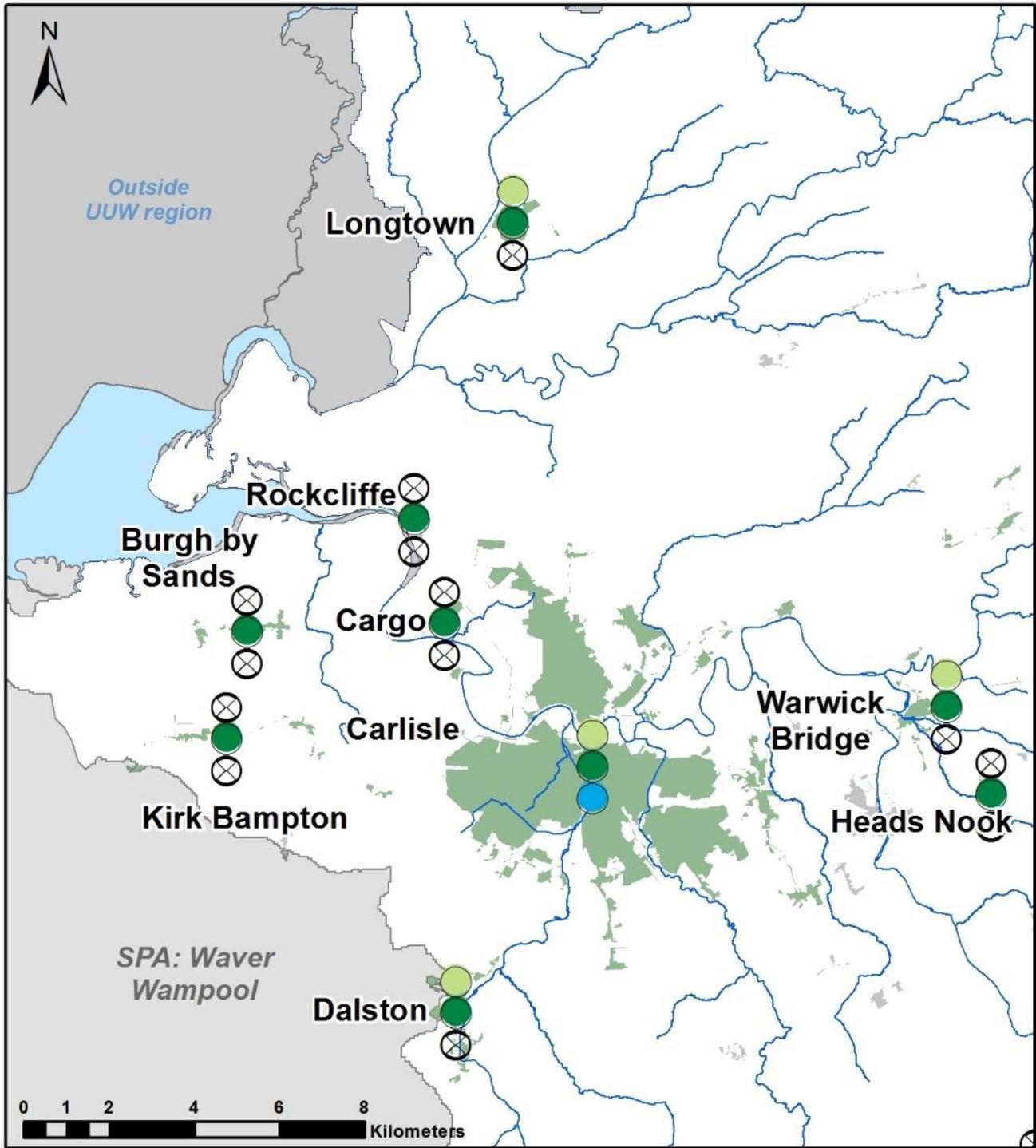
Figure 20 Potential WINEP investment in the Eden and Esk for investment cycle 2025-2030



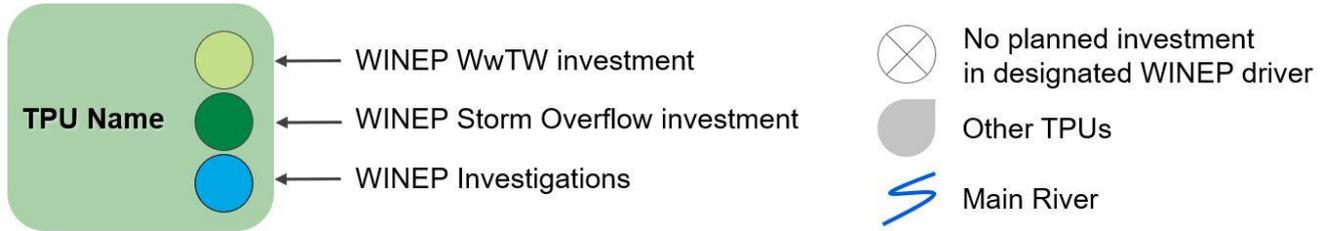
All potential WINEP interventions are subject to a regulatory decision making process that is ongoing at time of DWMP publication.

The inset box references in Figure 20 above refer to Figure 21 to Figure 25 on the following pages.

Figure 21 Potential WINEP investment in the Eden and Esk for investment cycle 2025-2030

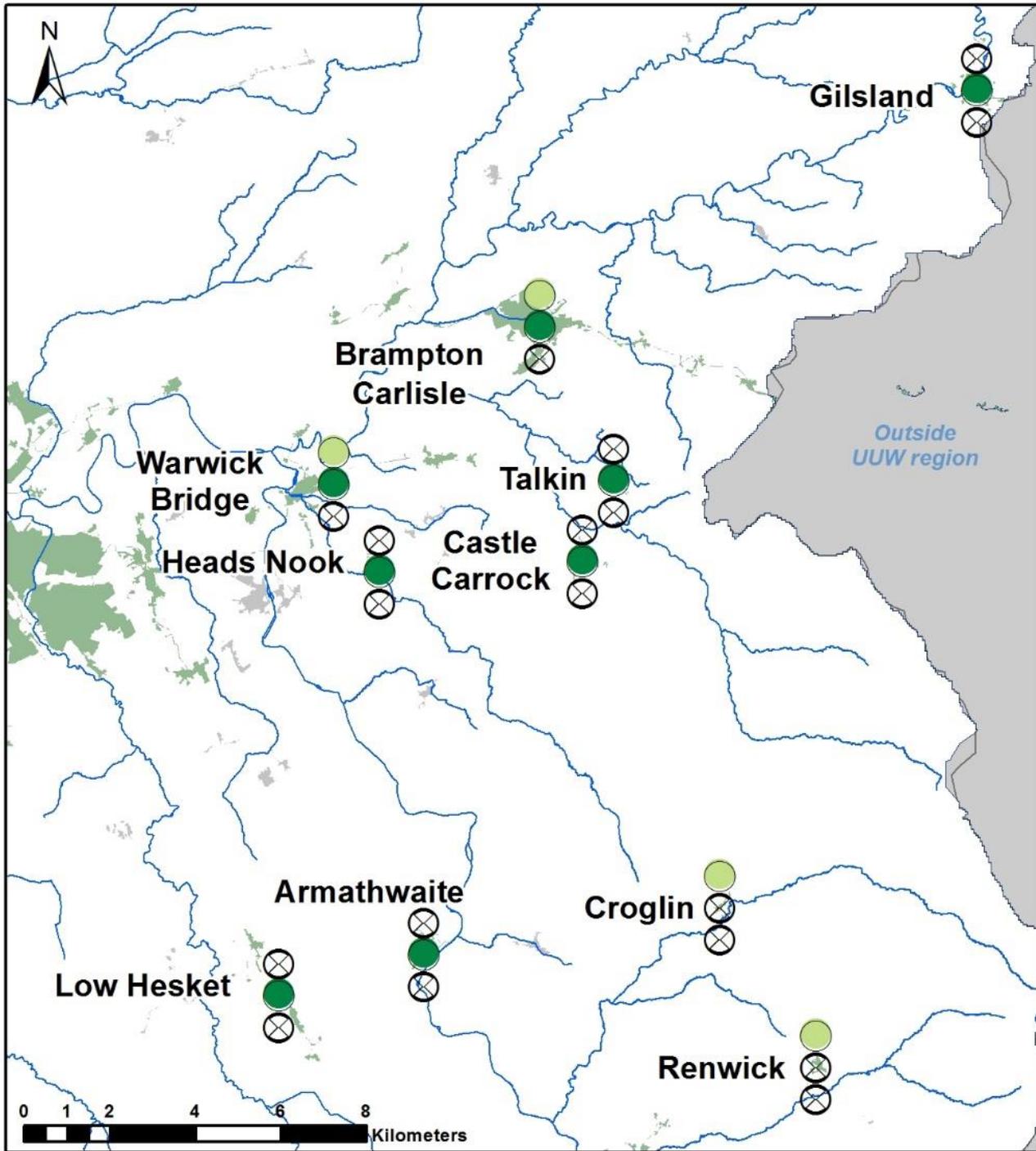


TPUs with WINEP driver investment



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

Figure 22 Potential WINEP investment in the Eden and Esk for investment cycle 2025-2030

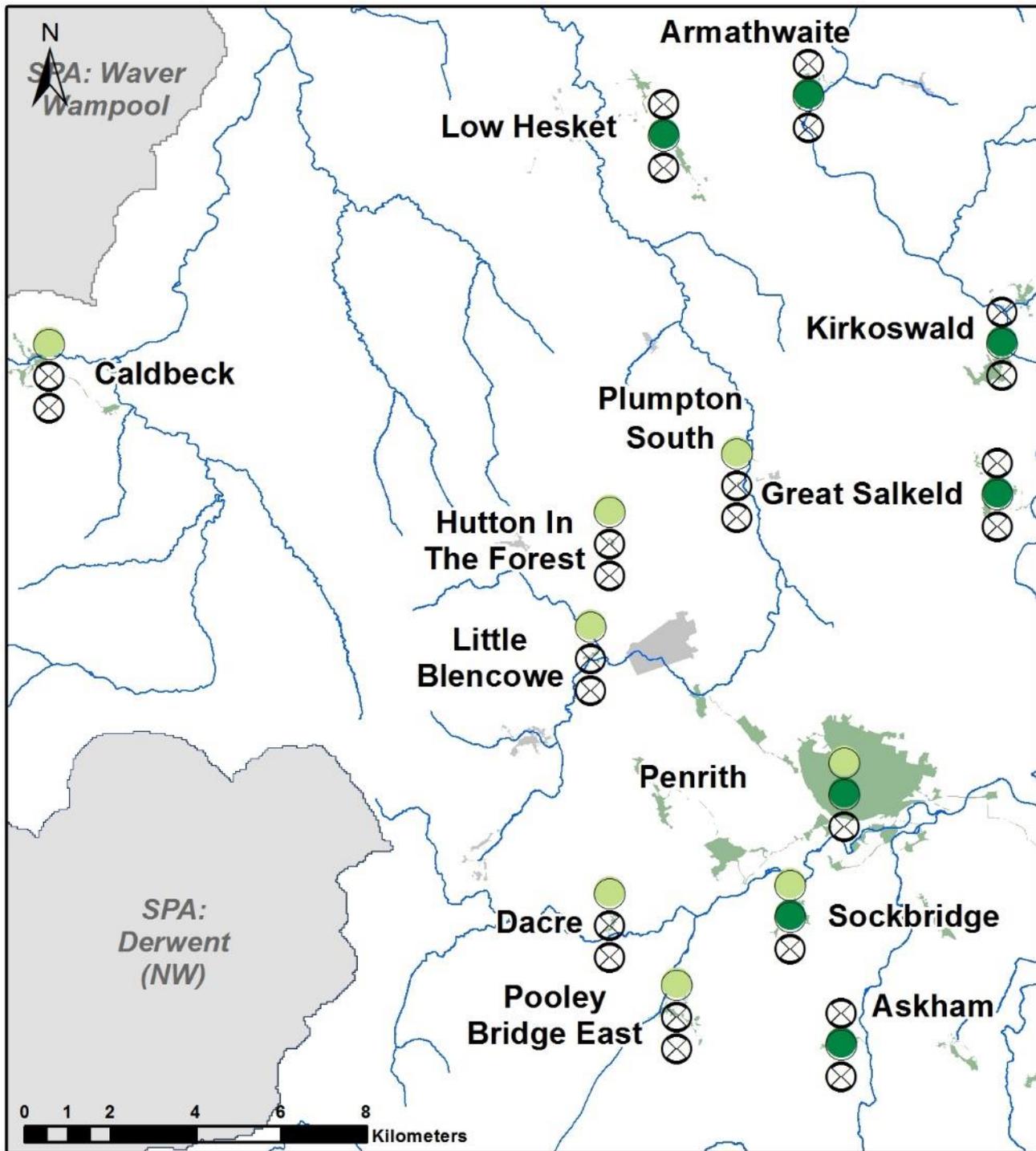


TPUs with WINEP driver investment

<b>TPU Name</b>		← WINEP WwTW investment		No planned investment in designated WINEP driver
		← WINEP Storm Overflow investment		Other TPUs
		← WINEP Investigations		Main River

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

Figure 23 Potential WINEP investment in the Eden and Esk for investment cycle 2025-2030

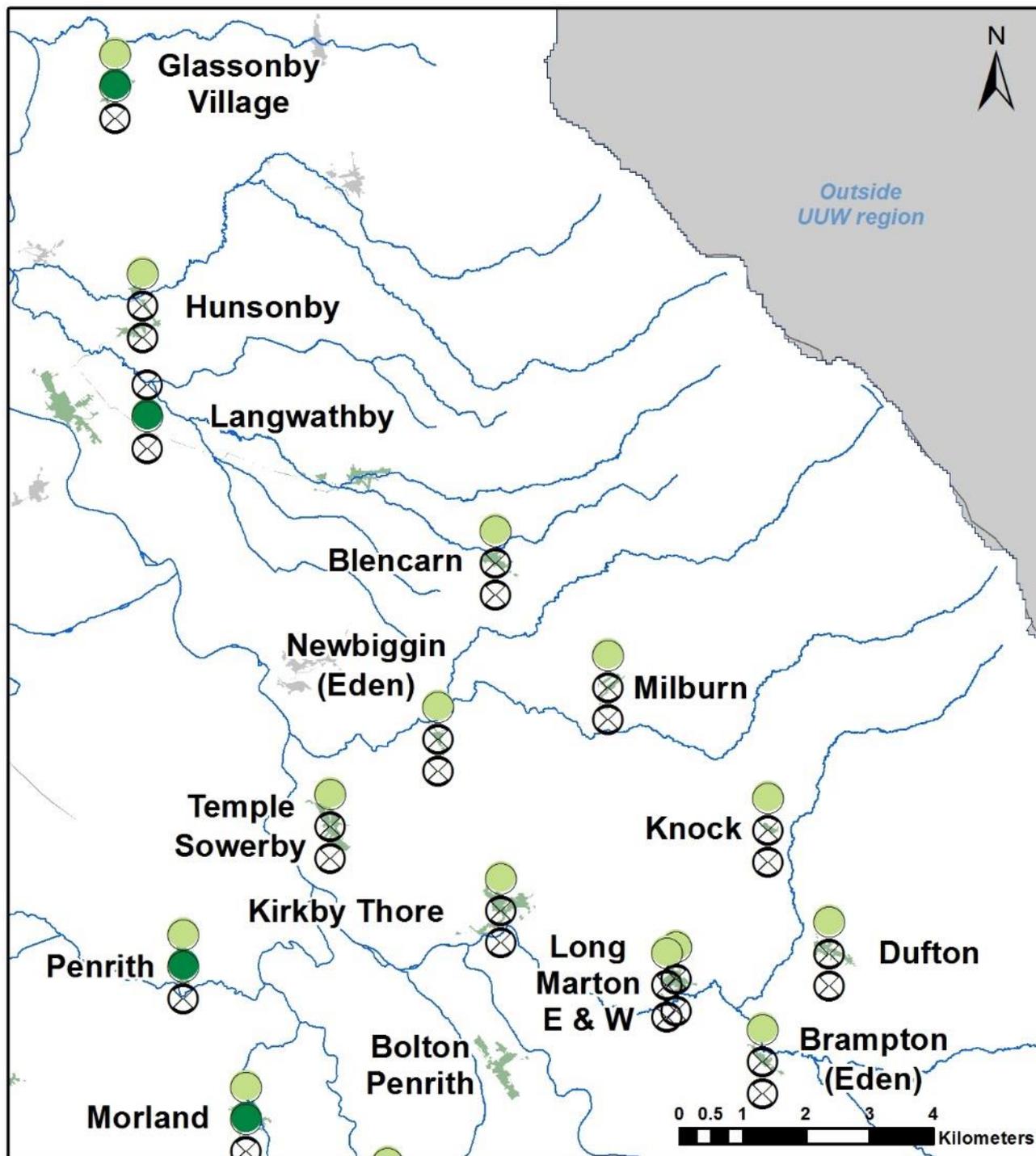


TPUs with WINEP driver investment



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

Figure 24 Potential WINEP investment in the Eden and Esk for investment cycle 2025-2030

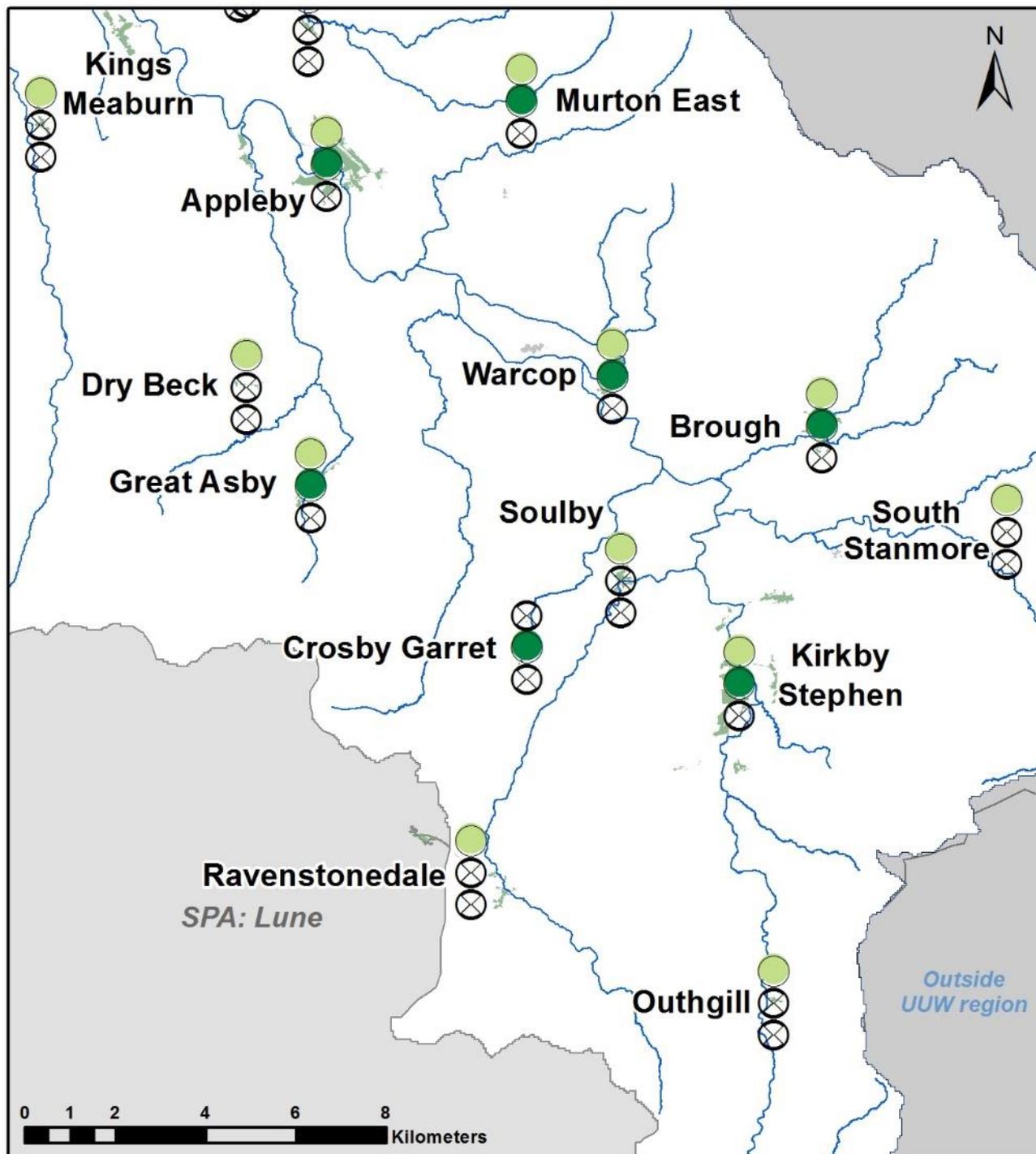


TPUs with WINEP driver investment



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

Figure 25 Potential WINEP investment in the Eden and Esk for investment cycle 2025-2030



**TPUs with WINEP driver investment**

<b>TPU Name</b>		← WINEP WwTW investment		No planned investment in designated WINEP driver
		← WINEP Storm Overflow investment		
		← WINEP Investigations		
				Other TPUs
				Main River

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 26. 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 26 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 Eden and Esk (section 5.2.2); and
- Level 3: Options for each location within the Eden and Esk (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.

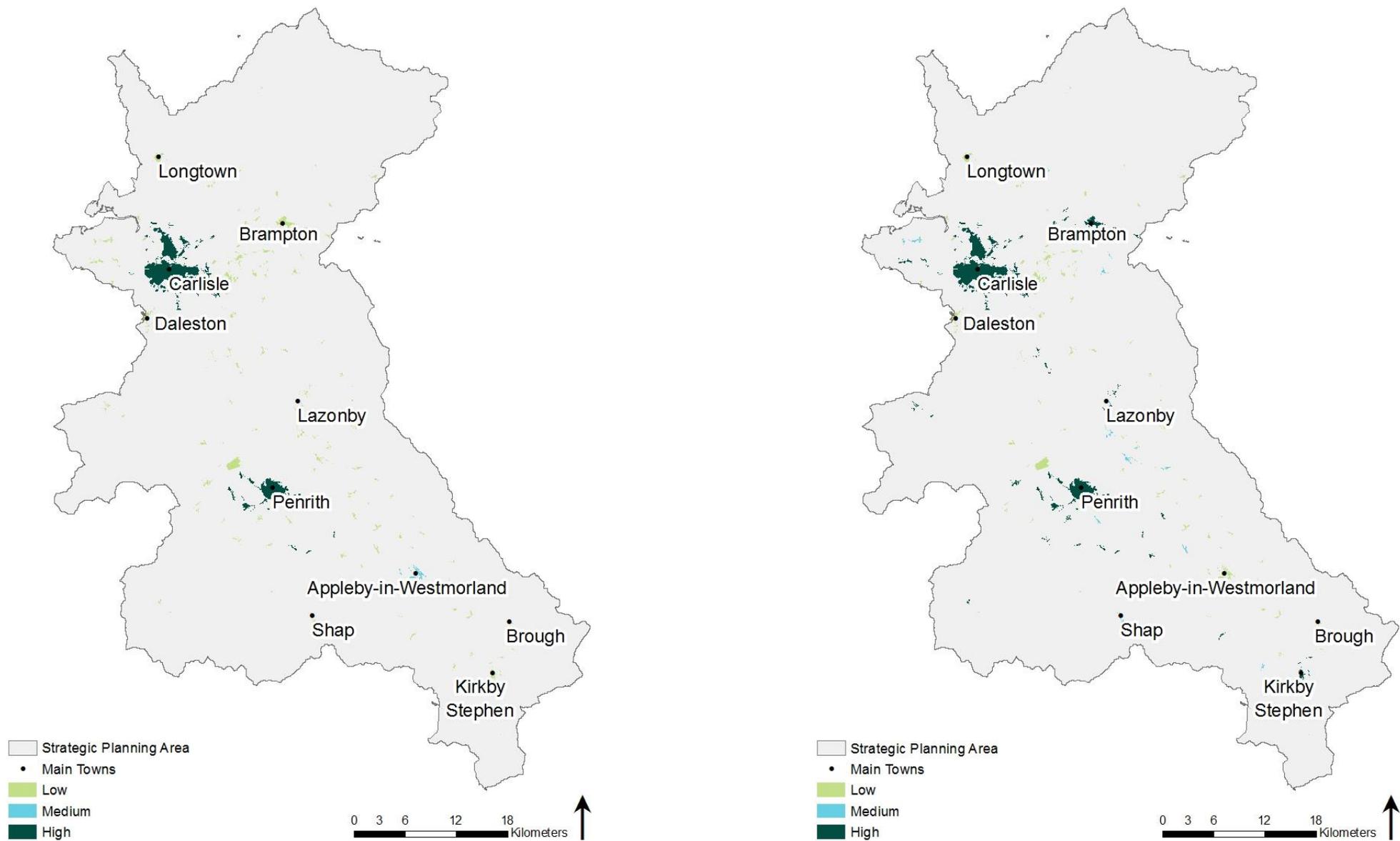
### **5.2.1 Level 1: Regional measures**

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 Eden and Esk catchment customer engagement options (Figure 27) 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 Carlisle and Penrith 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 Penrith and Carlisle TPUs (Figure 27).

Figure 27 Maps show the benefit of implementing regional customer engagement (left) and sustainable drainage solutions (right) options across the Eden and Esk



## 5.2.2 Level 2: Options for the Eden and Esk

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

- The potential options to address environmental planning objectives as shown in Figure 28. This incorporates elements such as wastewater treatment work permit compliance, WINEP compliance and pollution of
- The potential options to address flooding planning objectives as shown in Figure 29. 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 30.

**Figure 28 Distribution of environmental investment by option type within the Eden and Esk**

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.

<b>Reduce Service Demand</b>		Schools Education Programme
		Customer Engagement
		Surface Water Source Control Measures
		Modification of Permits
<b>Better System Management</b>		Intelligent Network Operation
		Enhanced Operational Maintenance
		Repair and Rehabilitation
<b>Create Additional Capacity</b>		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

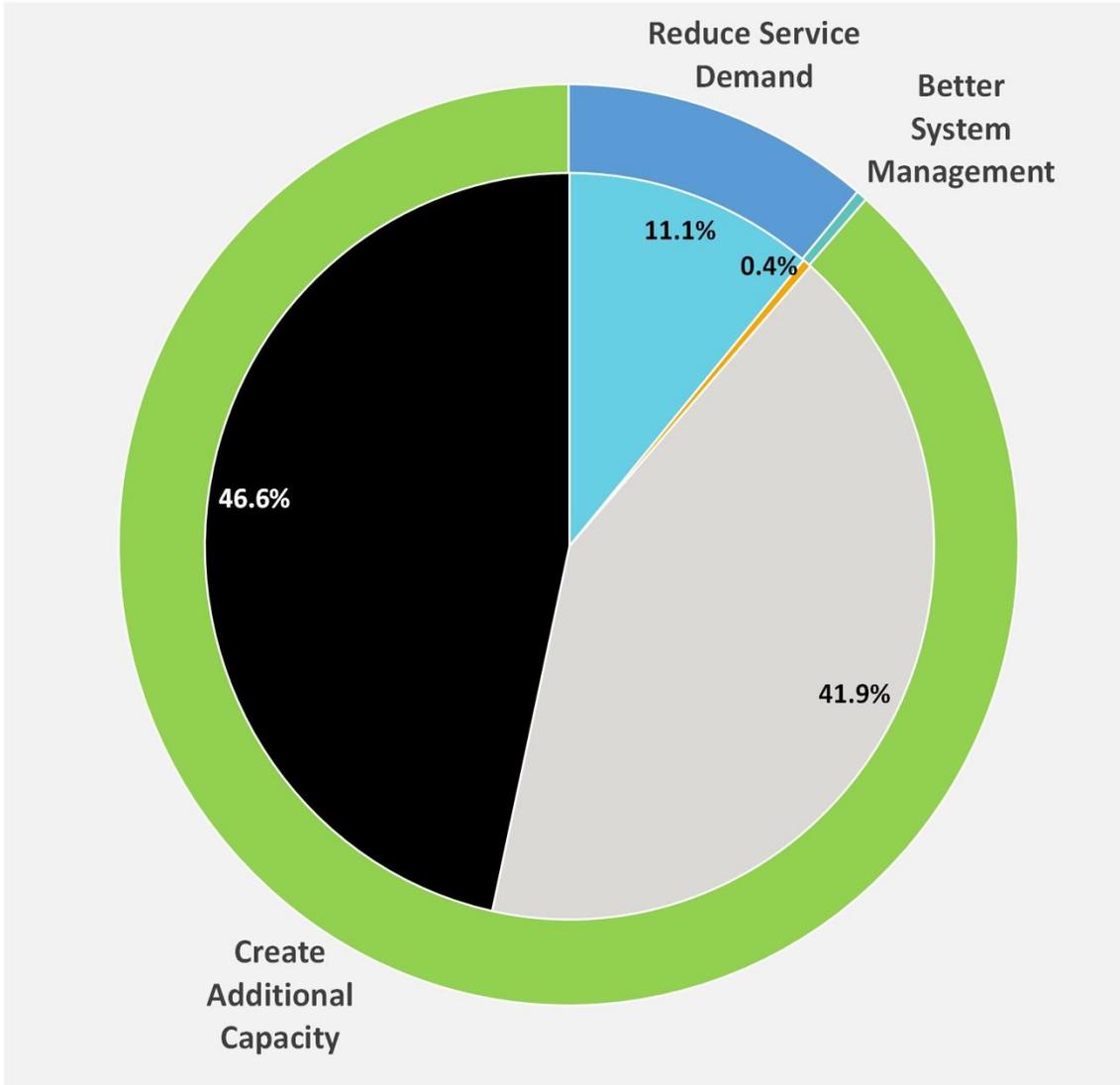
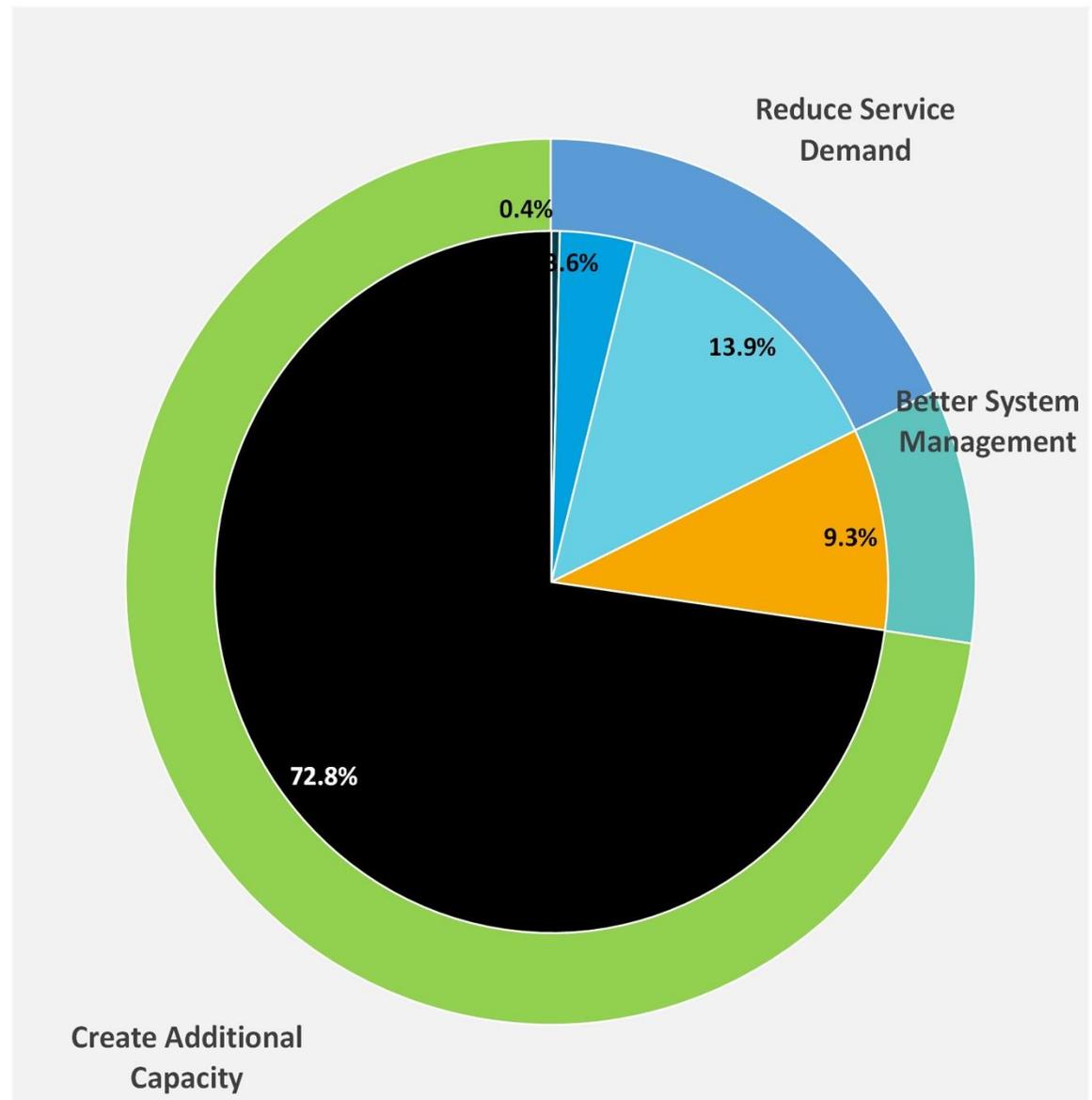
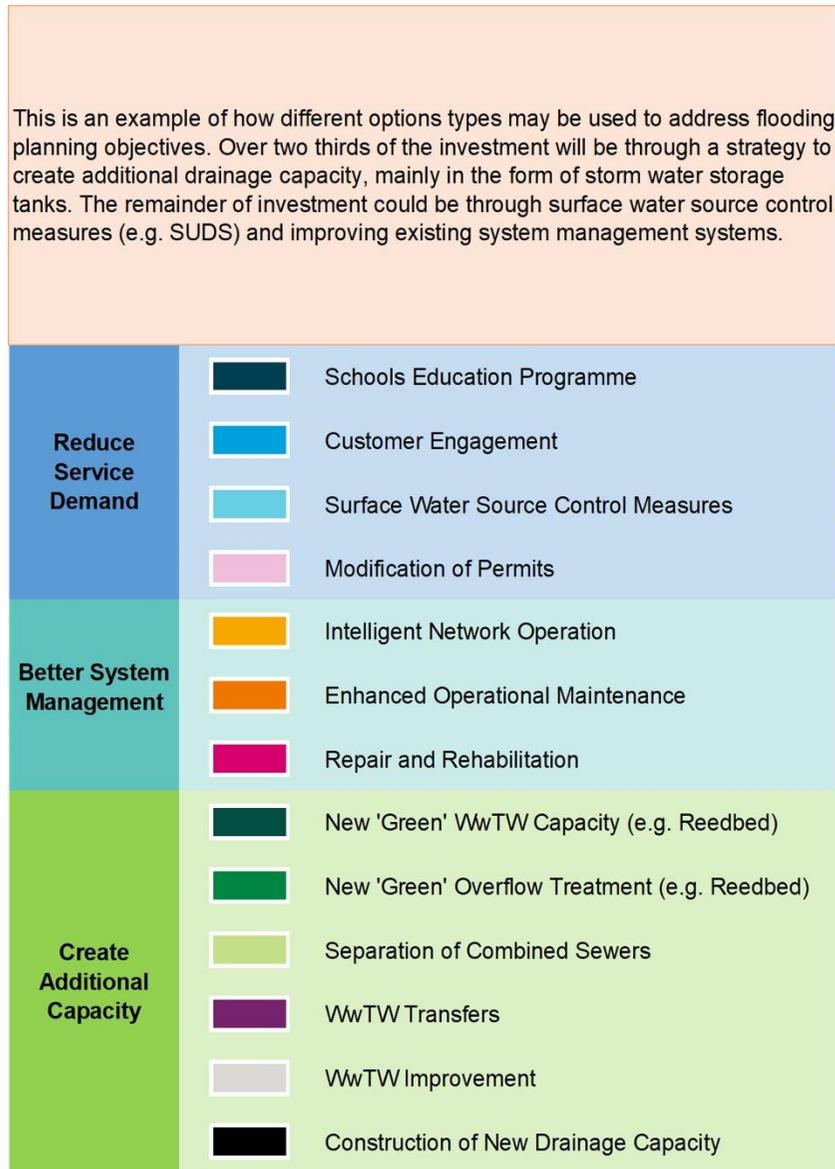


Figure 29 Distribution of flooding investment by option type within the Eden and Esk

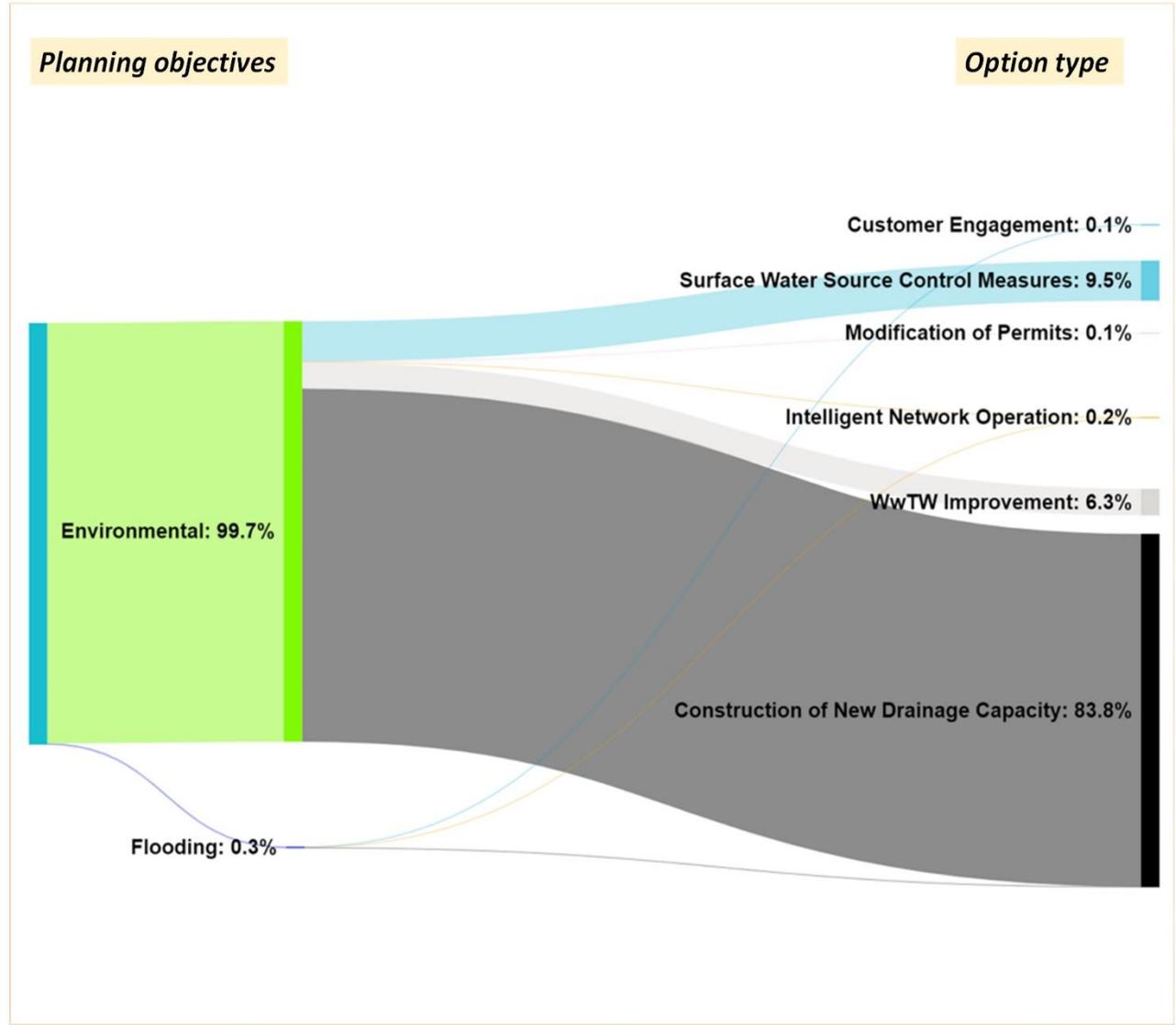
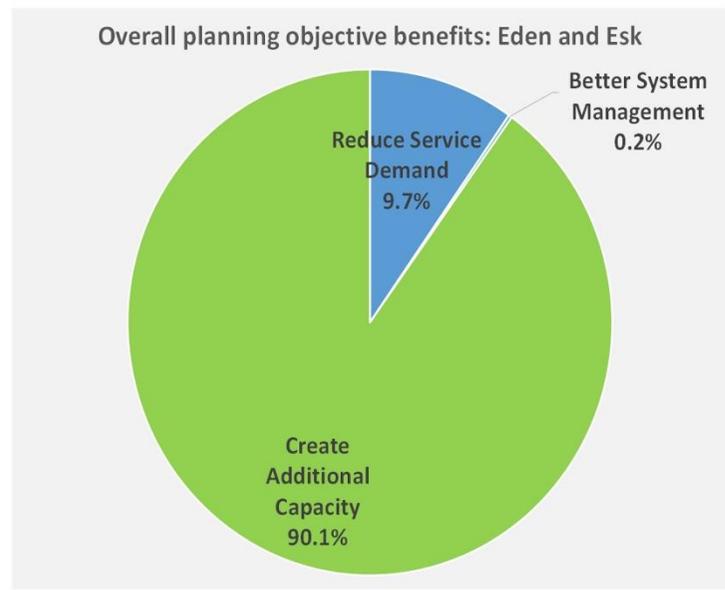


**Figure 30 Distribution of benefit by option type within the Eden and Esk**

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

United Utilities Water (Uuw) commitments to improving flooding performance could be through surface water source control measures (e.g. SUDS), improvements in wastewater treatment works, and construction of new drainage capacity.

Environmental planning objectives could be met mainly through a strategy to create additional drainage capacity, in the form of storm water storage tanks. The remainder of investment could be through surface water source control measures (e.g. SUDS) and improving existing system management systems.

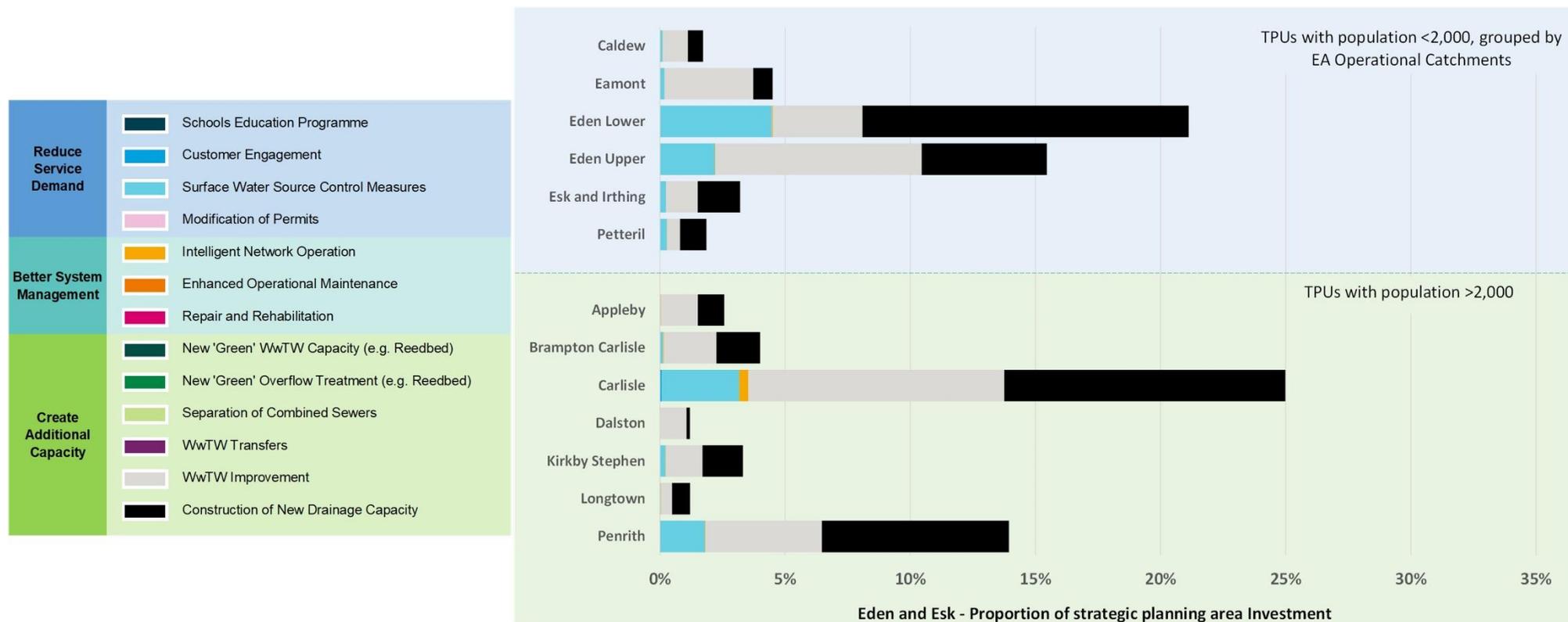


### 5.2.3 Level 3: Local options for each TPU within the Eden and Esk

The proportion of the Eden and Esk’s potential investment in each TPU, split up by option type, is shown in Figure 31. 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 Eden and Esk, 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 31 Proportion of investment seen in each TPU within the Eden and Esk



The following sub-sections show how investment could 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 will be seen long into the future. Other options such as school education, are continual programmes that will help to encourage long-term sustainable behaviours, such as reduction in water use.

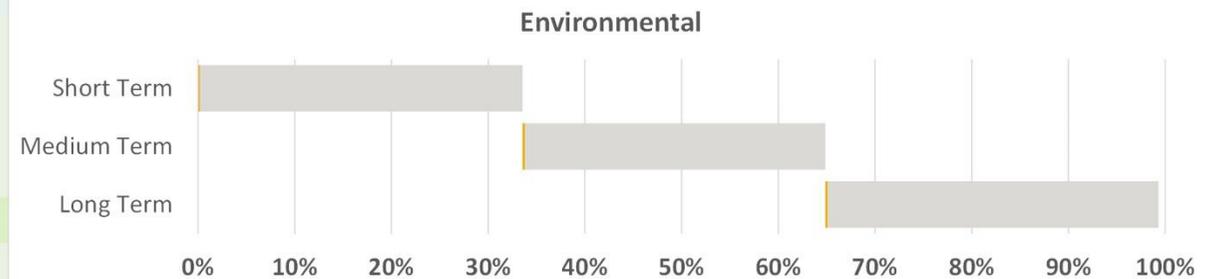
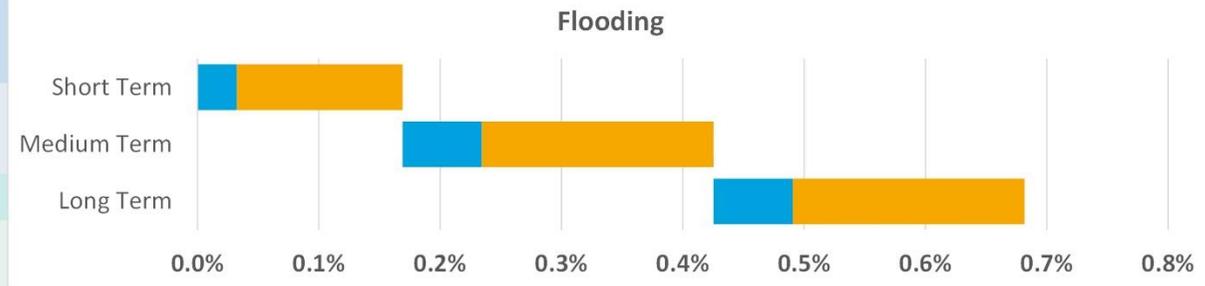
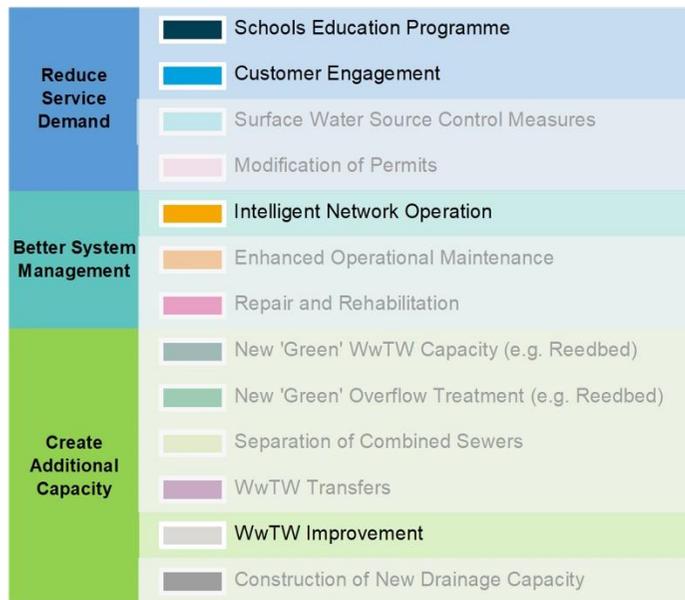
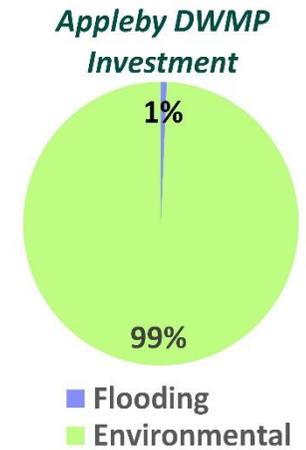
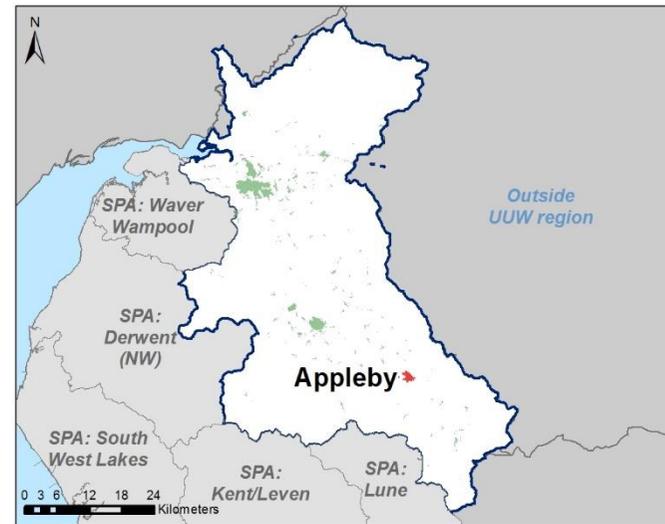
### 5.2.3.1 Appleby

Figure 32 Details of the DWMP investment plan for Appleby

The data on this page gives details of the investment plan for Appleby TPU. The plan shows the geographic location of Appleby within the Eden and Esk catchment.

The pie chart to the right of the plan indicates the percentage split 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.



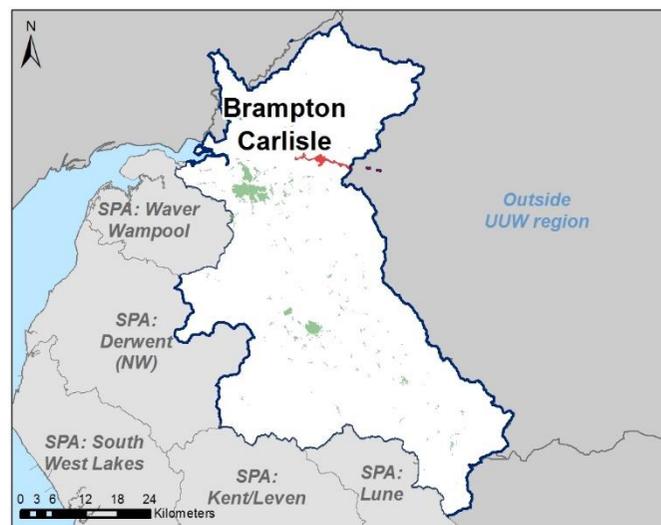
### 5.2.3.2 Brampton Carlisle

**Figure 33 Details of the DWMP investment plan for Brampton Carlisle**

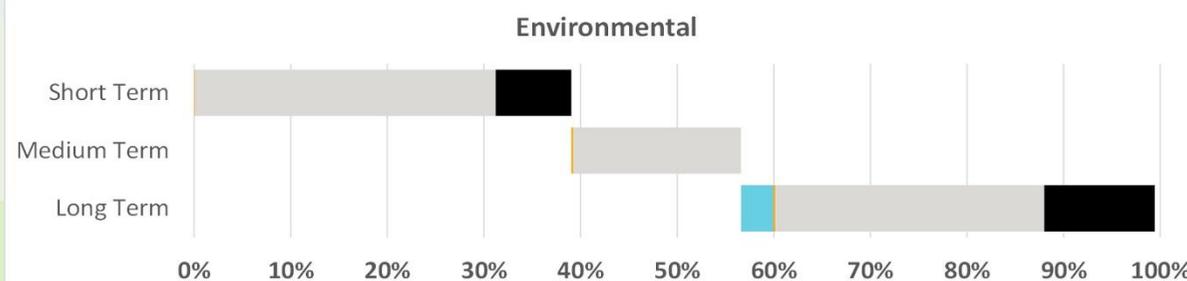
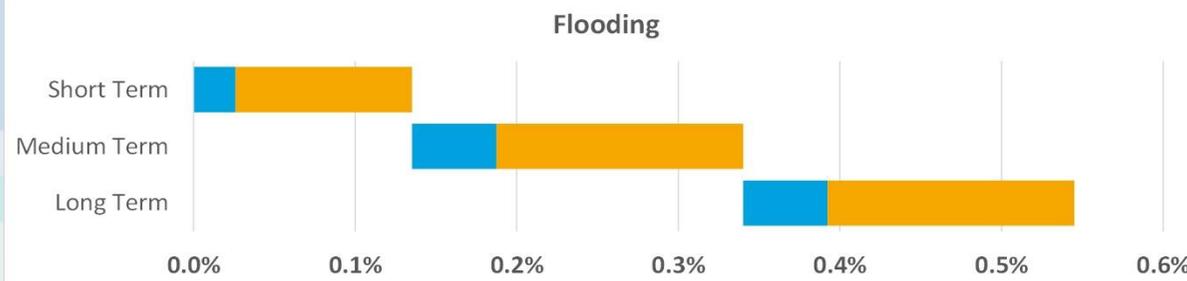
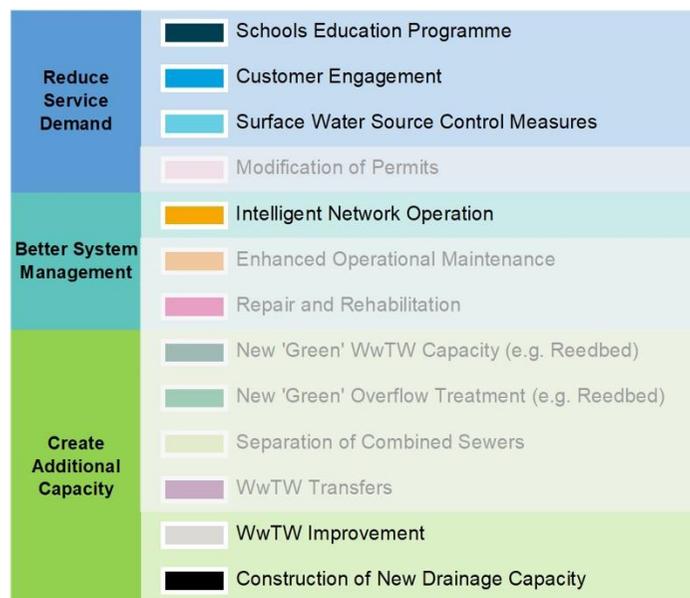
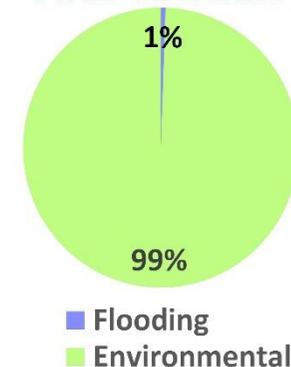
The data on this page gives details of the investment plan for Brampton Carlisle TPU. The plan shows the geographic location of Brampton Carlisle within the Eden and Esk catchment.

The pie chart to the right of the plan indicates the percentage split 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.



**Brampton Carlisle DWMP Investment**



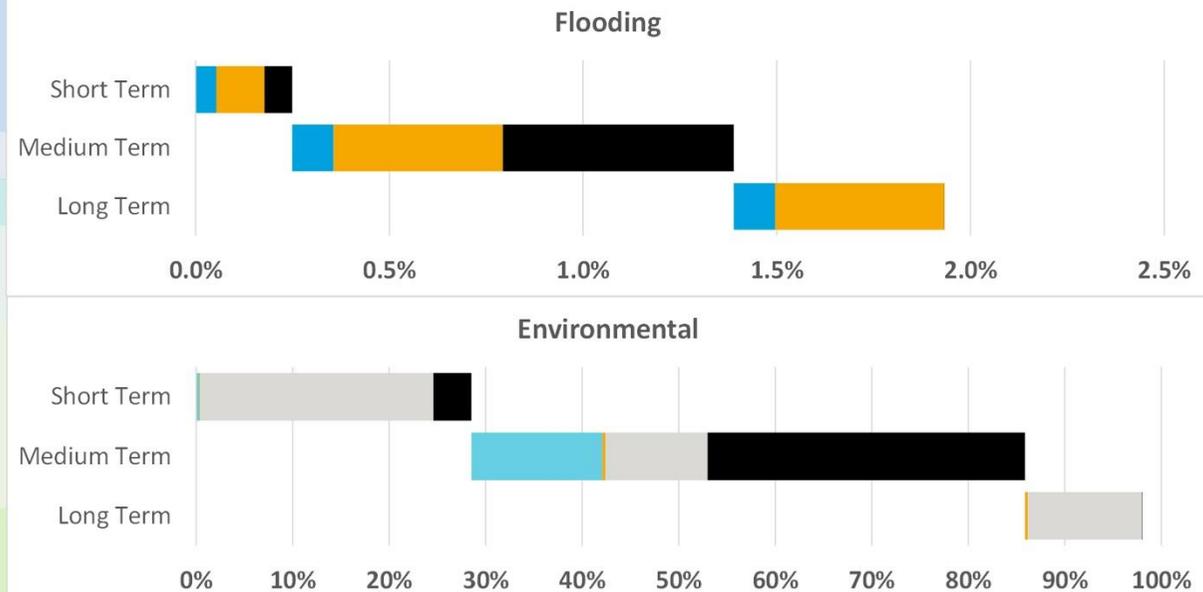
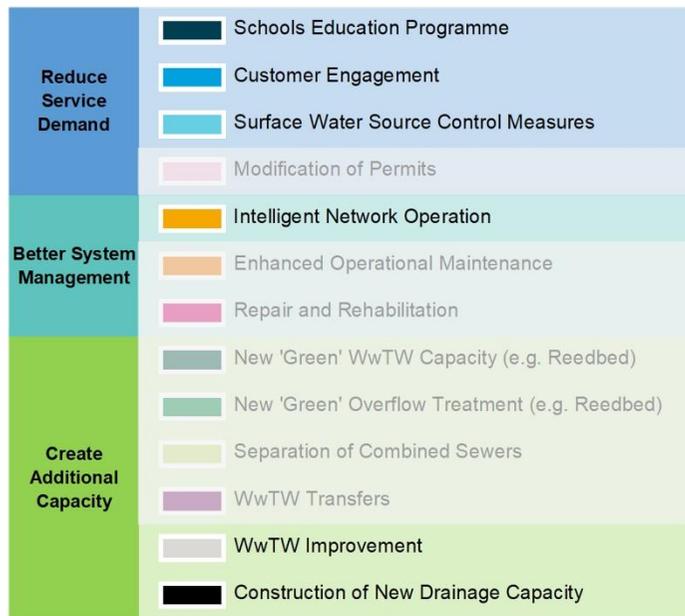
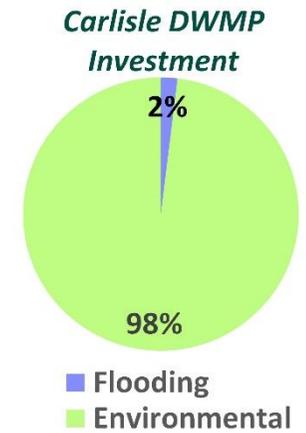
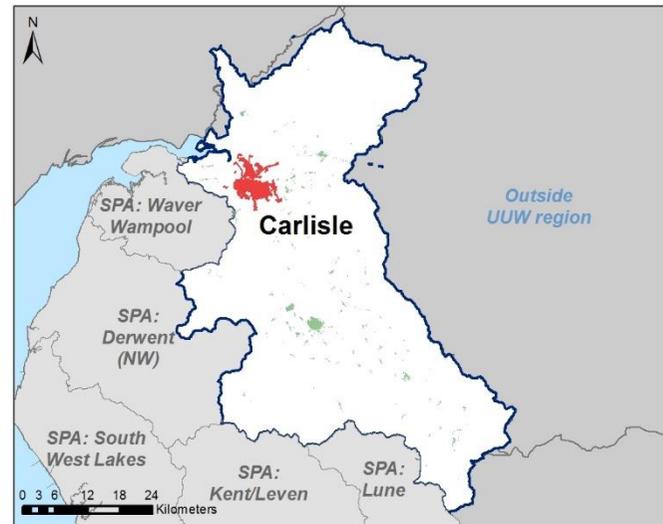
5.2.3.3 Carlisle

Figure 34 Details of the DWMP investment plan for Carlisle

The data on this page gives details of the investment plan for Carlisle TPU. The plan shows the geographic location of Carlisle within the Eden and Esk catchment.

The pie chart to the right of the plan indicates the percentage split 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.



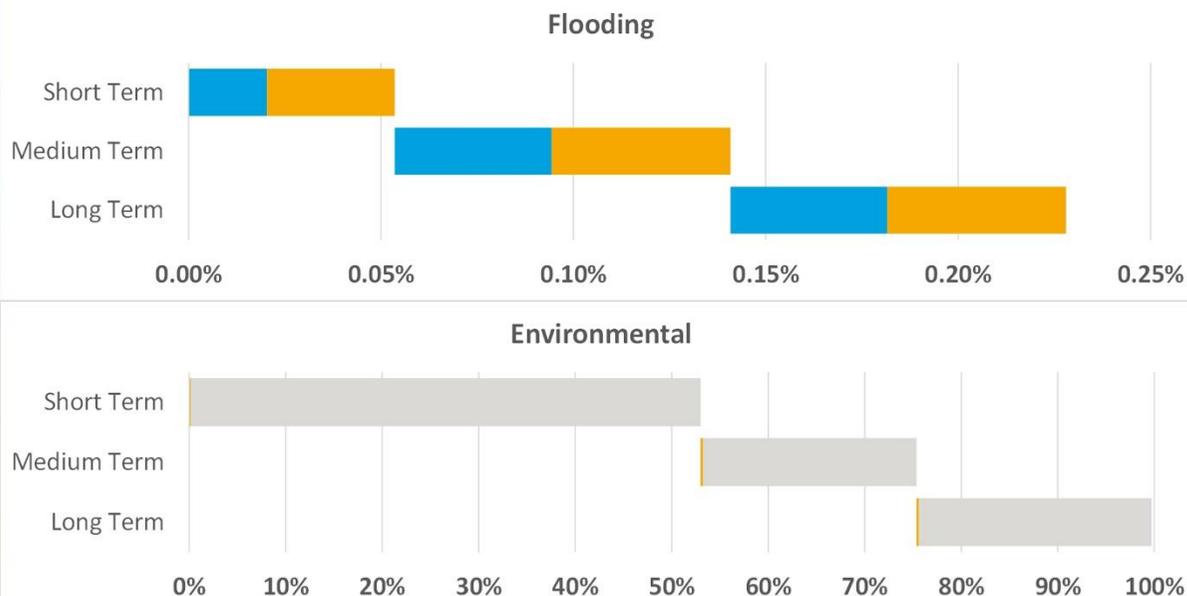
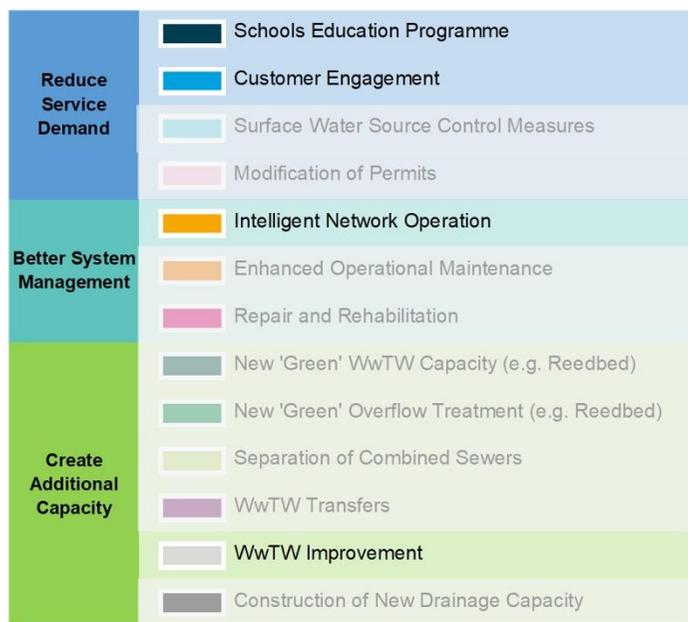
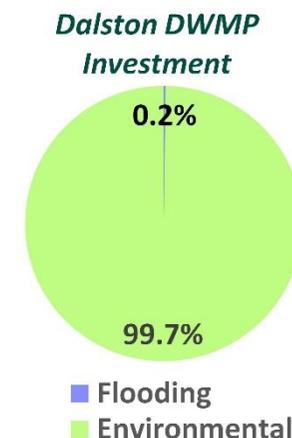
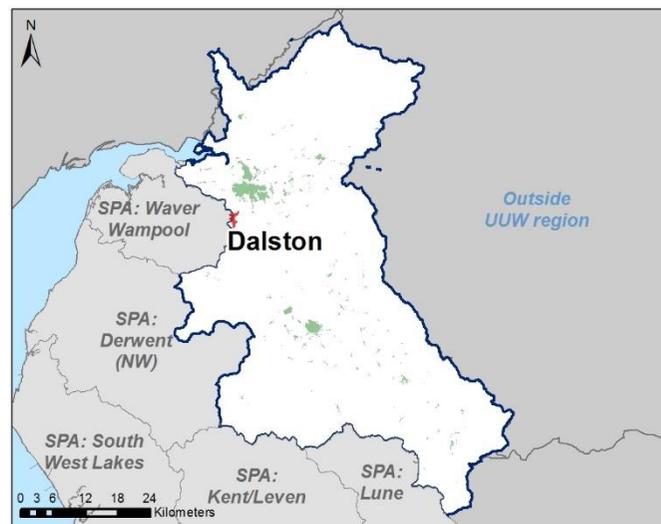
### 5.2.3.4 Dalston

**Figure 35 Details of the DWMP investment plan for Dalston**

The data on this page gives details of the investment plan for Dalston TPU. The plan shows the geographic location of Dalston within the Eden and Esk catchment.

The pie chart to the right of the plan indicates the percentage split 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.



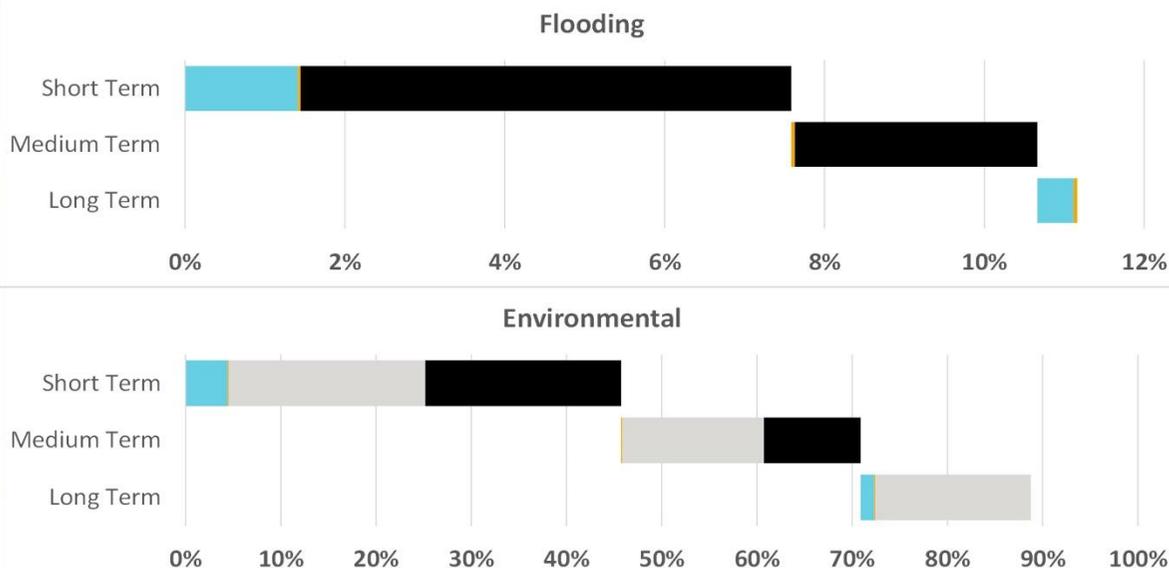
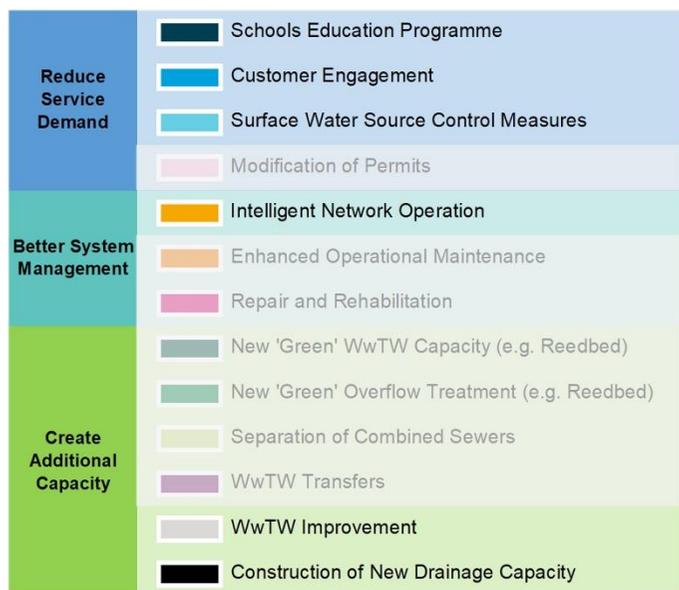
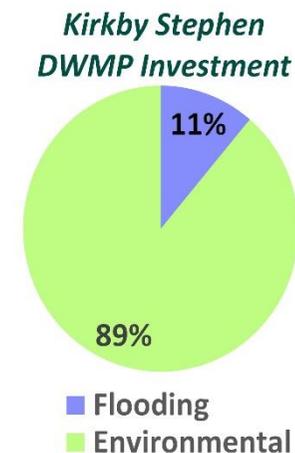
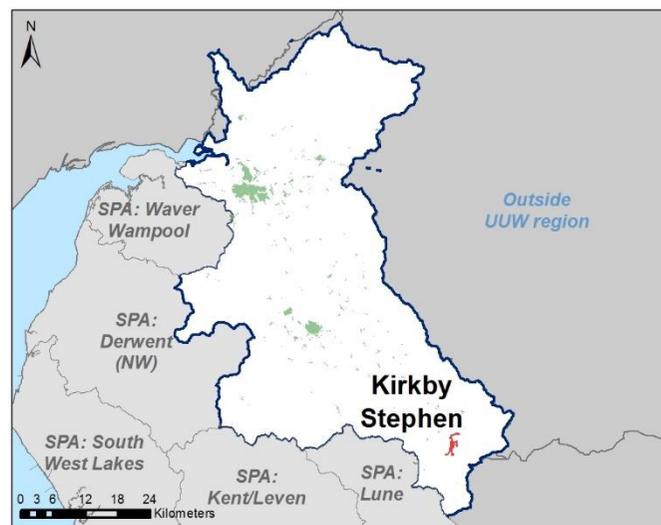
### 5.2.3.5 Kirkby Stephen

Figure 36 Details of the DWMP investment plan for Kirkby Stephen

The data on this page gives details of the investment plan for Kirkby Stephen TPU. The plan shows the geographic location of Kirkby Stephen within the Eden and Esk catchment.

The pie chart to the right of the plan indicates the percentage split 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.



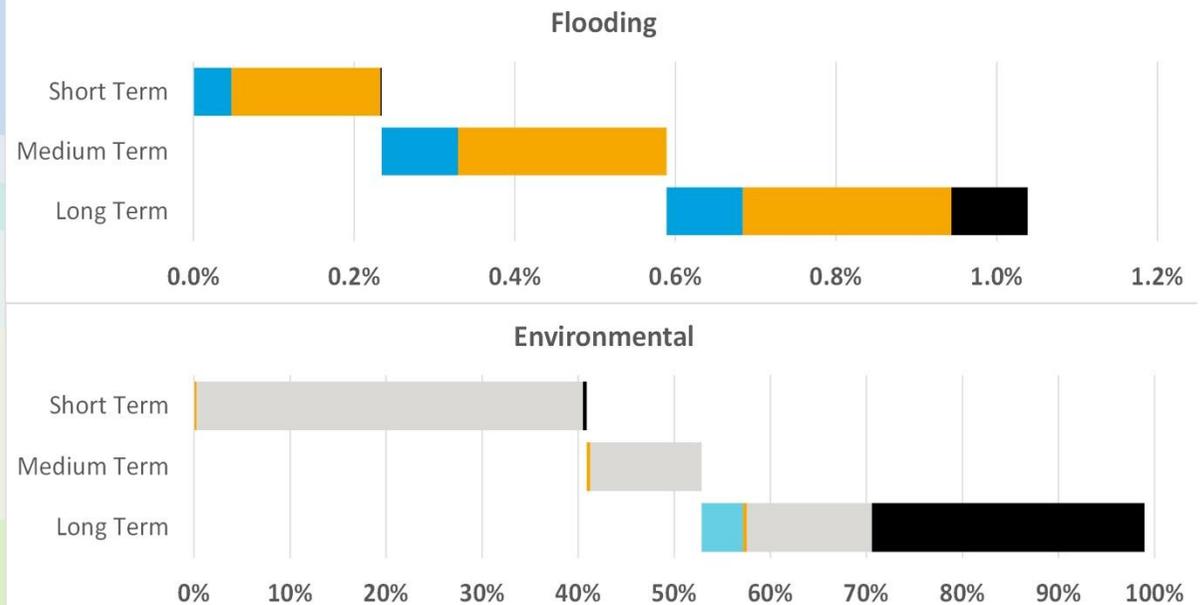
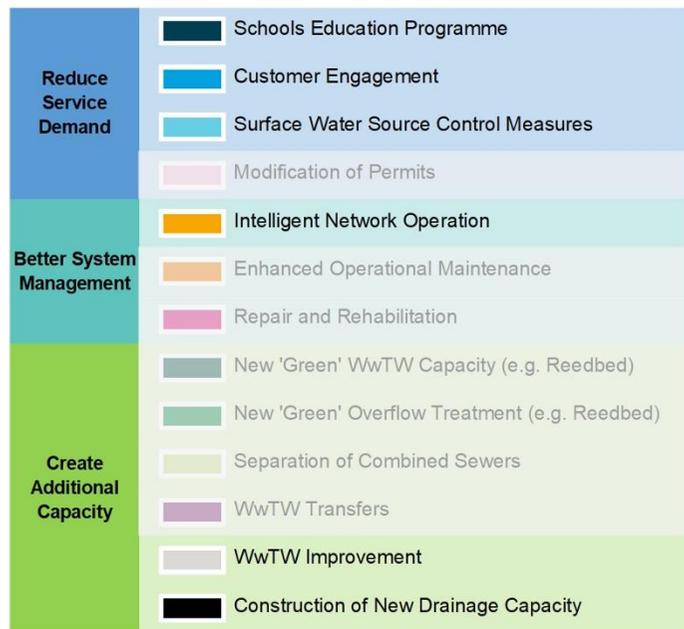
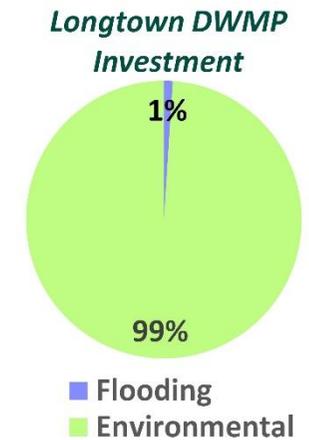
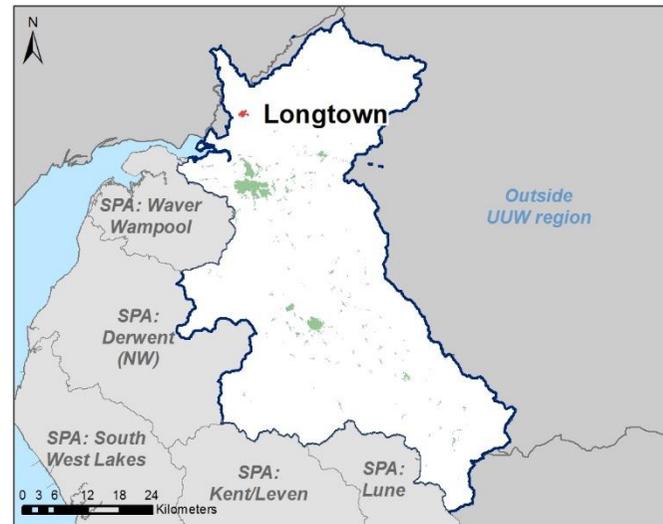
### 5.2.3.6 Longtown

**Figure 37 Details of the DWMP investment plan for Longtown**

The data on this page gives details of the investment plan for Longtown TPU. The plan shows the geographic location of Longtown within the Eden and Esk catchment.

The pie chart to the right of the plan indicates the percentage split 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.



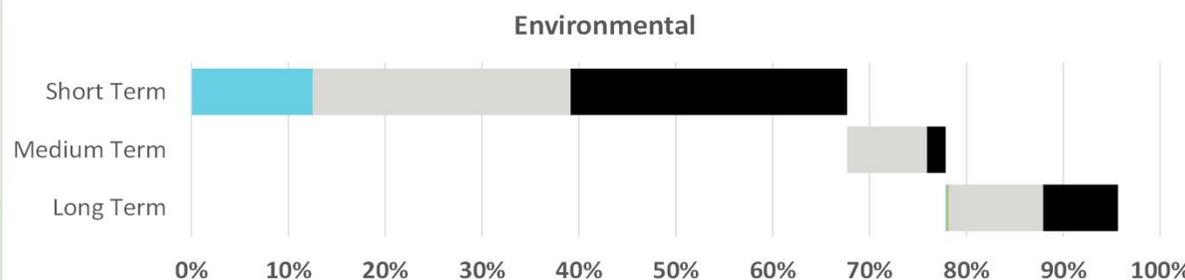
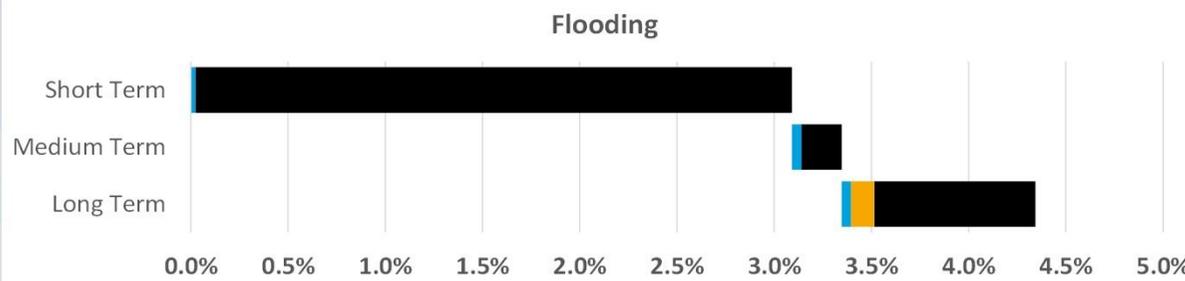
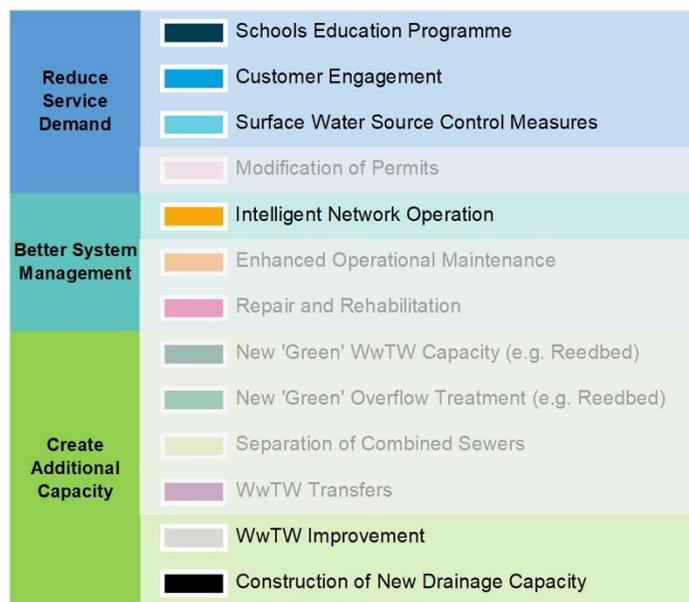
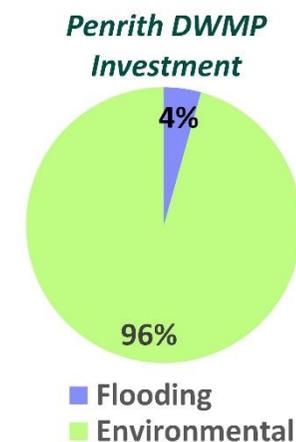
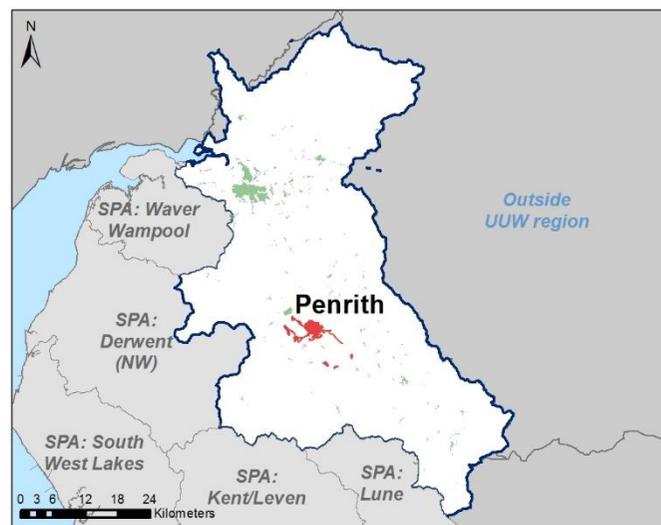
### 5.2.3.7 Penrith

Figure 38 Details of the DWMP investment plan for Penrith

The data on this page gives details of the investment plan for Penrith TPU. The plan shows the geographic location of Penrith within the Eden and Esk catchment.

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

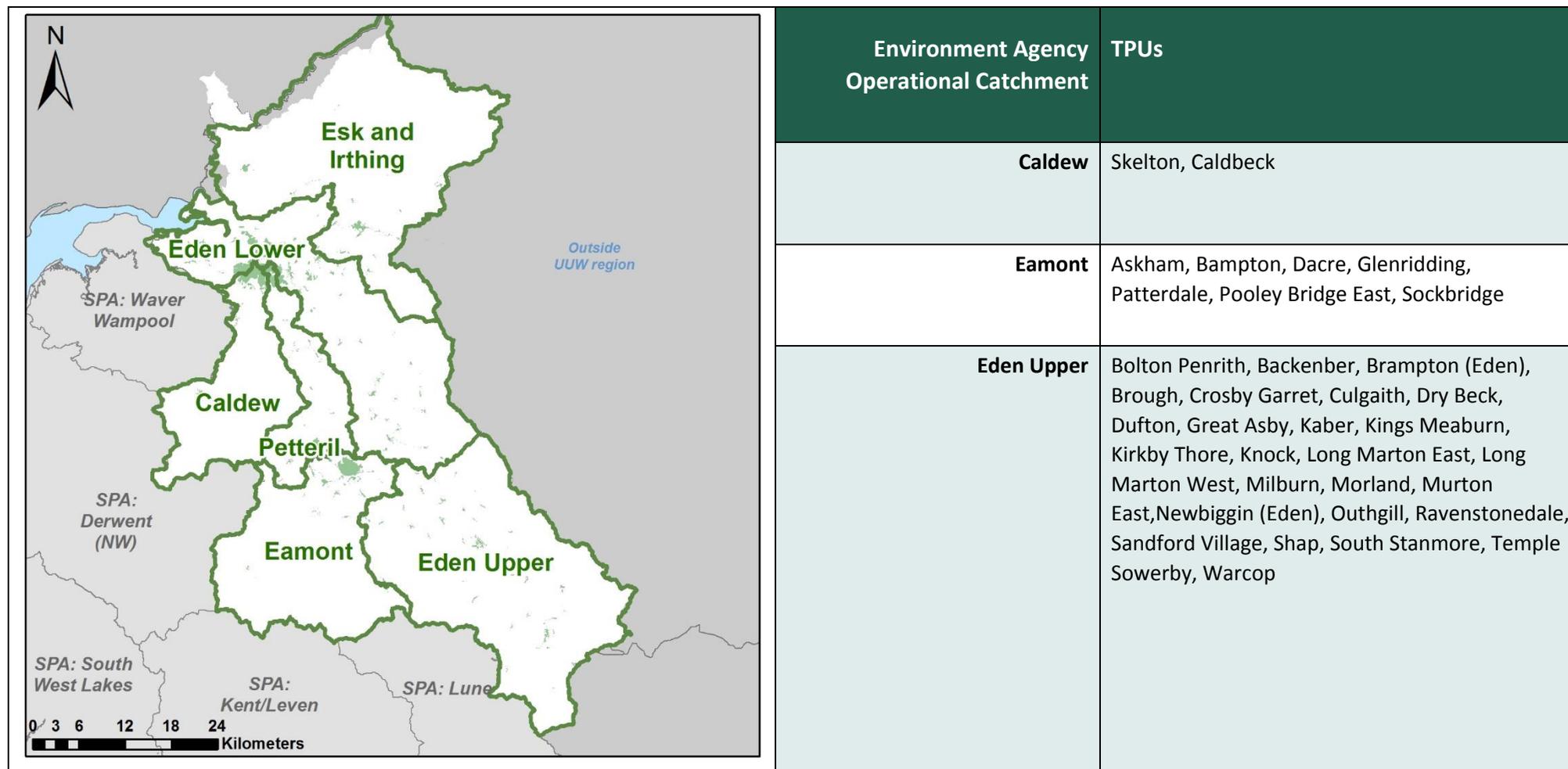
The bar charts below show a more detailed breakdown of the potential option types that make up the flooding and environmental investment. The key to the left of the bar charts show the colours used for the 13 different option types. Additionally, the charts indicate whether investments are proposed in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



### 5.2.4 TPUs with population less than 2,000

Within the Eden and Esk 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 Eden and Esk SPA, there are two Environment Agency operational catchment areas, which can be seen in Figure 39.

**Figure 39 Location of Environment Agency operational catchments within the Eden and Esk SPA**



	<b>Esk and Irthing</b>	Castle Carrock, Gilsland, Hethers Gill, Kershopefoot Village, Kirkandrews, Low row, Sleet Beck, Smithfield, Talkin, Walton, Warwick Bridge, West Hall
	<b>Eden Lower</b>	Aglionby, Ainstable, Armathwaite, Blencarn, Burgh by Sands, Busk, Cargo, Cocklakes, Cote Hill, Croglin, Cumwhitton, Edenhall, Faugh, Glassonby Village, Great Orton, Great Salkeld, Heads Nook, Hunsonby, Kirk Bampton, Kirkoswald, Langwathby, Laversdale, Little Salkeld, Melmerby, Renwick, Rockcliffe, The How, Wetheral & Great Corby, Wetheral Pasture
	<b>Petteril</b>	Calthwaite, Greystoke, Hutton In The Forest, Laites, Little Blencowe, Low Heskett, Motherby, Plumpton North, Plumpton South, Southwaite, Wreay

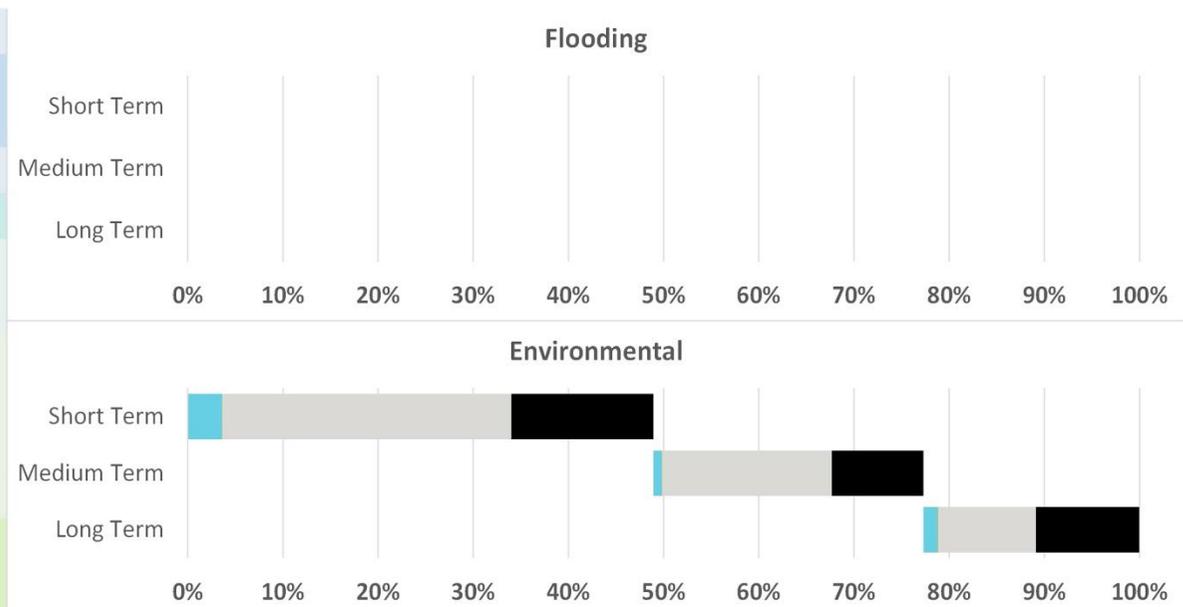
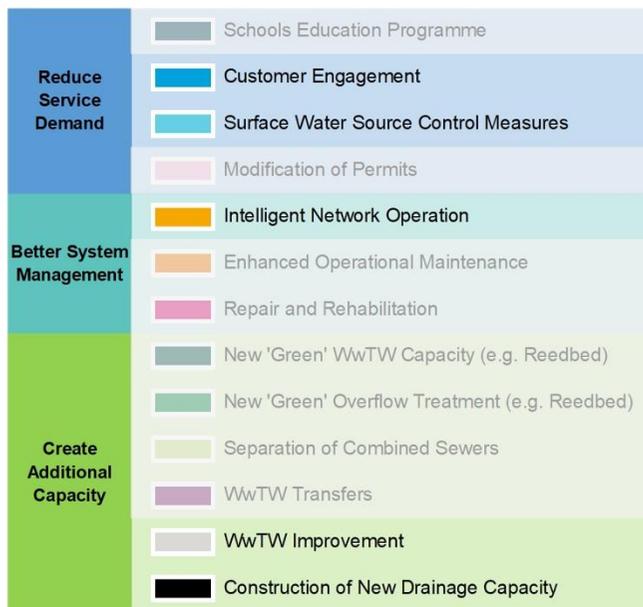
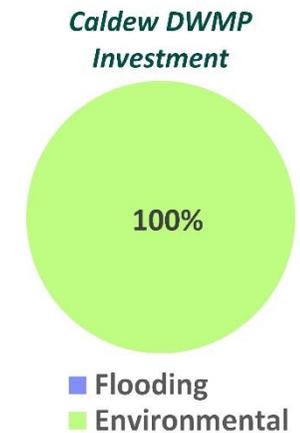
5.2.4.1 TPUs with population less than 2,000: Caldew Operational Catchment (OC)

Figure 40 Details of the DWMP investment plan for the Caldew OC

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

The pie chart to the right of the plan indicates the percentage split 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.



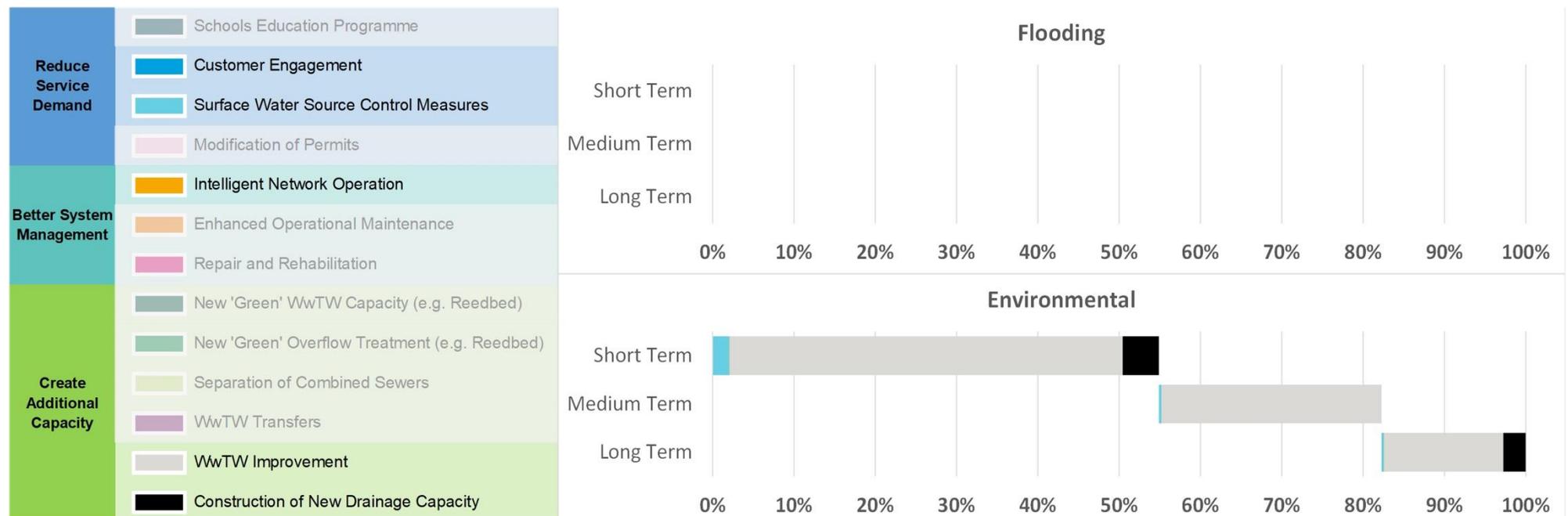
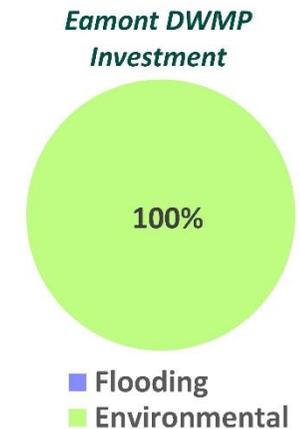
5.2.4.2 TPUs with population less than 2,000: *Eamont* Operational Catchment (OC)

Figure 41 Details of the DWMP investment plan for the *Eamont* OC

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

The pie chart to the right of the plan indicates the percentage split 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.



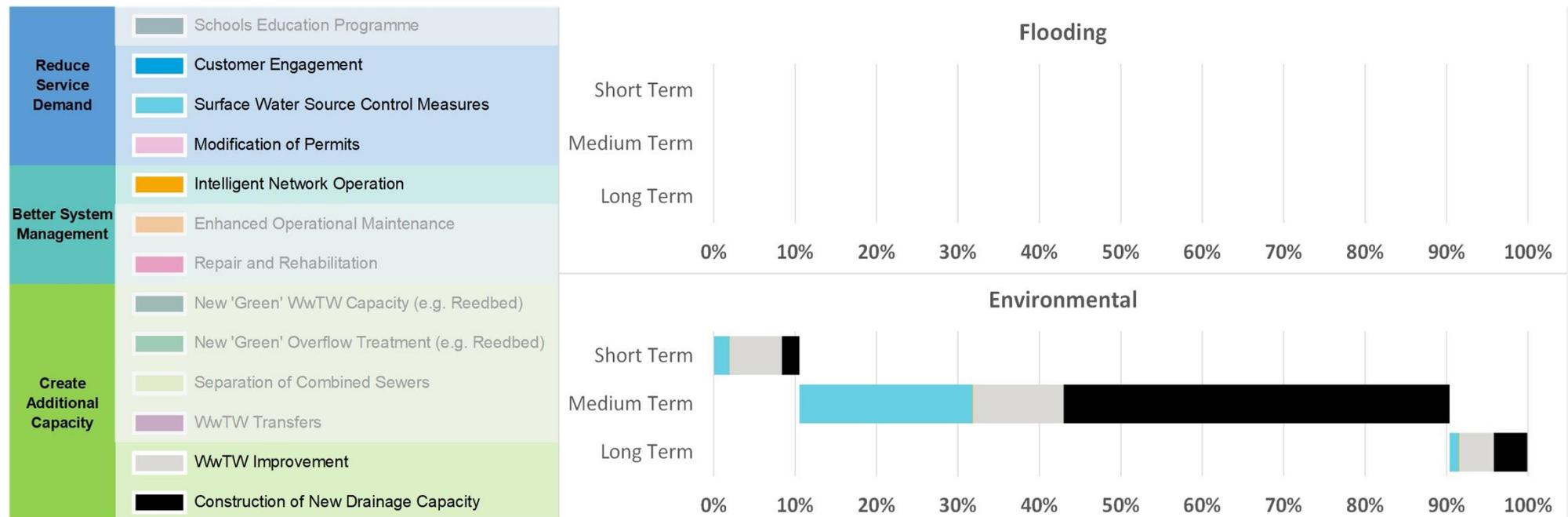
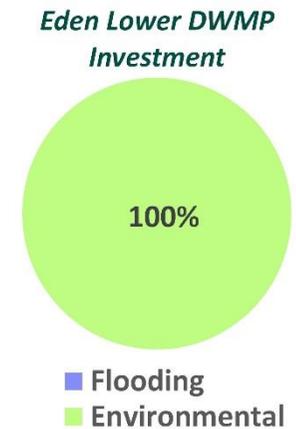
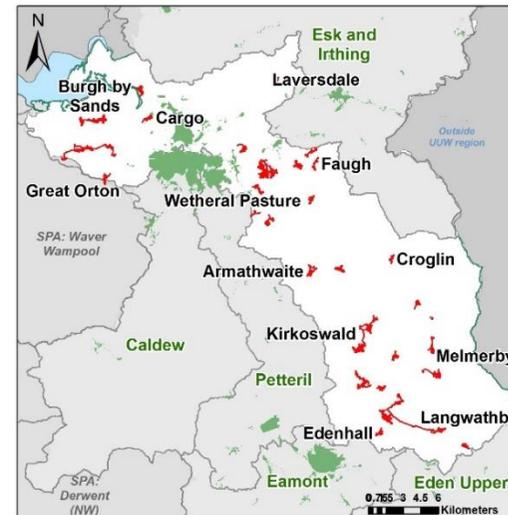
5.2.4.3 TPUs with population less than 2,000: Eden Lower Operational Catchment (OC)

Figure 42 Details of the DWMP investment plan for the Eden Lower OC

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

The pie chart to the right of the plan indicates the percentage split 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.



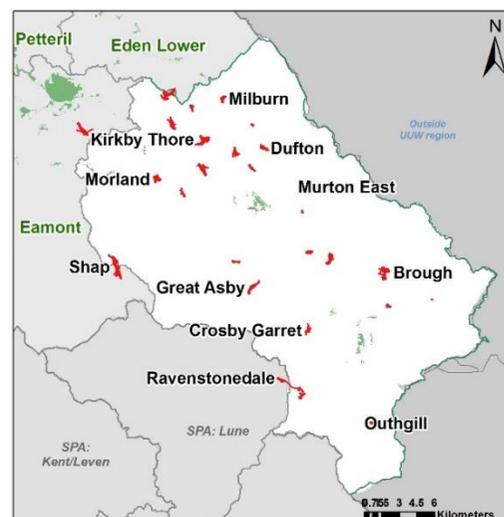
### 5.2.4.4 TPUs with population less than 2,000: Eden Upper Operational Catchment (OC)

Figure 43 Details of the DWMP investment plan for the Eden Upper OC

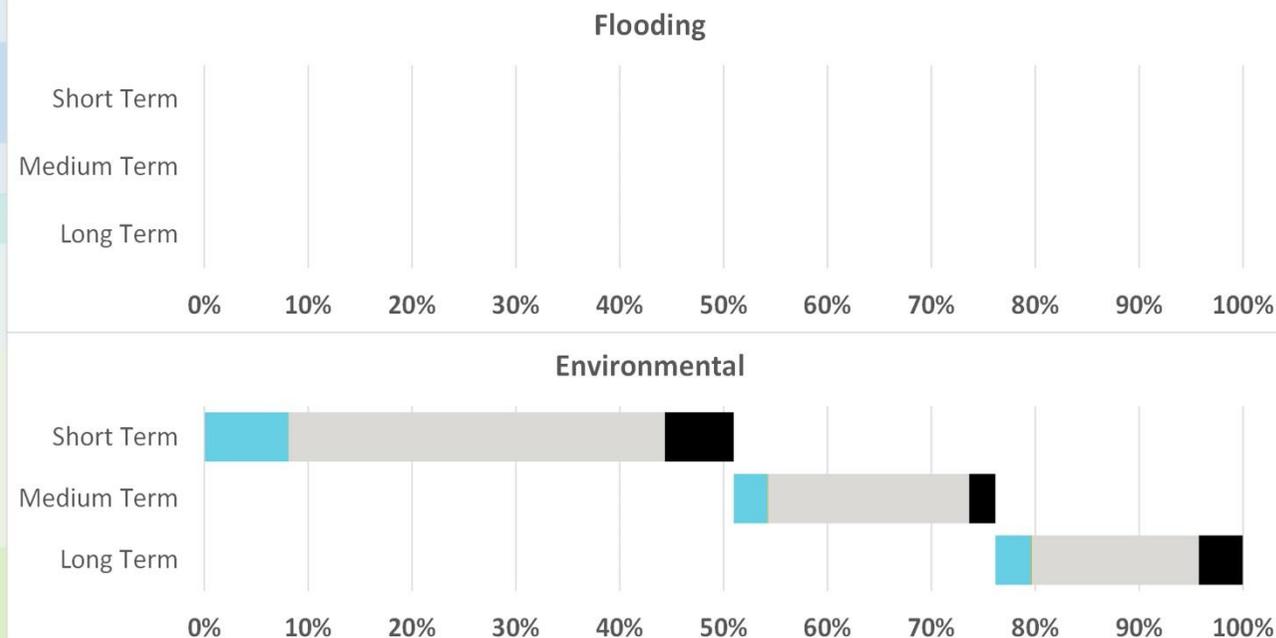
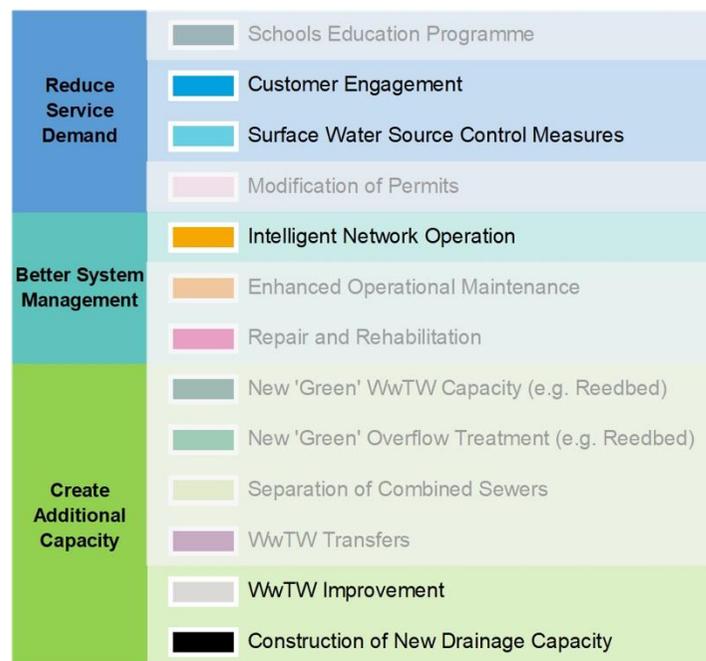
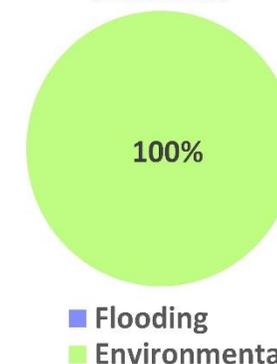
The data on this page gives details of the investment plan for the TPUs within the Eden Upper OC. The plan shows the geographic location of these TPUs within the Eden Upper OC

The pie chart to the right of the plan indicates the percentage split 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.



Eden Upper DWMP Investment



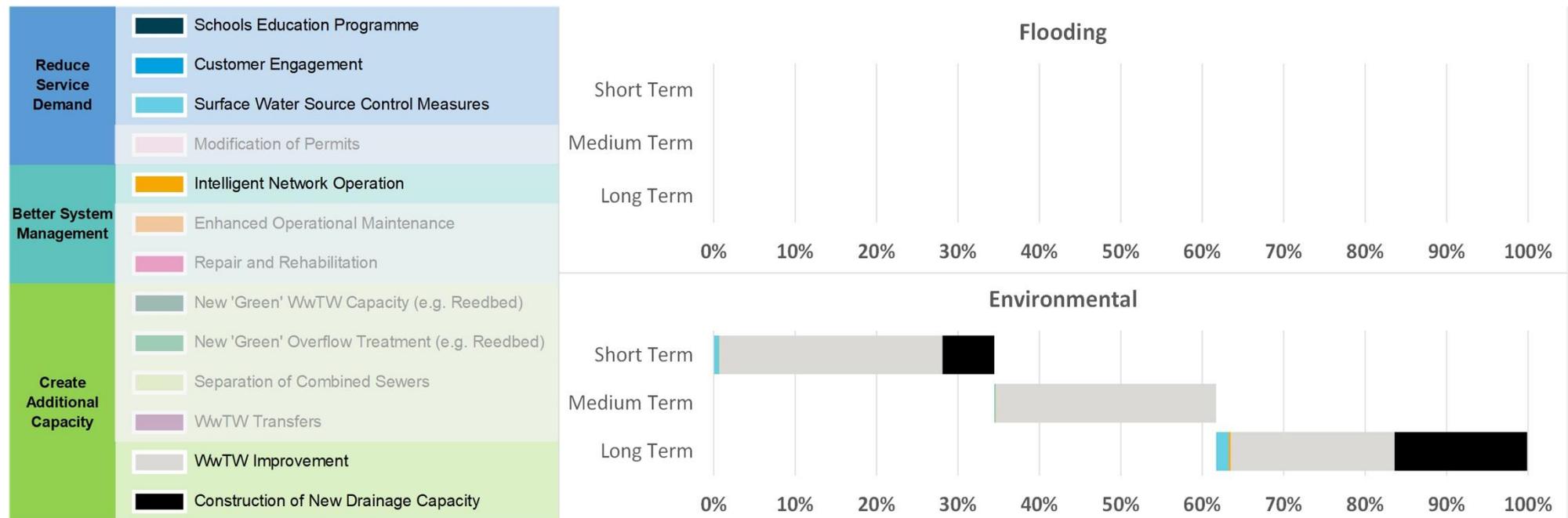
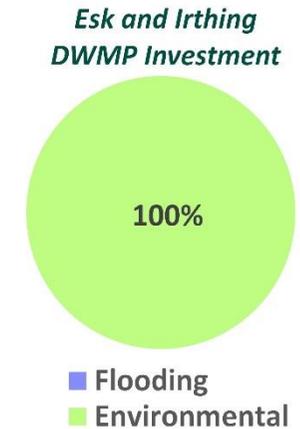
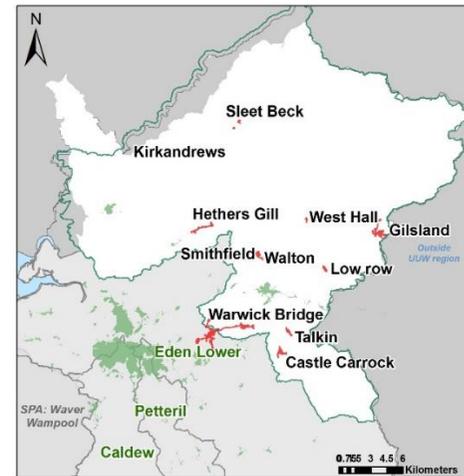
5.2.4.5 TPUs with population less than 2,000: Esk and Irthing Operational Catchment (OC)

Figure 44 Details of the DWMP investment plan for the Esk and Irthing OC

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

The pie chart to the right of the plan indicates the percentage split 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.



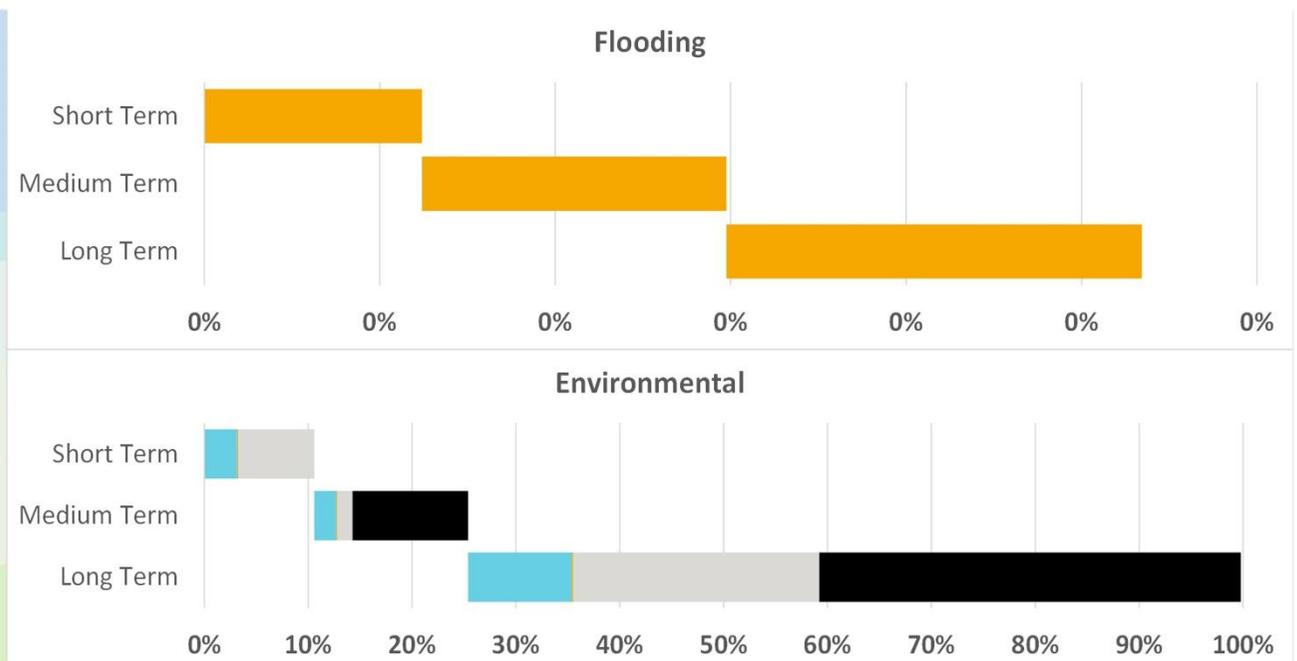
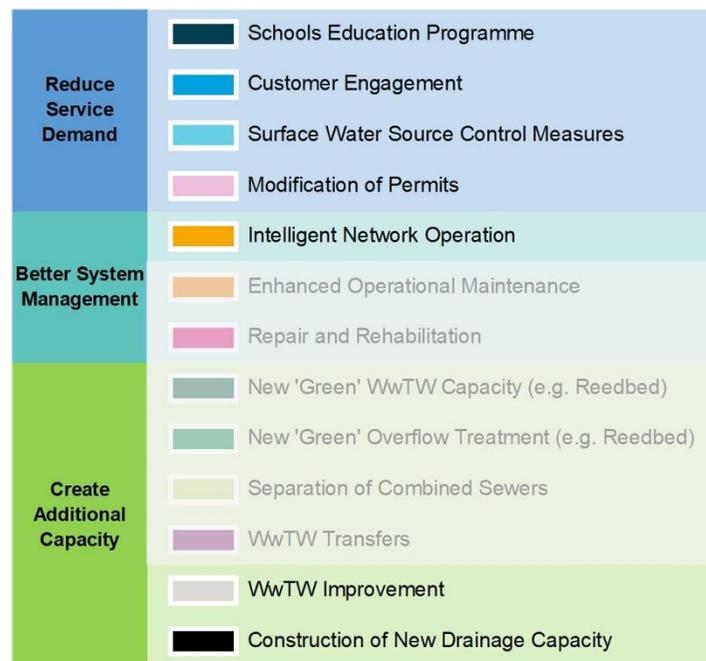
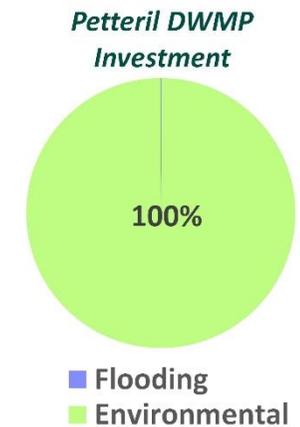
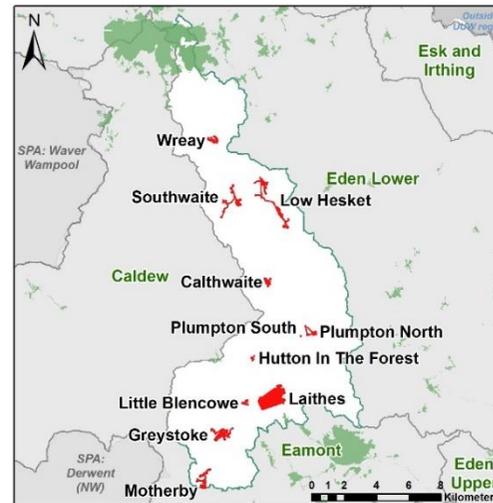
5.2.4.6 TPUs with population less than 2,000: Petteril Operational Catchment (OC)

Figure 45 Details of the DWMP investment plan for the Petteril OC

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

The pie chart to the right of the plan indicates the percentage split 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

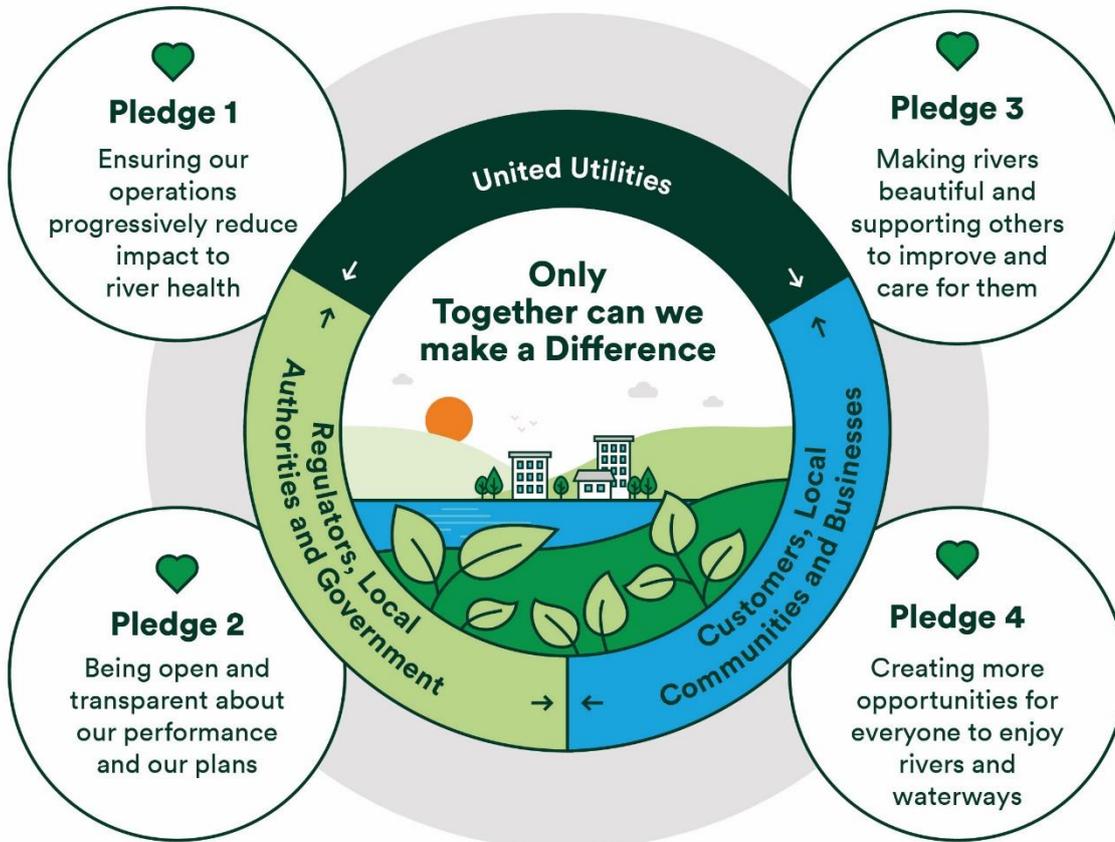
The North West is home to some of the most beautiful natural landscapes. We take our role in protecting them very seriously so they can be enjoyed by all. We are investing significantly to reduce the impact that wastewater has on the natural environment and our long-term ambition is to eliminate pollution 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 46).

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 46 Overview of the Better Rivers: Better North West project



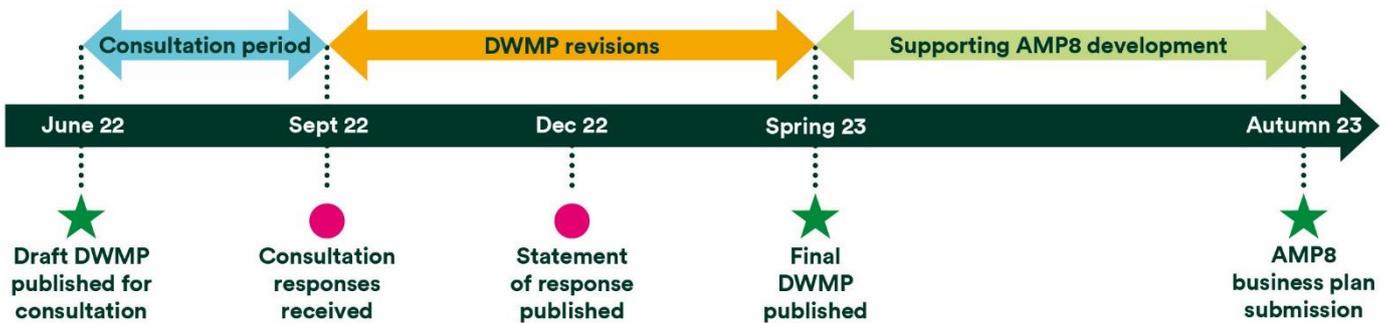
## 6. Embedding the DWMP

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 Eden and Esk 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 Eden and Esk catchment.

Moving forwards, the DWMP will be a key component in the development of our business plan for investment cycle 2025 – 2030 (AMP8, Figure 47). 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 47 Timeline of key milestones**



## 7. References

- [1] <https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3036>
- [2] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3063>
- [3] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3155>
- [4] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3165>
- [5] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3166>
- [6] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3178>
- [7] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3360>
- [8] <https://environment.data.gov.uk/catchment-planning/v/c3-plan/CatchmentPartnership/WEIF2501>
- [9] [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1120242/Soilway-Tweed-FRMP-2021-2027.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1120242/Soilway-Tweed-FRMP-2021-2027.pdf)
- [10] <https://www.gov.uk/government/publications/surface-water-management-plan-technical-guidance>
- [11] <https://www.edenriverstrust.org.uk/eden-catchment-partnership/>
- [12] <https://storymaps.arcgis.com/stories/78d0c091d9f742d7bae1e23396989ef8>
- [13] <https://www.stcuthbertsgv.co.uk/FAQs>
- [14] [https://www.stcuthberts.co.uk/Portals/0/Documents/FINALmasterplanfrmworkrev\(2\)071020LR%20\(4\).pdf](https://www.stcuthberts.co.uk/Portals/0/Documents/FINALmasterplanfrmworkrev(2)071020LR%20(4).pdf)

## Appendix A

**Table A.1 List of TPUs which triggered for RBCS across environment, flooding or wastewater treatment works categories**

0	Great Orton	21	Greystoke	42	Askham	63	Sandford Village
1	Low Hesket	22	Great Salkeld	43	Bolton Penrith	64	Shap
2	Aglionby	23	Heads Nook	44	Brackenber	65	Soulby
3	Burgh by Sands	24	Hunsonby	45	Brampton (Eden)	66	South Stanmore
4	Cote Hill	25	Kirk Bampton	46	Brough	67	Temple Sowerby
5	Plumpton North	26	Kirkoswald	47	Crosby Garret	68	Warcop
6	Smithfield	27	Langwathby	48	Culgaith	69	Glenridding
7	Ainstable	28	Longtown	49	Dacre	70	Great Asby
8	Armathwaite	29	Low row	50	Dry Beck	71	Kirkby Stephen
9	Blencarn	30	Little Salkeld	51	Dufton	72	Long Marton West
10	Brampton Carlisle	31	Melmerby	52	Kaber	73	Sockbridge

**Table 9 List of TPUs which did not trigger for RBCS across environment, flooding or wastewater treatment works categories**

Tactical Planning Unit	Environment	Flooding	Wastewater Treatment Works
<b>Bampton</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Busk</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Cocklakes</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Faugh</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Hethers Gill</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS

<b>Hutton in the Forest</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Kershopefoot Village</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Kirkandrews</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Knock</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Laithes</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Little Blencowe</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Motherby</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Newbiggin (Eden)</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Plumpton South</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Skelton</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Sleet Beck</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>The How</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Wetheral Pasture</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS
<b>Wreay</b>	Did not progress from RBCS	Did not progress from RBCS	Did not progress from RBCS

**United Utilities Water Limited**  
Haweswater House  
Lingley Mere Business Park  
Lingley Green Avenue  
Great Sankey  
Warrington  
WA5 3LP



**Water for the North West**