

United Utilities Water

Drainage and Wastewater Management Plan 2023

Derwent DWMP

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Contents

1. Introduction to the DWMP	4
2. Background to the Derwent catchment	6
2.1 Strategic Planning Group (SPG).....	10
3. Risk identification	11
3.1 Risk Based Catchment Screening (RBCS) and Horizon Scan	11
3.2 Baseline Risk and Vulnerability Assessment (BRAVA) and Resilience.....	13
3.3 Problem characterisation.....	23
4. Options development	29
4.1 Derwent partnerships options	30
5. Options for the Derwent.....	34
5.1 WINEP development.....	34
5.2 Options considered within the DWMP	40
5.3 Other projects and investment.....	58
6. Embedding the DWMP.....	59
7. References.....	60

Appendices

Appendix A.....	61
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Tables

Table 1 Summary of stakeholder management plans.....	8
Table 2 Environmental BRAVA results.....	14
Table 3 Flooding BRAVA results.....	16
Table 4 Wastewater treatment works BRAVA results.....	19
Table 5 Environmental and flooding resilience results	20
Table 6 Examples of data that change over time and can impact upon the plan	26
Table 7 Partnership opportunities within the Derwent	32

Figures

Figure 1 Geographical scales applied for planning and collaboration within DWMP	4
Figure 2 Five stages of the DWMP.....	5
Figure 3 Map of the Derwent SPA	6
Figure 4 DWMP framework for engagement	10
Figure 5 Map of the Risk Based Catchment Screening (RBCS) results for the Derwent. 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. Those not triggered in RBCS can be found in Table A.2 in the Appendix	12

Figure 6 Map of the Workington TPU.....	24
Figure 7 Workington adaptive planning process.....	25
Figure 8 Workington Adaptive Plan – Possible adaptive pathways as knowledge and opportunities change over time	28
Figure 9 Options development process.....	29
Figure 10 Options hierarchy	29
Figure 11 Overview of the potential partnership opportunities in the Derwent.....	31
Figure 12 Beyond Water Series case study	33
Figure 13 Potential benefits to the North West as a result of the WINEP	35
Figure 14 Potential WINEP investment in the Derwent for investment cycle 2025-2030	36
Figure 15 Option types	40
Figure 16 Maps showing the benefit of implementing regional customer engagement (left) and sustainable drainage solutions (right) options across the Derwent.....	42
Figure 17 Distribution of environmental investment by option type within the Derwent	44
Figure 18 Distribution of flooding investment by option type within the Derwent	45
Figure 19 Distribution of benefit by option type within the Derwent	46
Figure 20 Proportion of investment seen in each TPU within the Derwent	47
Figure 21 Details of the DWMP investment plan for Aspatria	48
Figure 22 Details of the DWMP investment plan for Cockermouth.....	49
Figure 23 Details of the DWMP investment plan for Dearham.....	50
Figure 24 Details of the DWMP investment plan for Keswick.....	51
Figure 25 Details of the DWMP investment plan for Silloth.....	52
Figure 26 Details of the DWMP investment plan for Workington	53
Figure 27 Location of Environment Agency operational catchments within the Derwent SPA.....	54
Figure 28 Details of the DWMP investment plan for the Cocker OC.....	55
Figure 29 Details of the DWMP investment plan for the Derwent OC.....	56
Figure 30 Details of the DWMP investment plan for the Ellen and West Coast OC.....	57
Figure 31 Overview of the Better Rivers: Better North West project	58
Figure 32 Timeline of key milestones	59

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.

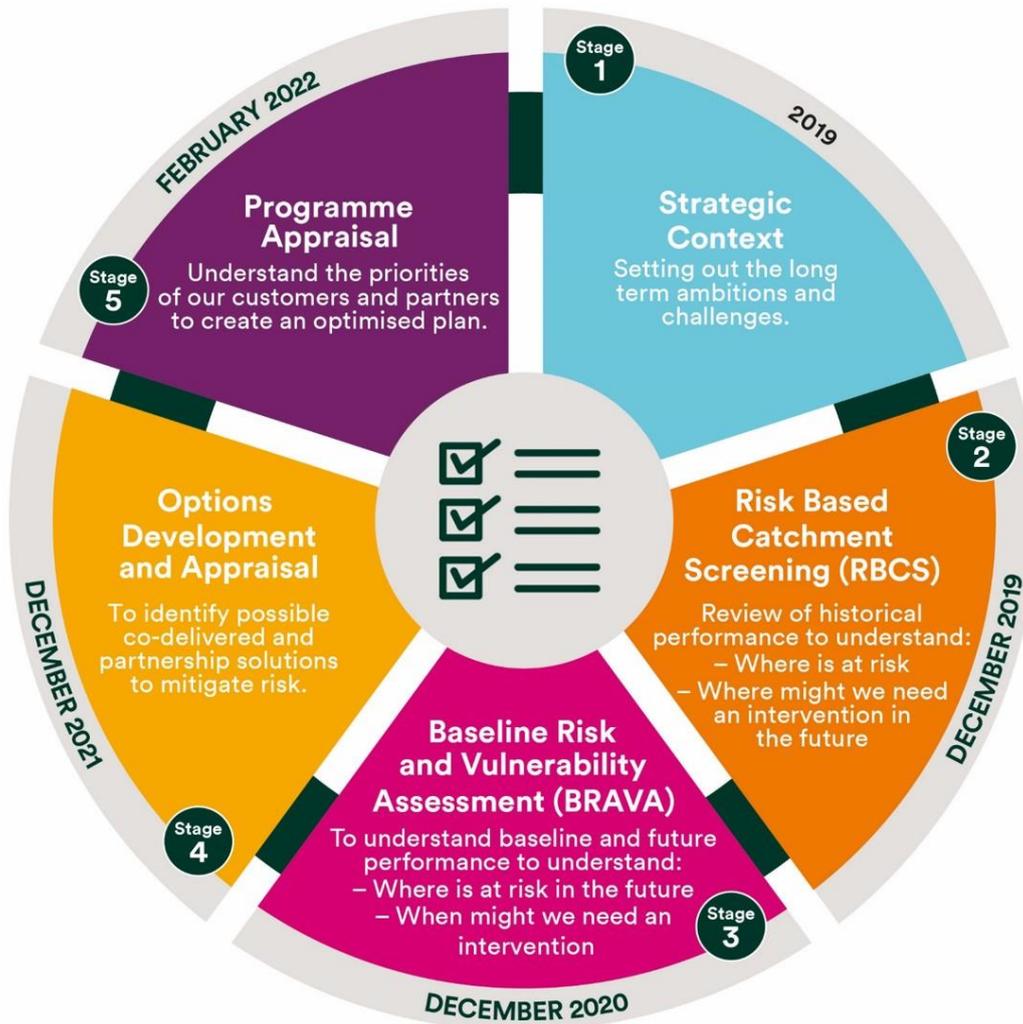
The plan will be set out at three levels (Figure 1) to maximise the potential for partnership working and for effective engagement between regulators and stakeholders at both company-wide level and more locally.

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 Derwent SPA.

2. Background to the Derwent catchment

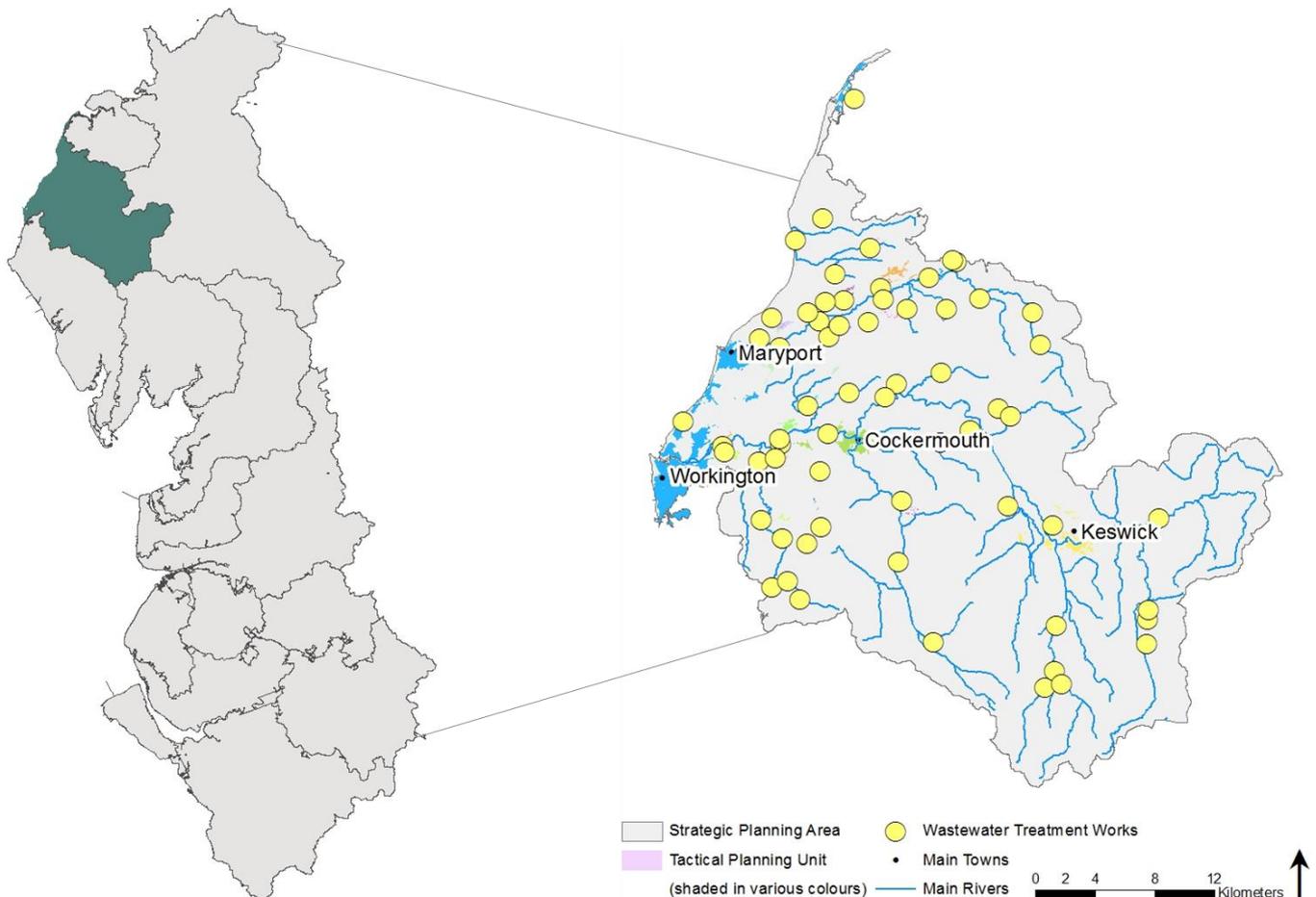
The Derwent catchment covers approximately 891.5km² and is located in the north-west fells of the Lake District National Park. The land use mostly consists of meat and dairy farming as it is a rural catchment, with several designated conservation areas such as the River Derwent and the Tributaries Special Area of Conservation ^[1]. The River Derwent and Cocker are present within this catchment and they drain into the Irish Sea at Workington as well as lakes such as Bassenthwaite, Buttermere, Derwent Water, Crummock and Thirlmere reservoir which supplies water to the northwest region.

There are three main sub catchments:

- Cocker is located in the south of the catchment and consists of numerous popular tourist destinations such as Buttermere, Crummock Water and Loweswater Lakes ^[2].
- Derwent is located across the centre of the catchment, it has tourist locations such as Keswick and is also a sub catchment that is dominated by farmland ^[3].
- Ellen and West Coast is located along the northern part of the catchment, the River Ellen is there main body of water to exist here and it drains into the Irish Sea at Workington. This sub catchment is mostly dominated by livestock agriculture ^[4].

There are 64 wastewater tactical planning units (TPU, also known as wastewater treatment work (WwTW) drainage catchments) within the Derwent 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 Workington to smaller, rural catchments such as Swirls. The TPUs are highlighted in Figure 3.

Figure 3 Map of the Derwent SPA



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

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

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

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

Table 1 Summary of stakeholder management plans

Management plan	Overview	Key aspects for the Derwent catchment
<p>River Basin Management Plan (RBMP) ^[5]</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 abandoned mines, agriculture and rural are.</p> <p>Future challenges predicted by the Environment Agency include non-native species, physical modifications and pollution from agriculture, rural areas and wastewater.</p> <p>Future challenges predicted by partnership include changes to the natural flow and water levels, invasive non-native species (e.g. New Zealand pigmyweed) and pollution from wastewater.</p>
<p>Flood Risk Management Plan (FRMP) ^[6]</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 catchment is within the North West River Basin District (RBD). The area covers approximately 13,200km² and is occupied by close to seven million people. More than 370,000 of these people being at risk from flooding by rivers and the sea with a further 600,000 people at risk of surface water flooding. Around 35,000 people are thought to be living in areas that are deemed high risk of flooding from surface water with a further 97,500 at a moderate risk. 31,000 people are living in areas at are high risk of flooding due to rivers and the sea with a further 46,500 at a moderate risk.</p> <p>Within the North West RBD, areas of significant flood risk across the North West include Ambleside, Ashton under Lyne, Atherton, Blackburn, Burnley, Ellesmere Port, Formby, High Folds, Kendal and Liverpool. The North West has a total of 800km of highly dynamic coastline demonstrated through areas such as Sefton which coastline is eroding by up to 4m per year.</p> <p>The North West RBD has a large amount of reservoirs credited to its industrial history, there are currently approximately 290 in the region that are classed as large raised reservoirs. 300,000 people are at risk of flooding from reservoirs in the North West.</p>

Management plan	Overview	Key aspects for the Derwent catchment
<p>Shoreline Management Plan (SMP) ^[7]</p> <p>Owner: North West and North Wales Coastal Group</p>	<p>The SMP is a non-statutory, high level policy document for coastal flood and erosion risk management planning that was formally adopted in August 2016.</p> <p>It provides a large-scale assessment of the risks associated with coastal processes and helps to reduce these risks to people and the environment by identifying the most sustainable policies for managing flood and coastal erosion risks in the short term (0–20 years), medium term (20–50 years) and long term (50–100 years).</p>	<p>Between Workington and Riddick protection of current assets such as windfarms will continue in the short term.</p> <p>The SMP2 therefore recommends a managed realignment policy which will allow for the risks to heritage assets, the road and other properties to be managed appropriately through minor short term works and adaptation measures.</p>
<p>Surface Water Management Plan (SWMP)</p> <p>Owner: Lead Local Flood Authority (LLFA) ^[8]</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.</p> <p>Partners work together to understand the surface water flood risk in an area and agree an approach to address these issues innovatively and in a cost-effective way, and where appropriate, in partnership. A SWMP is a long-term plan and should influence development.</p> <p>The decision on whether a SWMP is appropriate is down to the LLFA, generally they are produced for areas considered to experience a high flood risk. UUW continues to work closely with LLFAs and supports the development of SWMPs where required, and the delivery of SWMPs where they are published.</p>	
<p>Catchment Based Approach (CaBA) Catchment Plan ^[5] ^[9] ^[10]</p> <p>Owner: West Cumbria 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 vision of the catchment partnership is to have healthy and sustainable water environments that benefit the economy, wildlife and people.</p> <p>The partnership aims to:</p> <ul style="list-style-type: none"> • Improve water quality; • Increase wildlife habitat; and • Reduce flood risk. <p>Over 50% of the catchment is deemed to be in unfavourable condition due to pressures such as invasive species and poor river management. Other pressures include physical modifications and pollution from abandoned mines, agriculture and rural areas.</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 Derwent catchment, we have engaged with stakeholders such as:

- The Environment Agency;
- Cumbria County Council; and
- West Cumbria Rivers Trust (host of the West Cumbria 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 Derwent 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 Derwent, the RBCS stage identified 50 out of 64 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 (the corresponding list of TPU names can be found in Table A.1).

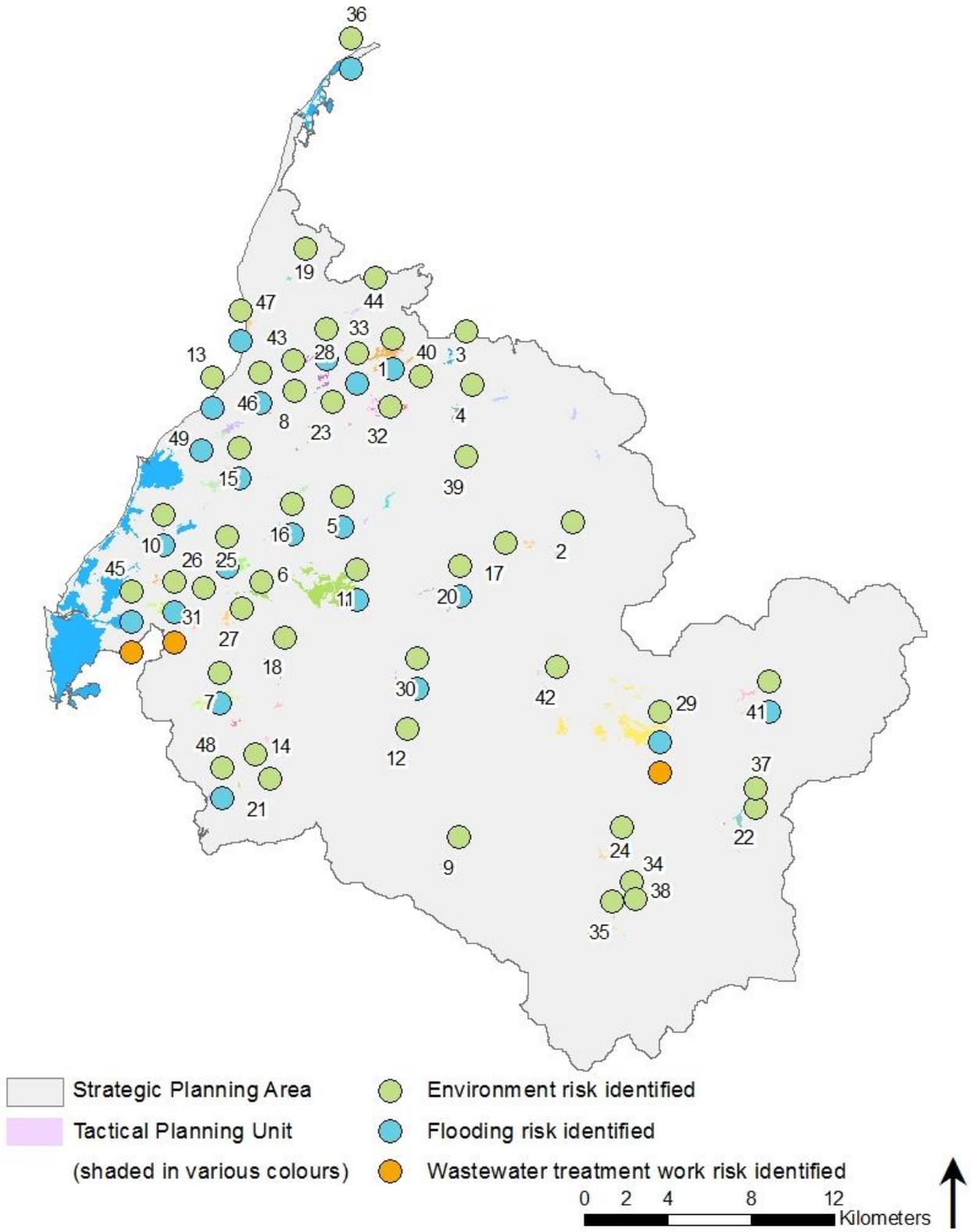
There are numerous TPUs which did not trigger for RBCS across any of the categories and are therefore not shown in Figure 5. A list of these TPU's can be found in Table A.2 in the Appendix.

Environmental and flooding categories are the most common within the Derwent (Figure 5), which is supported by the highest triggered RBCS assessments which are:

- Storm Overflow Assessment Framework - (48/64) – Environment; and
- External Sewer Flooding - (22/64) – 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 Derwent. 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. Those not triggered in RBCS can be found in Table A.2 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 Derwent catchment are outlined in Table 2 to Table 5.

Table 2 Environmental BRAVA results

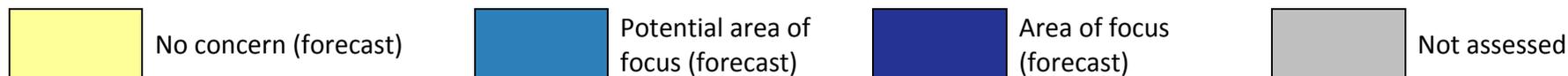
Tactical Planning Unit	Environmental					
	Pollution Assessment	Storm Overflow Performance		Bathing and Shellfish Spill Assessment		
	2020	2020	2050	2020	2030	2050
Allerby						
Allonby						
Asby						
Aspatria						
Bassenthwaite						
Birkby						
Blennerhasset						
Blind Crake						
Bothel						
Branthwaite						
Bridekirk						
Broughton Cross						
Bullgill						
Buttermere						
Camerton						
Cockermouth						
Cornhow						
Crosscanonby						
Crossgate						
Dearham						
Dovenby						
Dub Wath						
Eaglesfield						
Edderside						
Embleton						

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
Fell Dyke						
Fisher Place						
Gilcrux						
Grange In Borrowdale						
Great Broughton						
Great Clifton						
Grey Southern						
Hayton						
Keswick						
Little Clifton						
Lorton						
Plumbland						
Prospect & Oughterside						
Rosthwaite						
Seatoller						
Silloth						
Stannah						
Stonethwaite						
Sunderland						
Thornthwaite						
Threapland						
Threlkeld						
West Newton						
Westmoor End						
Workington						
Torpenhow						

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
Allerby	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Dark Blue	Dark Blue	Dark Blue
Allonby	Dark Blue	Dark Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue
Asby	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Aspatria	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
Bassenthwaite	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Yellow
Birkby	Yellow	Dark Blue	Dark Blue	Yellow	Yellow	Yellow	Light Blue	Yellow	Yellow	Light Blue	Dark Blue	Dark Blue	Yellow
Blennerhasset	Grey	Grey	Grey	Grey	Grey	Grey	Light Blue	Grey	Grey	Grey	Grey	Grey	Yellow
Blind Crake	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Yellow
Bothel	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue
Branthwaite	Light Blue	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Light Blue	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow
Bridekirk	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow
Broughton Cross	Yellow	Yellow	Light Blue	Yellow	Yellow	Yellow	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow
Bullgill	Yellow	Light Blue	Light Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Yellow	Yellow	Yellow	Yellow	Yellow	Yellow
Buttermere	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Light Blue
Camerton	Light Blue	Dark Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Light Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Yellow
Cockermouth	Light Blue	Dark Blue	Dark Blue	Light Blue	Light Blue	Dark Blue	Dark Blue	Yellow	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Light Blue
Cornhow	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Dark Blue
Crosscanonby	Light Blue	Light Blue	Light Blue	Yellow	Yellow	Dark Blue	Dark Blue	Yellow	Yellow	Dark Blue	Dark Blue	Dark Blue	Yellow
Crossgate	Grey	Grey	Grey	Grey	Grey	Grey	Dark Blue	Grey	Grey	Grey	Grey	Grey	Dark 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
Dearham													
Dovenby													
Dub Wath													
Eaglesfield													
Edderside													
Embleton													
Fell Dyke													
Fisher Place													
Gilcrux													
Grange In Borrowdale													
Great Broughton													
Great Clifton													
Grey Southern													
Hayton													
Keswick													
Little Clifton													
Lorton													
Plumbland													
Prospect & Oughterside													

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	
Rosthwaite														
Seatoller														
Silloth														
Stannah														
Stonethwaite														
Sunderland														
Thornthwaite														
Threapland														
Threlkeld														
Torpenhow														
West Newton														
Westmoor End														
Workington														

Table 4 Wastewater treatment works BRAVA results

Tactical Planning Unit	Wastewater Treatment Works		
	Risk of wastewater treatment works (WwTW) capacity		
	2020	2030	2050
Blind Crake			
Bothel			
Branthwaite			
Bridekirk			
Cockermouth			
Crosscanonby			
Dearham			
Edderside			
Grange In Borrowdale			
Great Broughton			
Great Clifton			
Keswick			
Lorton			
Prospect & Oughterside			
Seatoller			
Silloth			
Workington			

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

Table 5 Environmental and flooding resilience results

Tactical Planning Unit	Resilience Assessment		
	Environmental		Flooding
	Potential for changes in the water quality of rivers as a result of climate change	Potential for changes in catchment contributions as a result of climate change	Outfall locking
	2050	2050	2020
Aspatria	More resilient	More resilient	Not assessed
Bassenfell	More resilient	Not assessed	Not assessed
Bassenthwaite	Less resilient	Less resilient	More resilient
Birkby	More resilient	More resilient	Not assessed
Blennerhasset	More resilient	More resilient	Not assessed
Blind Crake	Less resilient	Less resilient	Not assessed
Bothel	More resilient	More resilient	Not assessed
Branthwaite	Less resilient	Less resilient	Not assessed
Bridekirk	More resilient	More resilient	Not assessed
Broughton Cross	Less resilient	Less resilient	Not assessed
Bullgill	More resilient	More resilient	Not assessed
Buttermere	More resilient	More resilient	Not assessed
Camerton	More resilient	More resilient	Less resilient
Cockermouth	Less resilient	Less resilient	Less resilient
Crosscanonby	More resilient	More resilient	Not assessed
Crossgate	Less resilient	Less resilient	Not assessed
Dearham	Less resilient	More resilient	Not assessed
Dovenby	Less resilient	More resilient	Not assessed
Dub Wath	More resilient	More resilient	Not assessed
Eaglesfield	Less resilient	Less resilient	Not assessed
Edderside	More resilient	More resilient	Not assessed
Embleton	More resilient	More resilient	Not assessed
Fell Dyke	Less resilient	Less resilient	Not assessed

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

Tactical Planning Unit	Resilience Assessment		
	Environmental	Flooding	Outfall locking
	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	
2050	2050	2020	
Gilcrux			
Grange In Borrowdale			
Great Broughton			
Great Clifton			
Greengill			
Grey Southern			
Hayton			
Ireby			
Keswick			
Little Clifton			
Lorton			
Mockerkin			
Pardshaw			
Plumbland			
Prospect & Oughterside			
Redmain			
Rosthwaite			
Stonethwaite			
Sunderland			
Thornthwaite			
Threapland			

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
Threlkeld			
Torpenhow			
Uldale			
Ullock			
Wardhall Guards			
Watch Hill			
Watchhill West			
West Newton			
Workington			

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 Derwent, no TPUs were identified to be 'complex' based on problem characterisation.

3.3.2 Strategic growth catchments

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

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

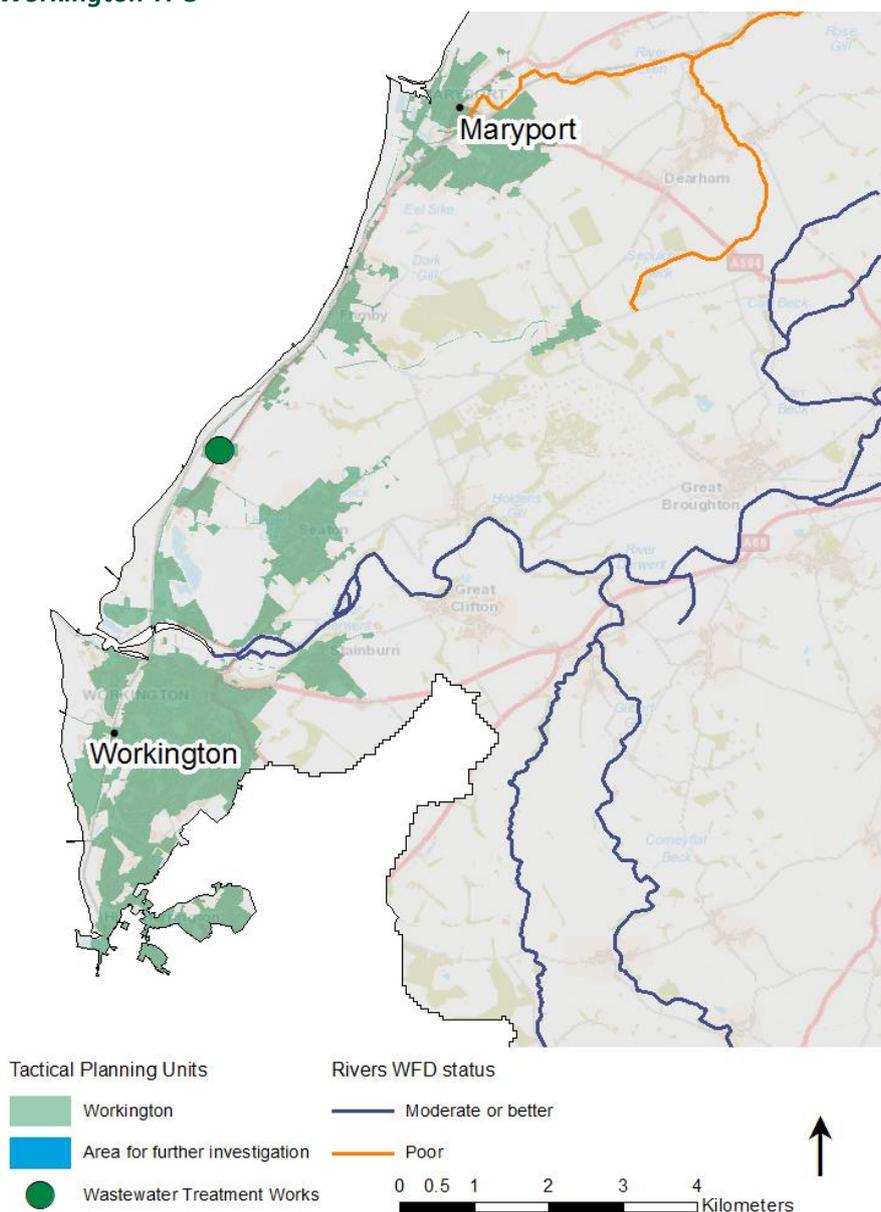
- Workington.

3.3.3 Workington

The Workington TPU is to the west of the Derwent catchment (Figure 6), consisting of over 470km of sewer network which serves over 20,000 properties and a residential population of approximately 43,000 people, which is projected to increase 8% by 2050. The main watercourses are the Derwent (from the confluence with the Cocker to tidal) and the Ellen (lower), which are classed as 'moderate' and 'poor' respectively under the Water Framework Directive (WFD) 2019.

Workington 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. The BRAVA process also 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.

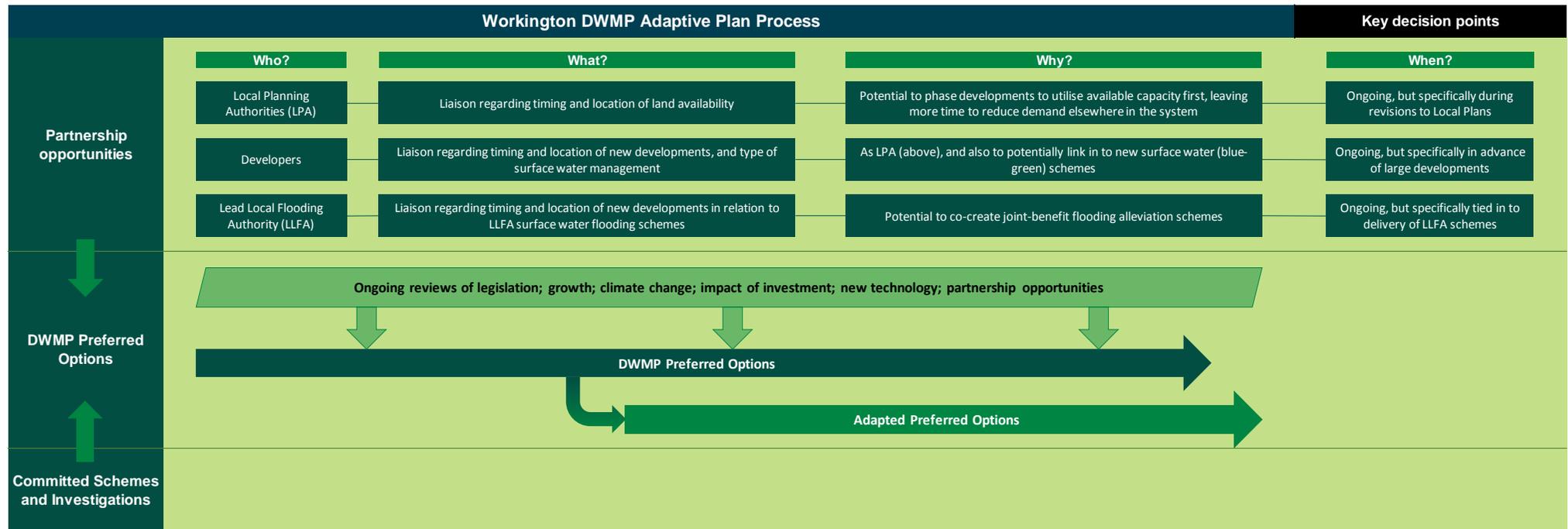
Figure 6 Map of the Workington TPU



3.3.3.1 Workington adaptive plan

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

Figure 7 Workington adaptive planning process



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

- Local planning authority;
- The Environment Agency;
- Lead local flood authorities; and
- Housing developers.

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

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

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

Figure 8 shows the second part of the Workington adaptive plan, reflecting the different option types identified as being appropriate for Workington. 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 Workington, 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:

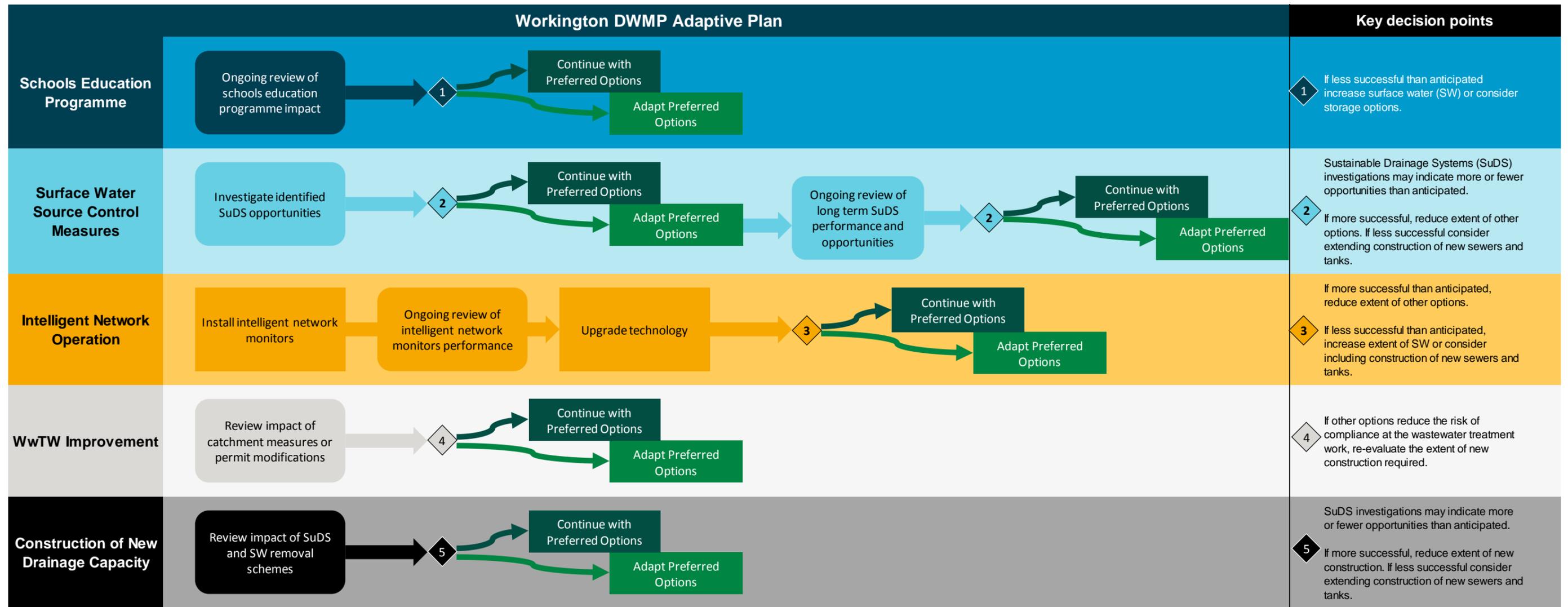
- Technical feasibility;
- Benefit of the work;
- Customer impact;

- 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 7. The adaptive plan may contain potential investigations, which are currently excluded from the optimised DWMP plan (refer to section 5.2) until there is more certainty. It is, therefore, important that both the adaptive plan and the optimised plan are developed together.

Figure 8 Workington Adaptive Plan – Possible adaptive pathways as knowledge and opportunities change over time



4. Options development

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

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

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

Figure 9 Options development process

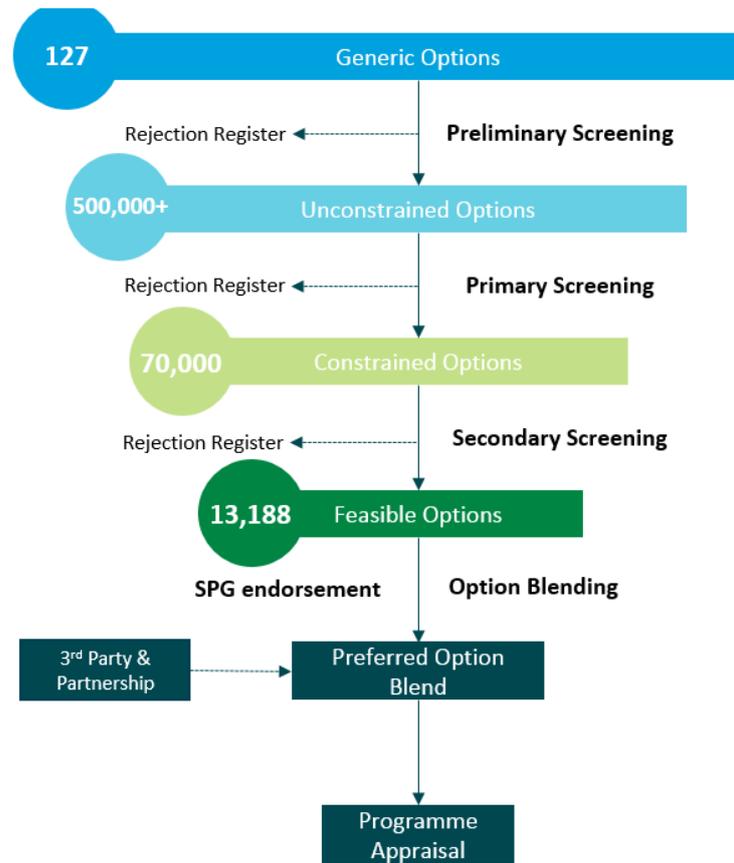


Figure 10 Options hierarchy



4.1 Derwent partnerships options

In order to identify and develop potential partnership options in the Derwent, 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:

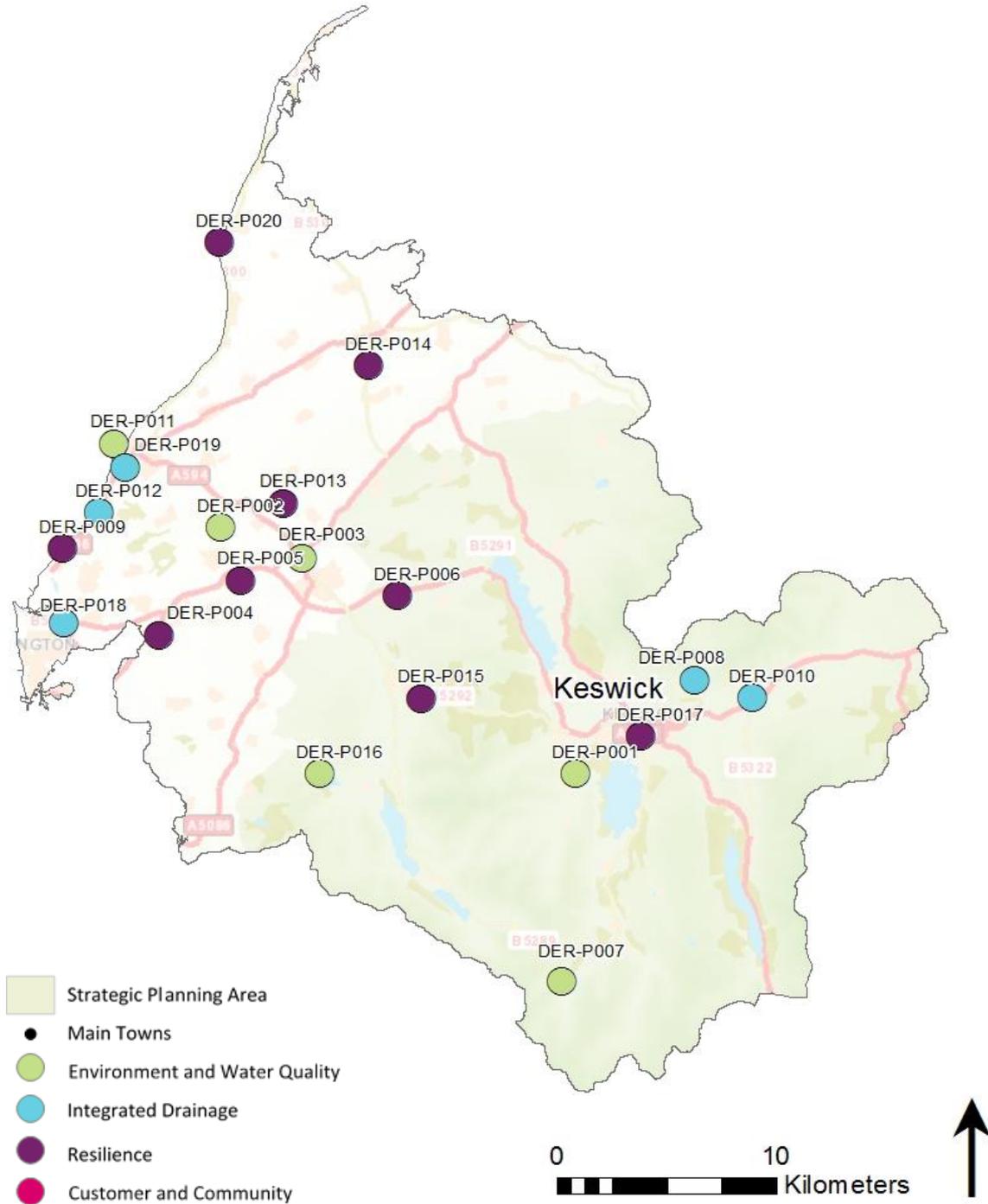
- Where possible, the potential partnership opportunities were mapped and this created over 1,000 opportunities for further investigation. The suggestions were screened depending on the opportunities timescales, proximity to UUW assets and the level of detail. This allowed UUW to refine the opportunities, 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 Derwent SPG workshops are shown in Figure 11 and Table 7.

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

Figure 11 Overview of the potential partnership opportunities in the Derwent



Note: The suggestions are 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 U UW companywide partnership pipeline for further consideration.

Table 7 Partnership opportunities within the Derwent

ID	Partnership Opportunity	Theme	Organisation Type
DER-P001	River restoration and natural flood management opportunities project	Environment and Water Quality	Non-Governmental Organisations
DER-P002	Habitats and water quality improvements project	Environment and Water Quality	Undisclosed
DER-P003	Habitats and water quality improvements project	Environment and Water Quality	Non-Governmental Organisations
DER-P004	Investigate and improve water quality project	Resilience	Undisclosed
DER-P005	Investigate and improve water quality project	Resilience	Undisclosed
DER-P006	Investigate and improve water quality project	Resilience	Non-Governmental Organisations
DER-P007	River restoration and natural flood management opportunities project	Environment and Water Quality	Private Sector
DER-P008	Investigate flooding causes and consider natural flood management and Sustainable drainage solutions opportunities project	Integrated Drainage	Local Councils and Planning Authorities
DER-P009	Investigate flooding causes and consider natural flood management and Sustainable drainage solutions opportunities project	Resilience	Non-Governmental Organisations
DER-P010	Exploring the use of Sustainable drainage solutions in future developments project	Integrated Drainage	Local Councils and Planning Authorities
DER-P011	Offsetting project	Environment and Water Quality	Non-Governmental Organisations
DER-P012	Investigate flooding causes and consider natural flood management and Sustainable drainage solutions opportunities project	Integrated Drainage	Local Councils and Planning Authorities
DER-P013	Investigate opportunities for natural flood management project	Resilience	Local Councils and Planning Authorities
DER-P014	River restoration and natural flood management opportunities project	Resilience	Non-Governmental Organisations
DER-P015	River restoration and natural flood management opportunities project	Resilience	Non-Governmental Organisations
DER-P016	Water quality monitoring improvements project	Environment and Water Quality	Non-Governmental Organisations
DER-P017	Investigate flood causes and natural flood management opportunities project	Resilience	Local Councils and Planning Authorities
DER-P018	Surface water flooding management project	Integrated Drainage	Local Councils and Planning Authorities
DER-P019	Surface water flooding management project	Integrated Drainage	Local Councils and Planning Authorities

4.1.1 Wider partnerships within the Derwent catchment

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

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

Figure 12 is an example of partnership that we are proud to have been involved in, and an opportunity which is currently being developed in the Derwent catchment.

Figure 12 Beyond Water Series case study

Beyond Water Series – Contract Shepherd

Background

United Utilities collaborate with more than 1,600 farmers across the region. We own several farms across the region which we lease to our tenant farmers. We work closely with farmers to educate and encourage sustainable practices, reducing damage to the catchment and, ultimately, the broader environment.

Project Details

The purpose of the project is to work together with farmers to create a more sustainable future for years to come.

An example of the work currently being carried out in collaboration with farmers is in the Thirlmere Catchment. This area provides 250 million litres of water every day to the people of the North-West. We are providing young farmers such as Matthew Fearon an opportunity through funding to work as a contract shepherd.



Outcome

Working alongside farmers allows us to deliver a host of new opportunities, such as a reduction in pollution – which is particularly advantageous when it comes to improving water quality.

5. Options for the Derwent

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.

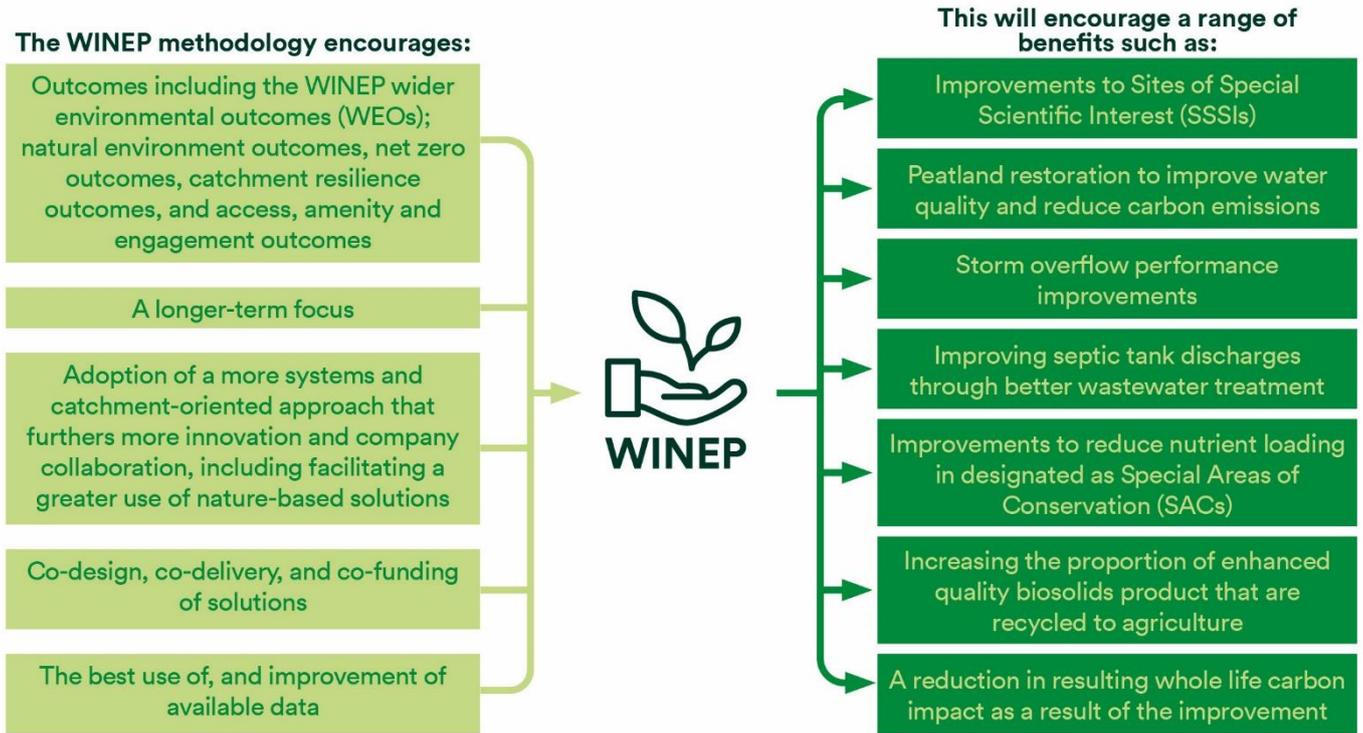
The next WINEP for investment cycle 2025 – 2030 (AMP8) is still to be confirmed (after the publication of the DWMP) and you will be able to find out more about what this means for the Derwent when we publish our AMP8 submission in autumn 2023.

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.

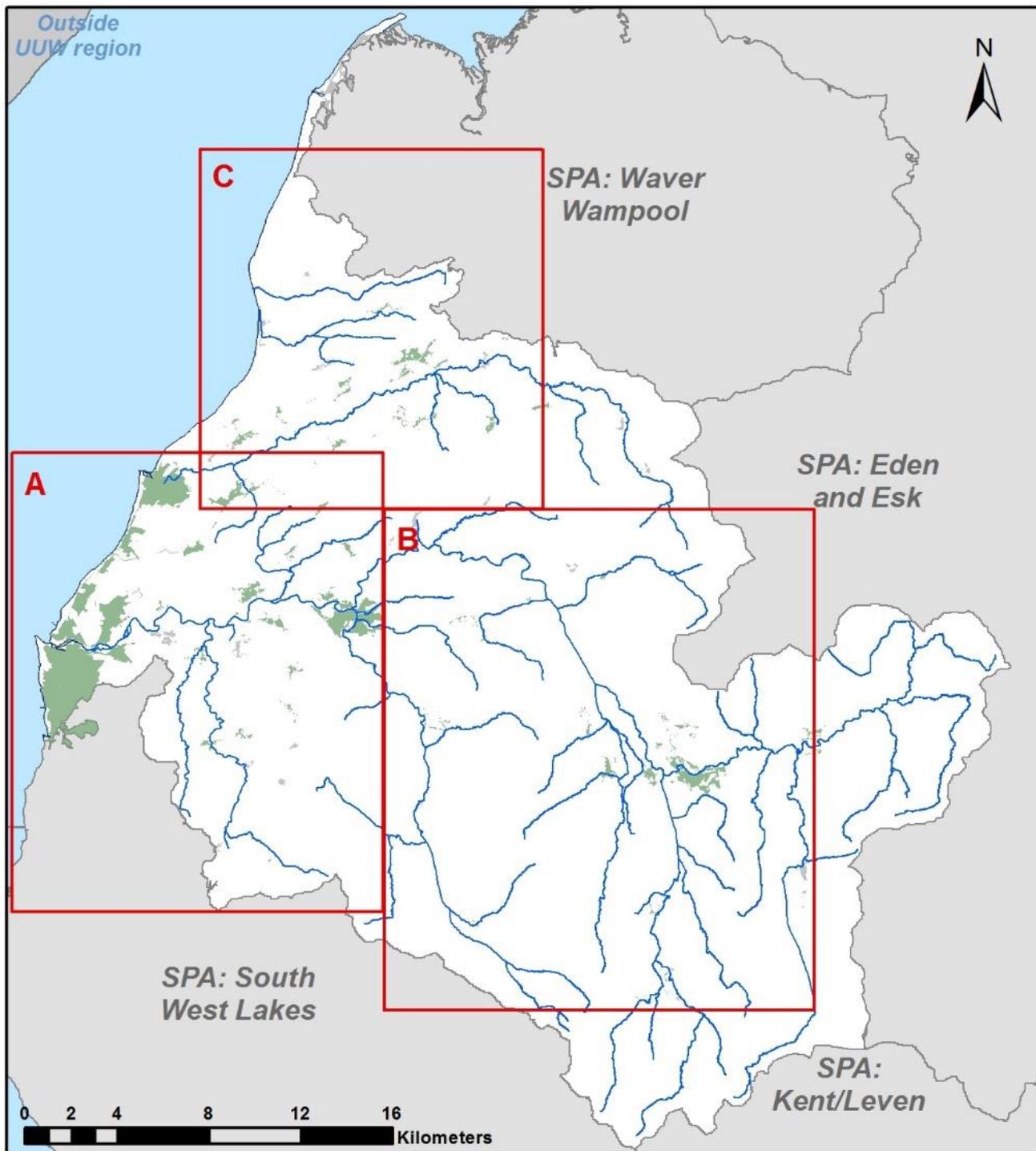
Figure 13 highlights some of the potential benefits as a result of the WINEP.

Figure 13 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 14 shows which locations within the Derwent have the potential for investment cycle 2025 – 2030 WINEP schemes, based on the January 2023 WINEP submission.

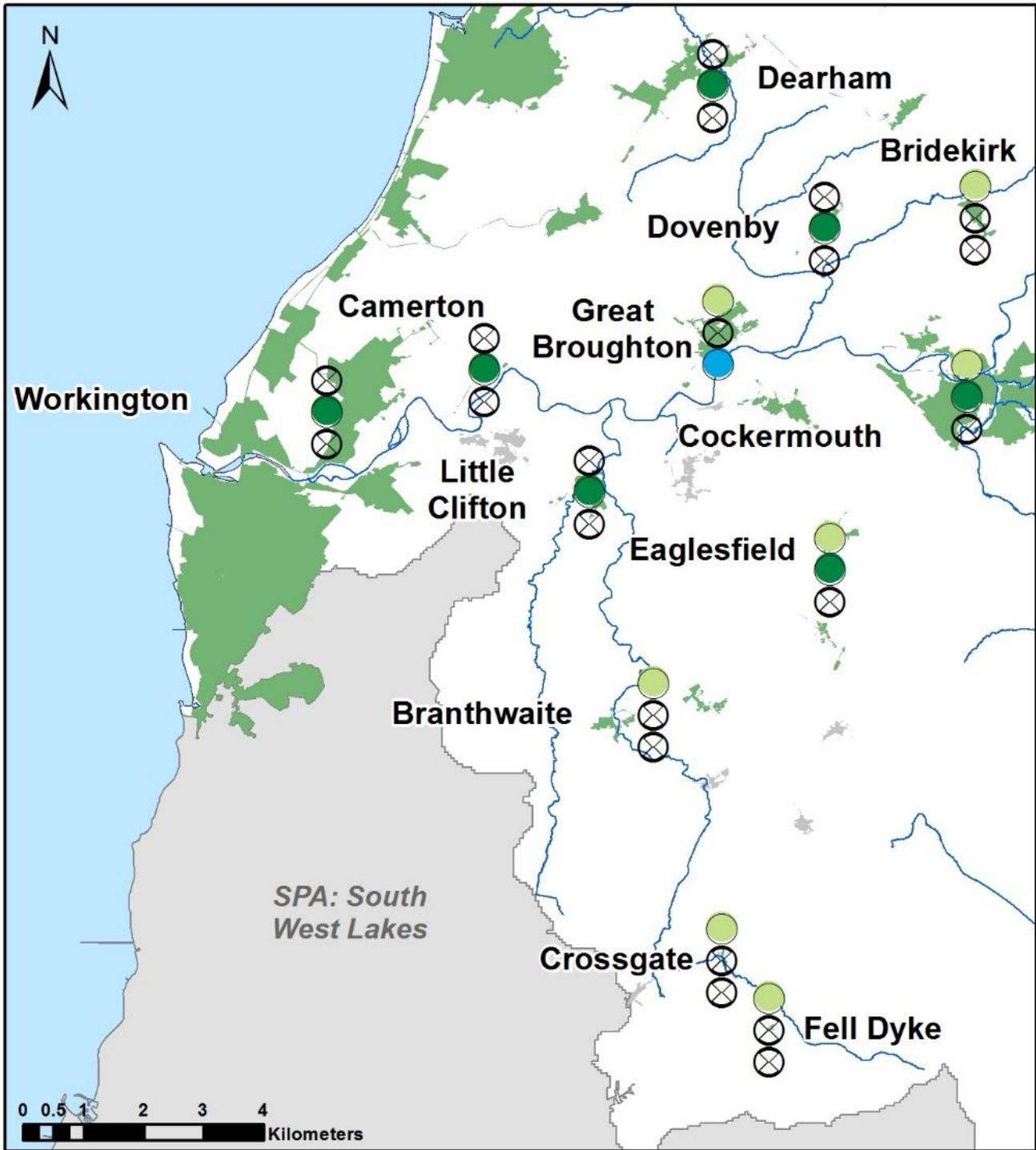
Figure 14 Potential WINEP investment in the Derwent for investment cycle 2025-2030



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 14 above refer to Figures 14A to 14C on the following pages.

Figure 14A Potential WINEP investment in the Derwent for investment cycle 2025-2030

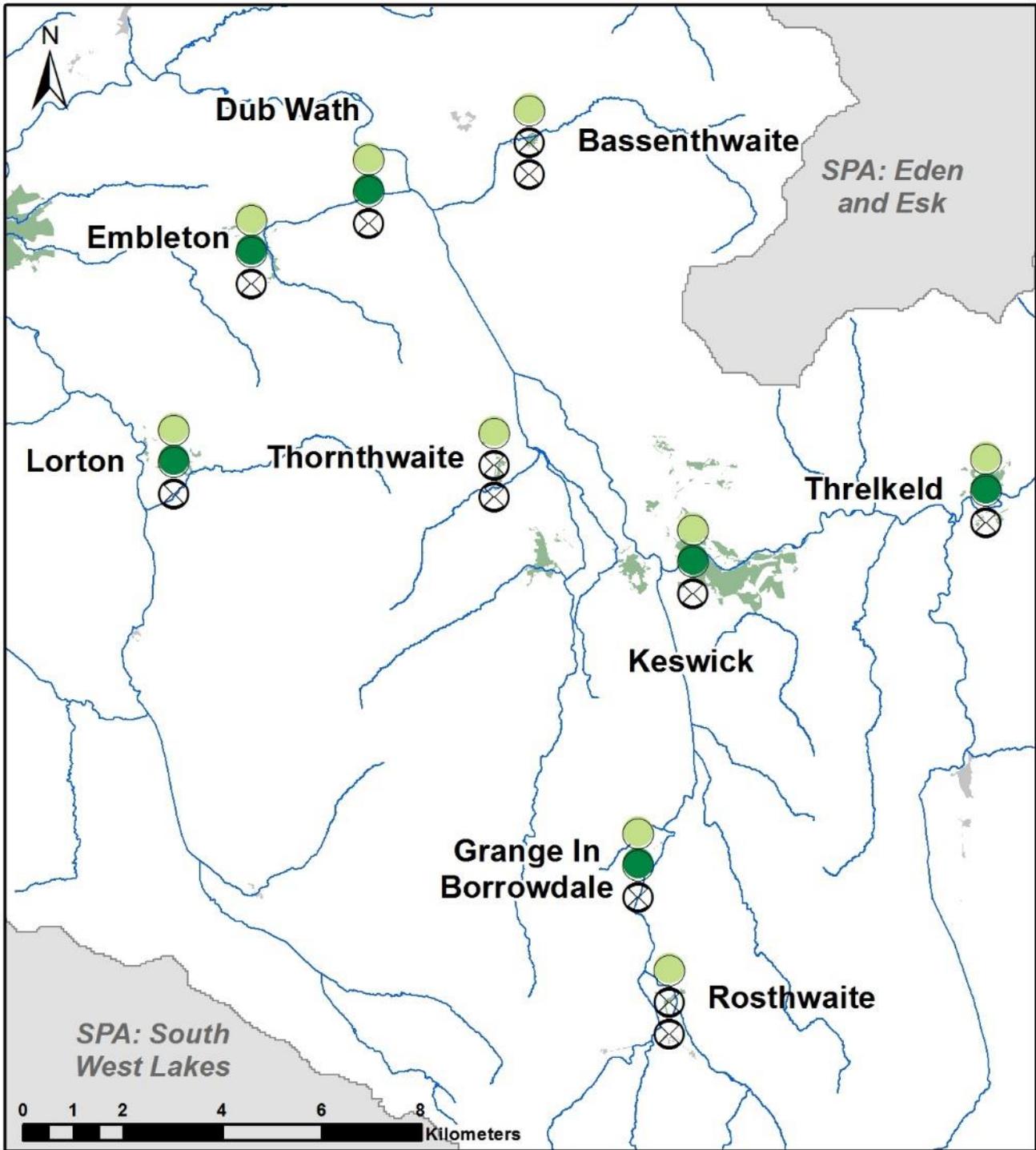


TPUs with WINEP driver investment



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

Figure 14B Potential WINEP investment in the Derwent for investment cycle 2025-2030

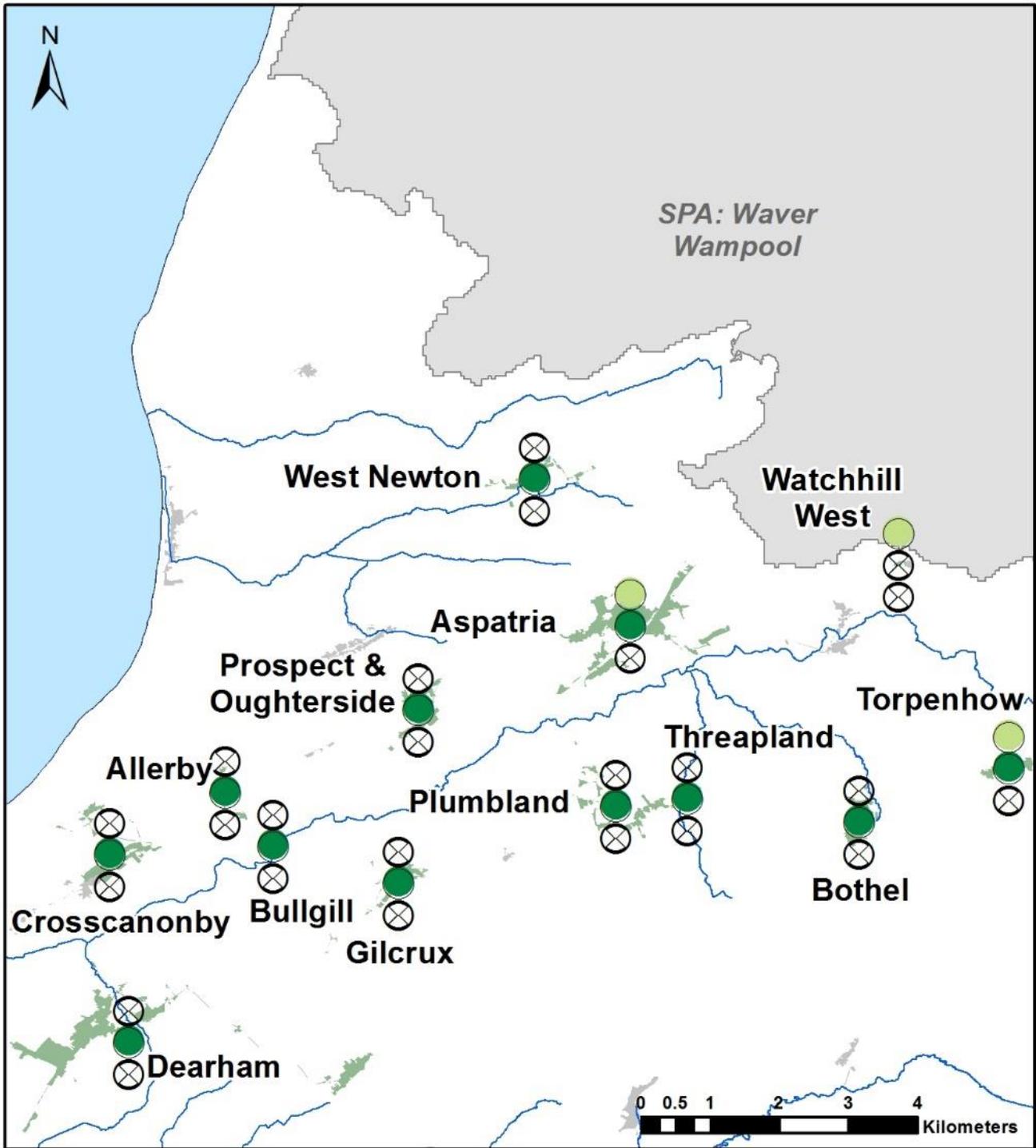


TPUs with WINEP driver investment



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

Figure 14C Potential WINEP investment in the Derwent for investment cycle 2025-2030



TPUs with WINEP driver investment

<p>TPU Name</p>	<ul style="list-style-type: none"> ← WINEP WwTW investment ← WINEP Storm Overflow investment ← WINEP Investigations 	<ul style="list-style-type: none"> ⊗ No planned investment in designated WINEP driver Other TPUs S Main River
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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

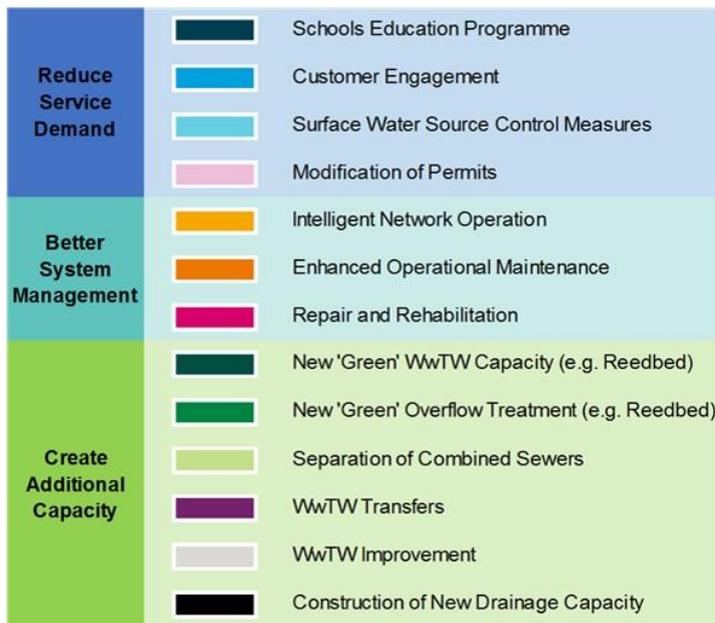
As highlighted above, the delivery of the WINEP will drive improvements and deliver benefits across the North West in the nearer-term. The DWMP is closely aligned with the ambitions and targets included within the WINEP, and included below are potential further enhancement schemes to be delivered over 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 15. 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 15 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 Derwent (section 5.2.2); and
- Level 3: Options for each location within the Derwent (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.

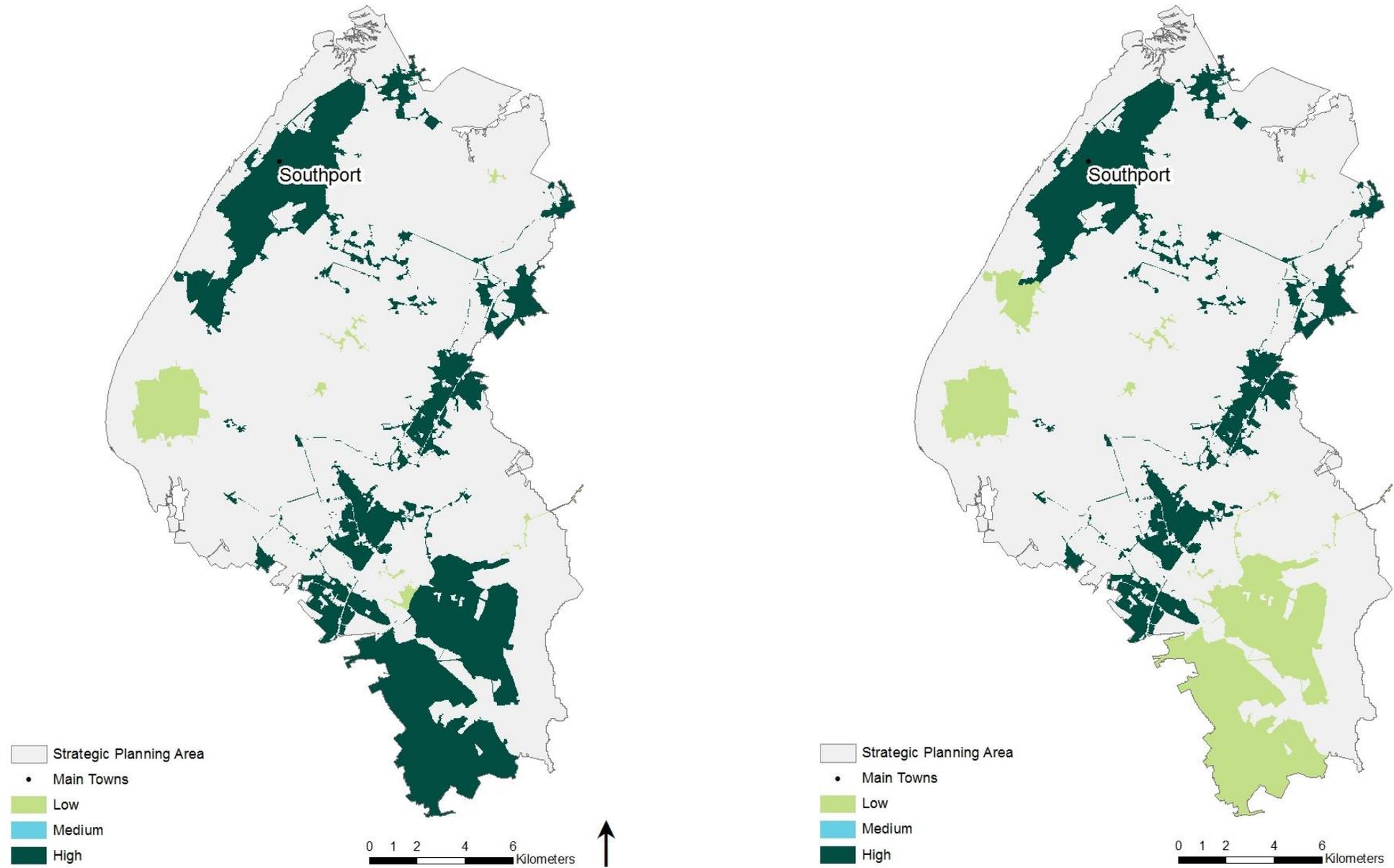
5.2.1 Level 1: Regional measures

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 Derwent catchment customer engagement options (Figure 16) 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 Cockermouth, Workington and Keswick 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 Workington and Keswick TPUs (Figure 16).

Figure 16 Maps showing the benefit of implementing regional customer engagement (left) and sustainable drainage solutions (right) options across the Derwent



5.2.2 Level 2: Options for the Derwent

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

- The potential options to address environmental planning objectives as shown in Figure 17. This incorporates elements such as wastewater treatment work permit compliance, WINEP compliance and pollution of watercourses;
- The potential options to address flooding planning objectives as shown in Figure 18. 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 19.

Figure 17 Distribution of environmental investment by option type within the Derwent

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.

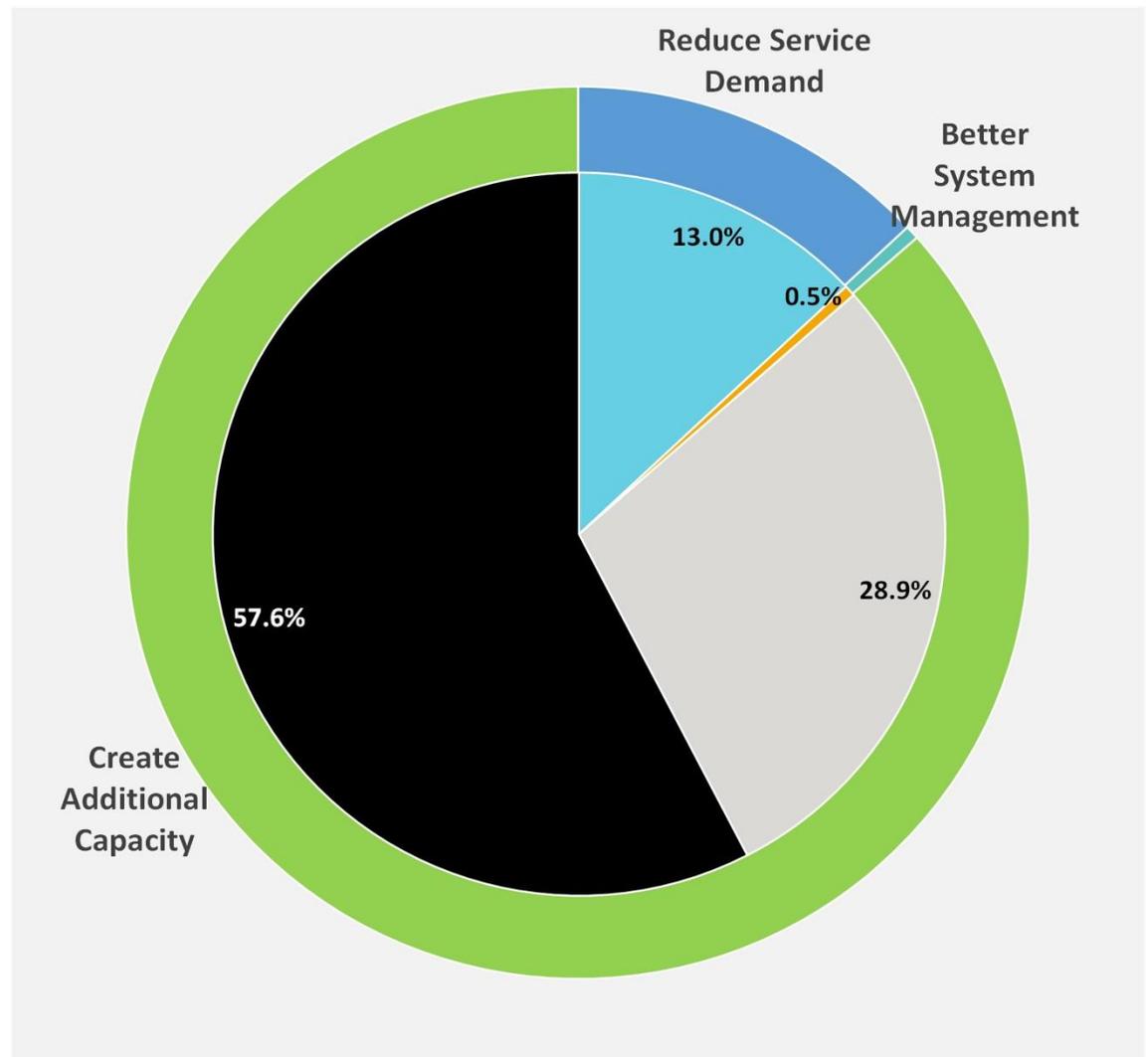


Figure 18 Distribution of flooding investment by option type within the Derwent

This is an example of how different options types may be used to address flooding planning objectives. Almost two thirds of the investment could be through construction of new drainage capacity and separation of combined sewers.

The remainder could be through investment in surface water source control measures (e.g. SUDS) and improving existing system management systems.

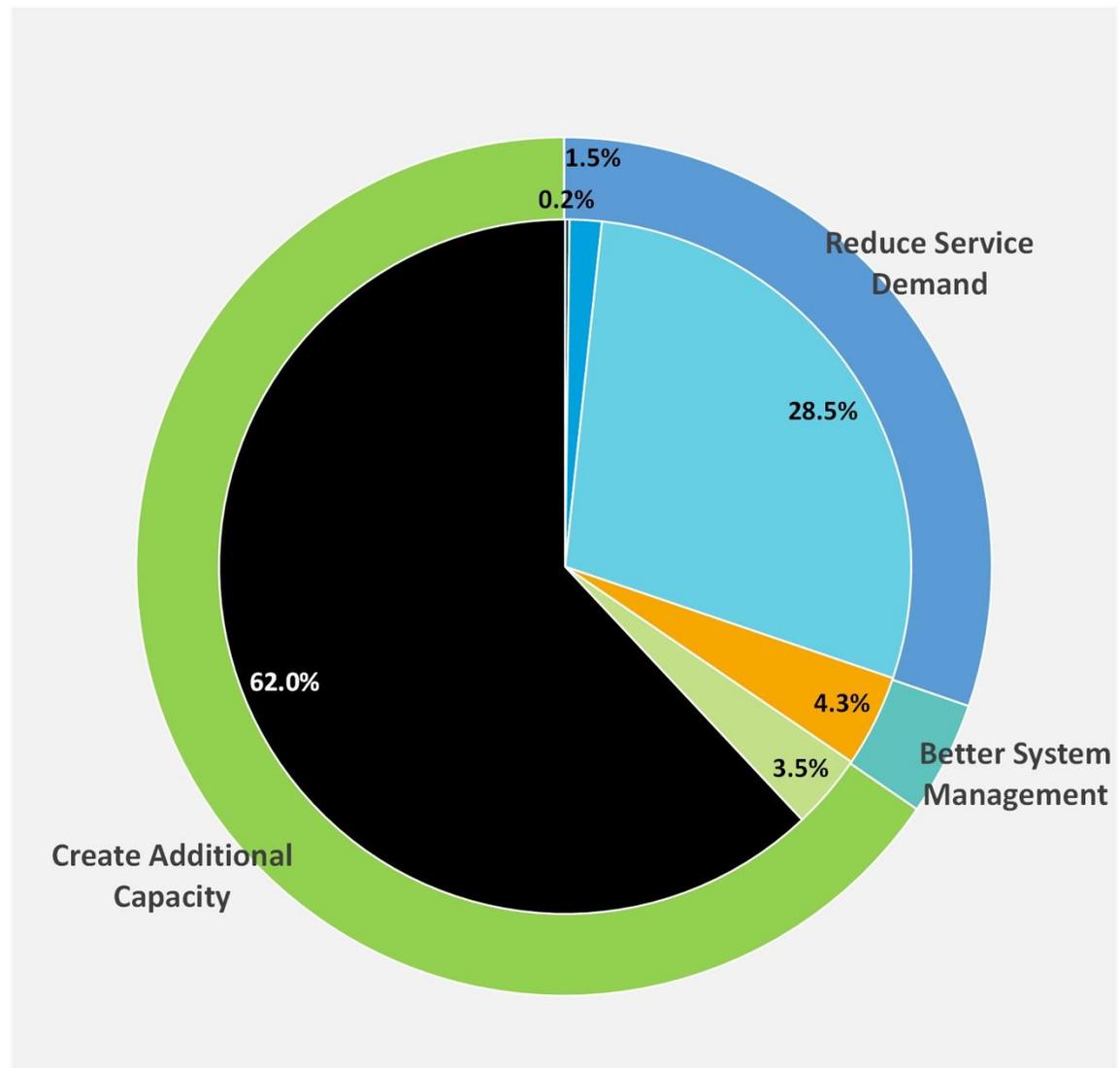
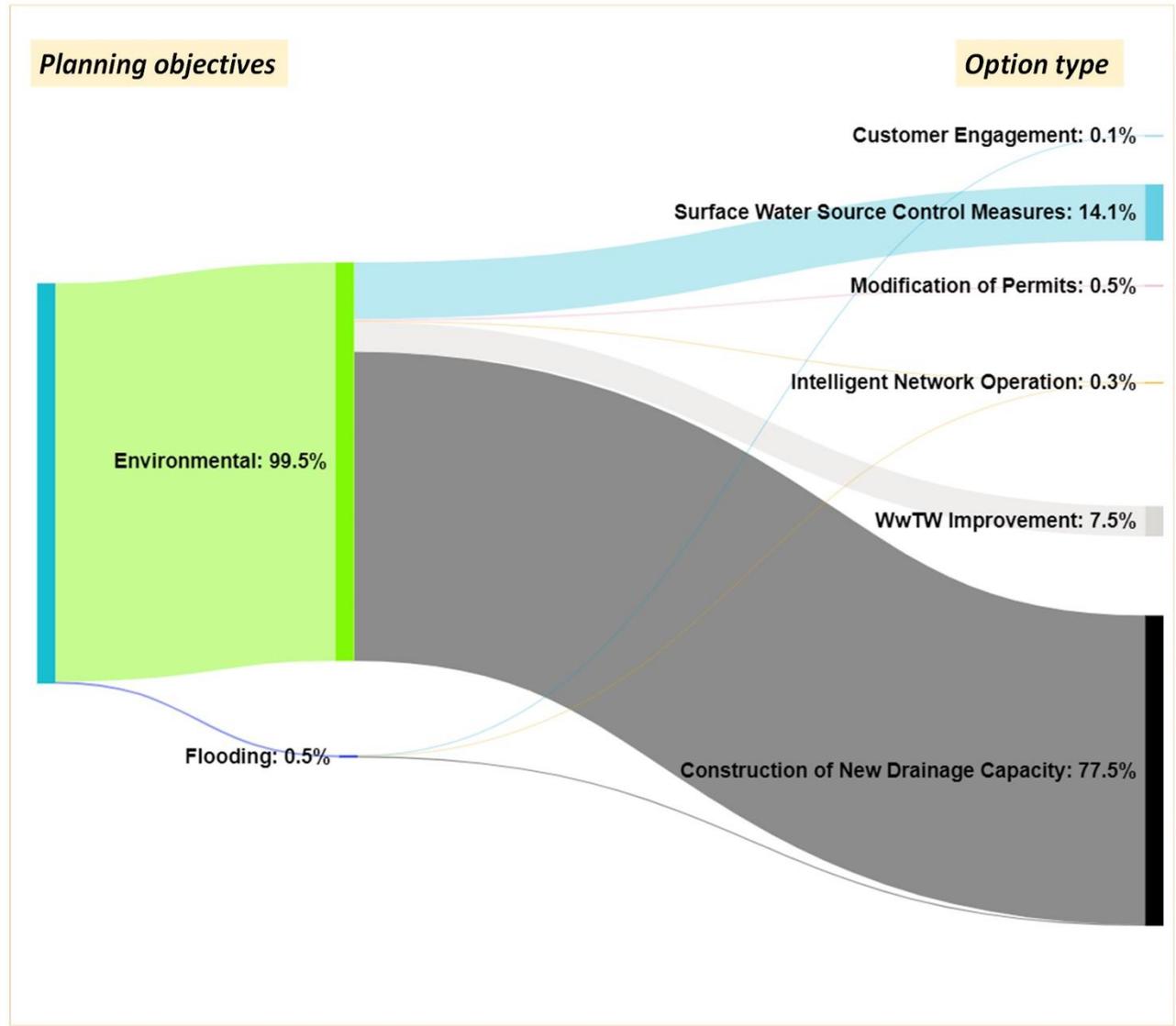
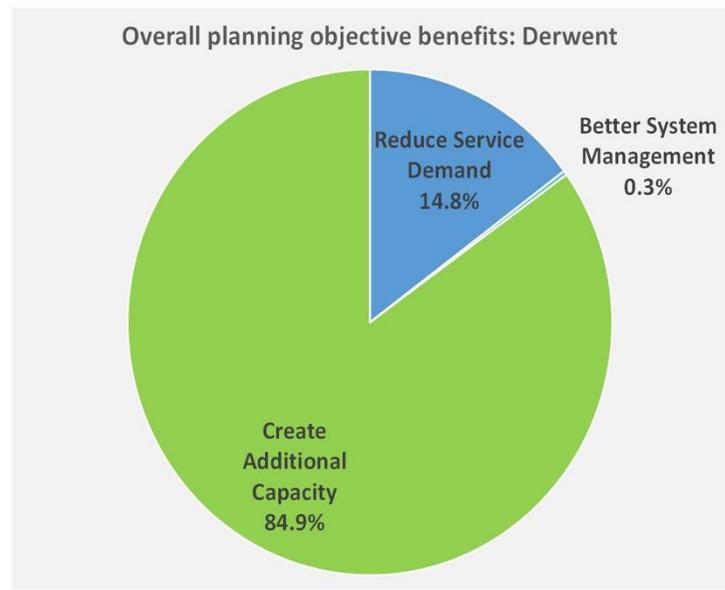


Figure 19 Distribution of benefit by option type within the Derwent

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

United Utilities Water (Uuw) commitments to improving flooding performance could be met through customer engagement programmes, installation of intelligent network operation systems, and the construction of new stormwater drainage capacity.

Environmental planning objectives could be met mainly through improvements to wastewater treatment works, installation of intelligent network operation systems, surface water source control measures (e.g. SUDS), and the construction of new stormwater drainage capacity.

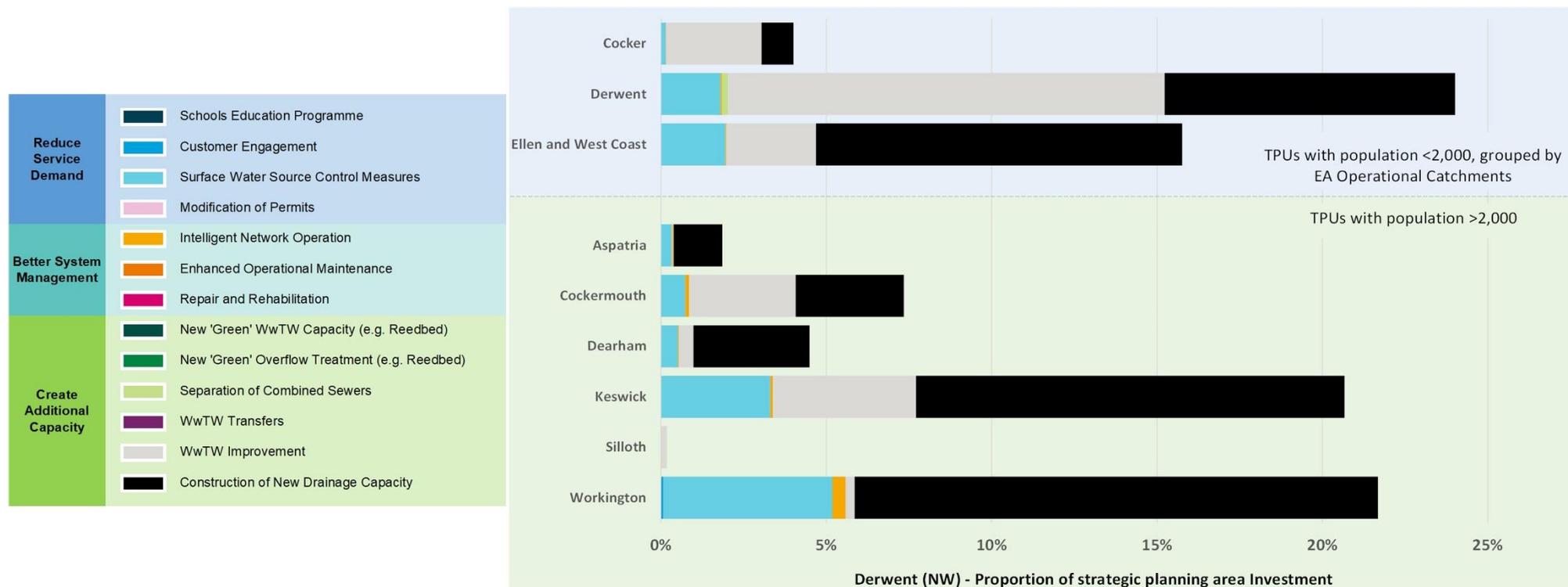


5.2.3 Level 3: Local options for each TPU within the Derwent

The proportion of the Derwent’s potential investment in each TPU, split up by option type, is shown in Figure 20. 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 Derwent, the largest TPUs see the largest potential investment, which is split predominantly between surface water control, WwTW improvements, and construction of new storm water storage tanks.

Figure 20 Proportion of investment seen in each TPU within the Derwent



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.

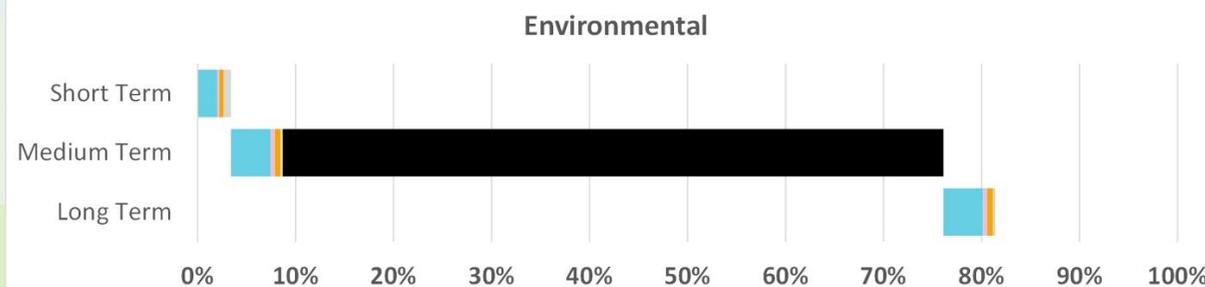
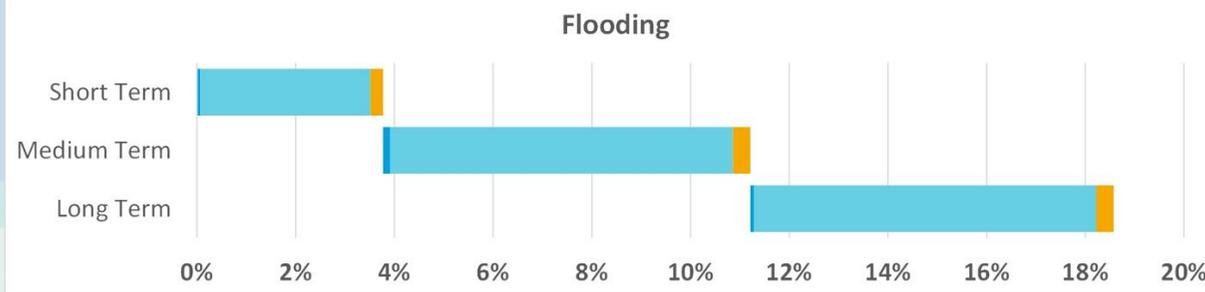
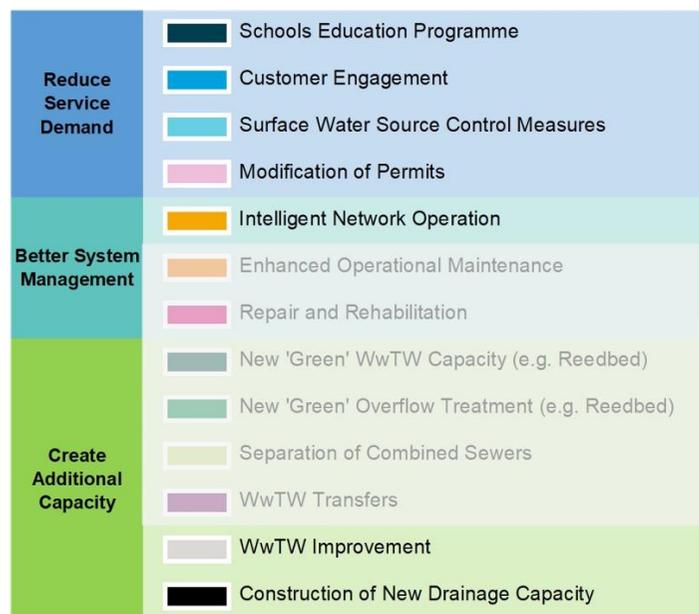
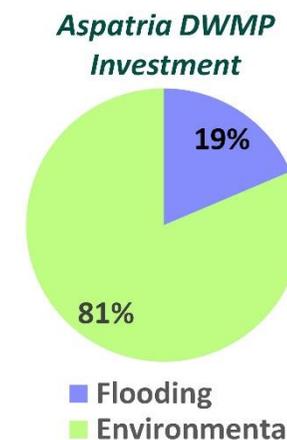
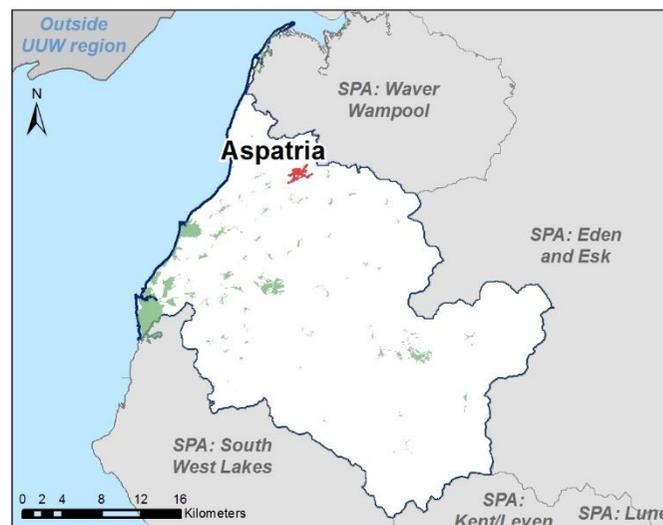
5.2.3.1 Aspatria

Figure 21 Details of the DWMP investment plan for Aspatria

The data on this page gives details of the investment plan for Aspatria TPU. The plan shows the geographic location of Aspatria within the Derwent 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.



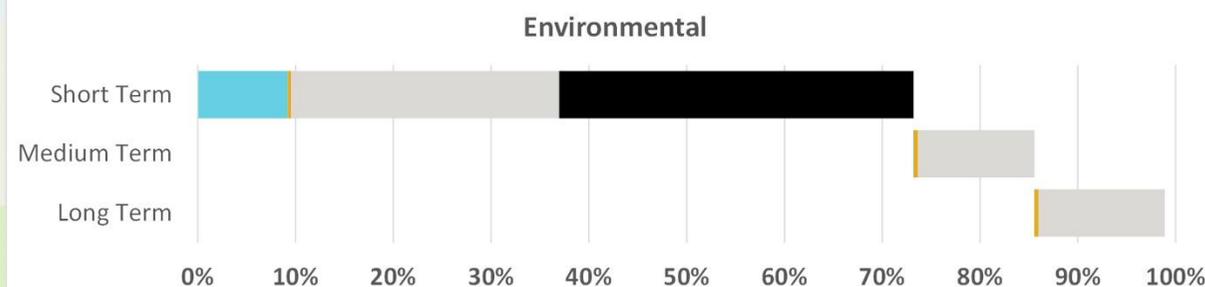
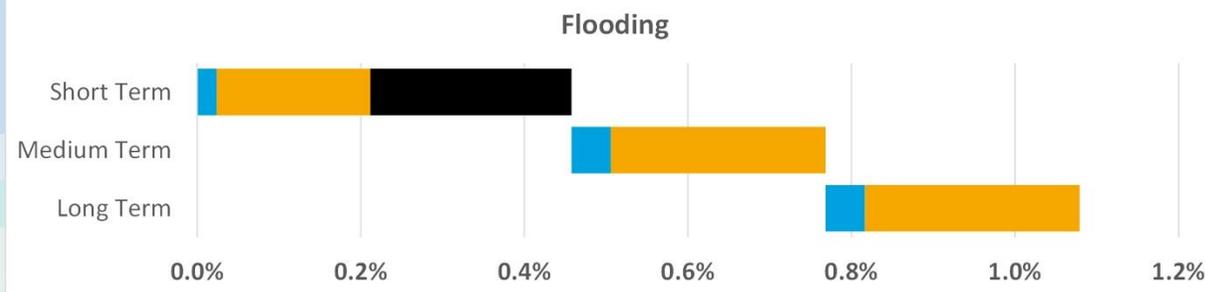
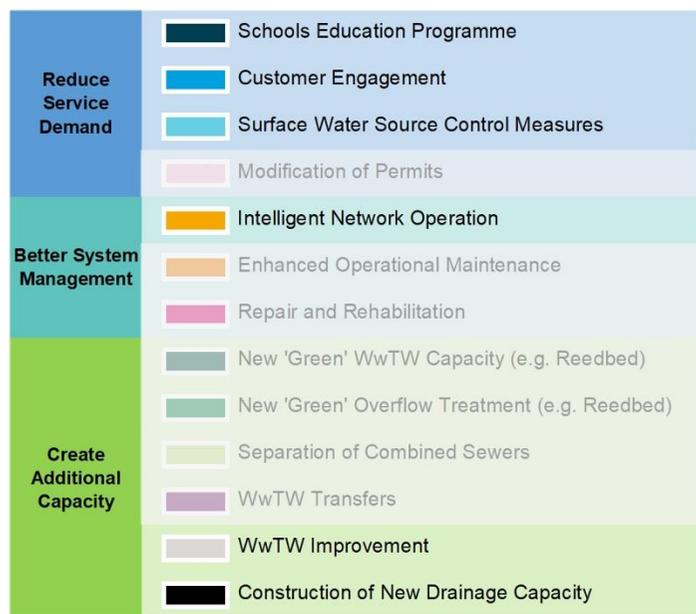
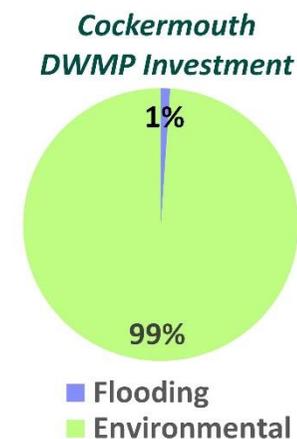
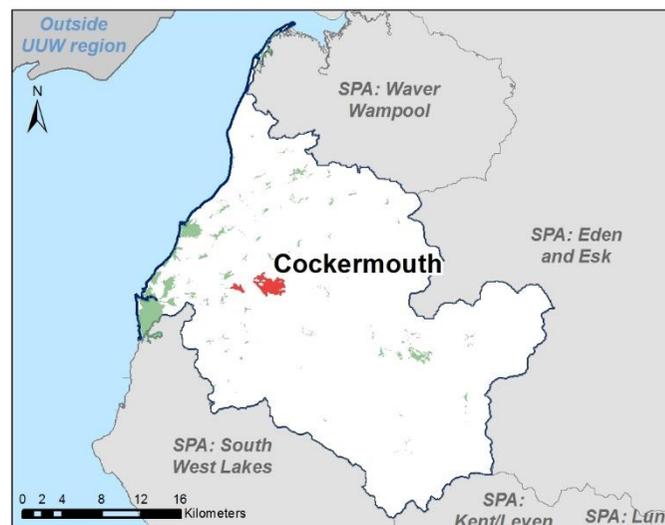
5.2.3.2 Cockermouth

Figure 22 Details of the DWMP investment plan for Cockermouth

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



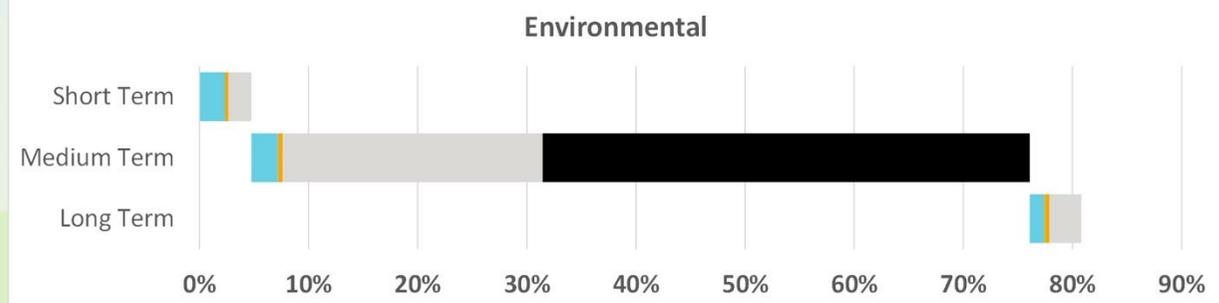
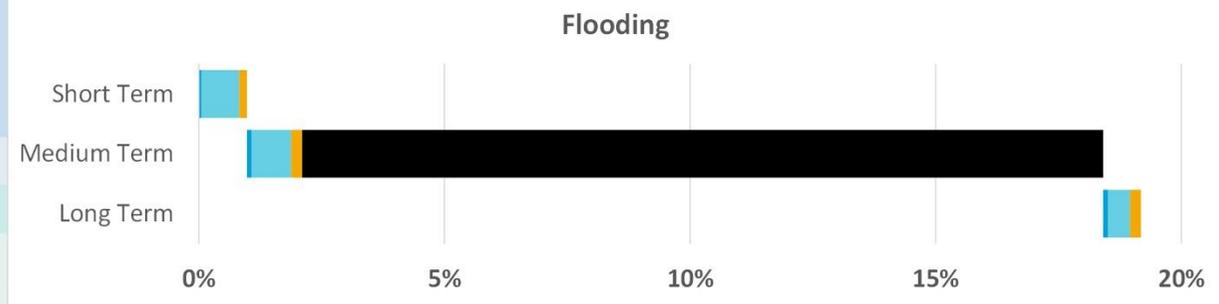
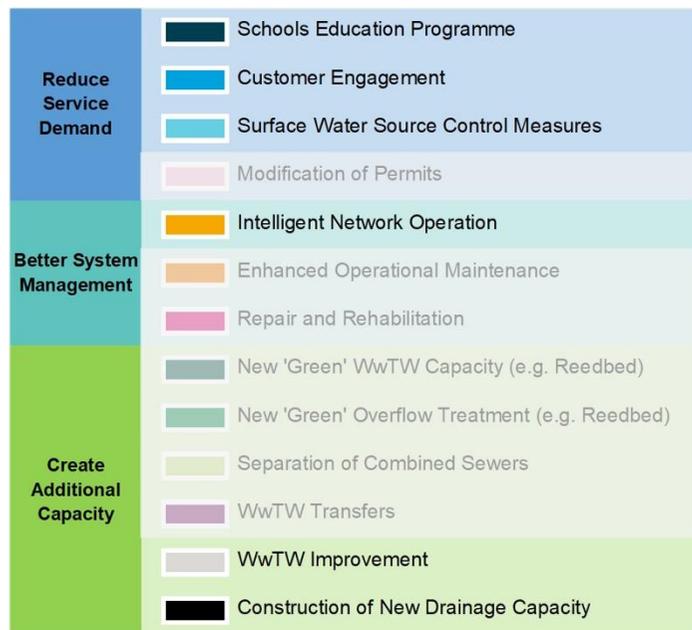
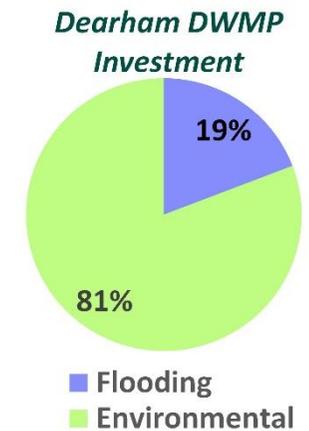
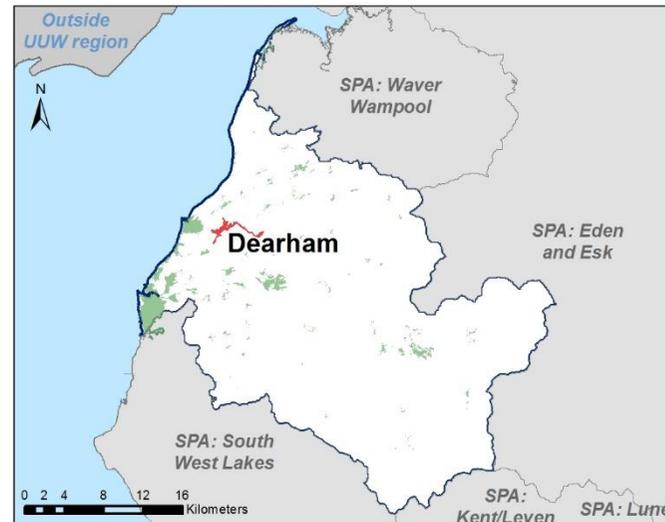
5.2.3.3 Dearham

Figure 23 Details of the DWMP investment plan for Dearham

The data on this page gives details of the investment plan for Dearham TPU. The plan shows the geographic location of Dearham within the Derwent 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.



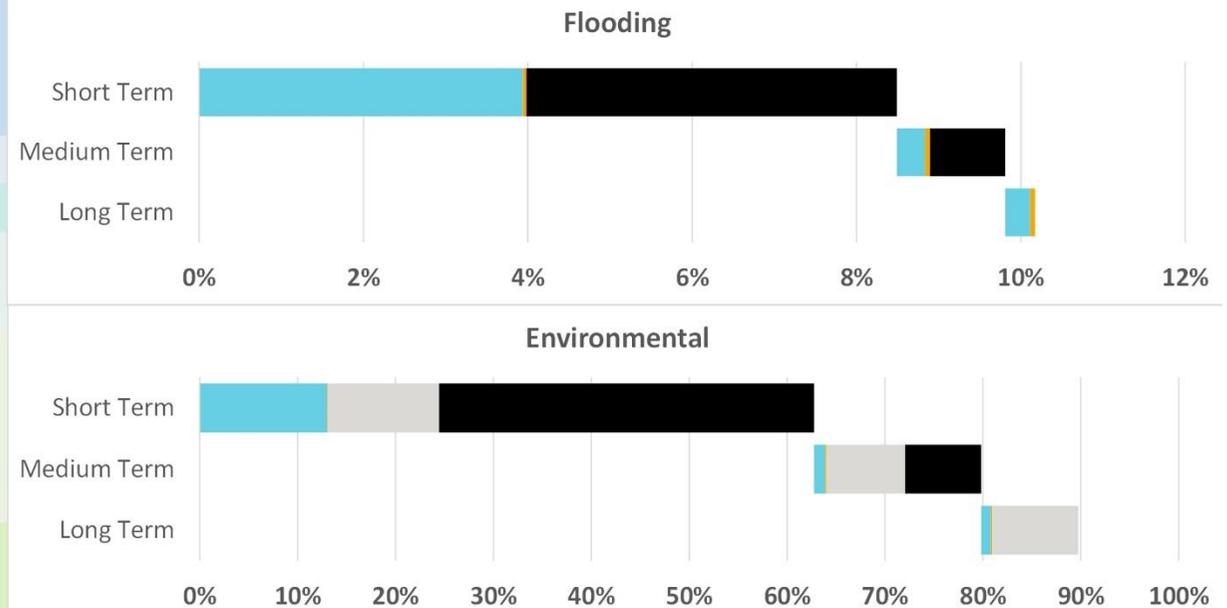
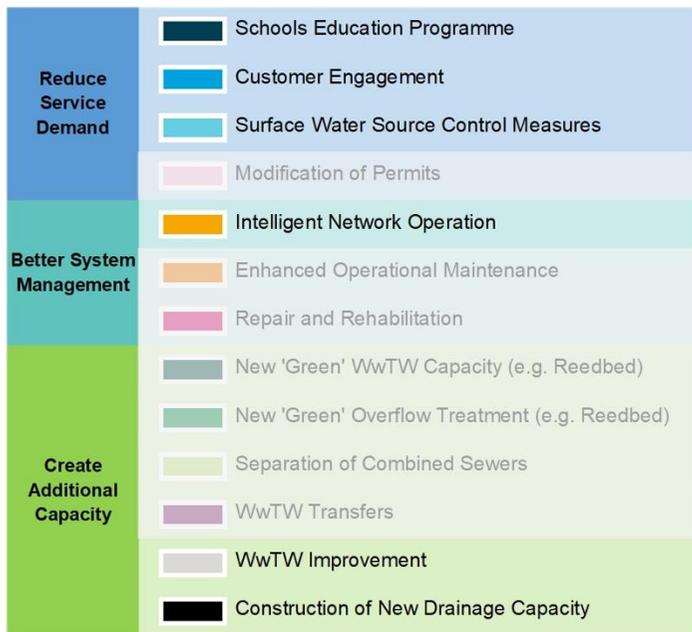
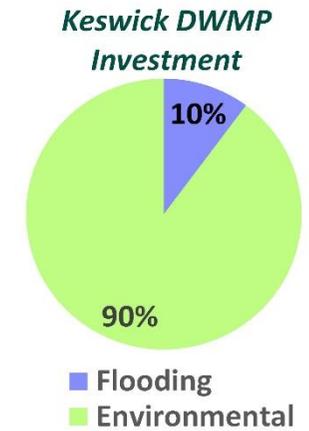
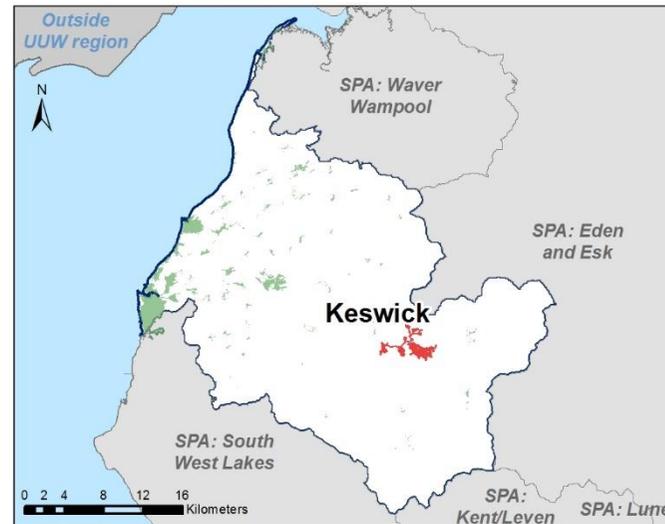
5.2.3.4 Keswick

Figure 24 Details of the DWMP investment plan for Keswick

The data on this page gives details of the investment plan for Keswick TPU. The plan shows the geographic location of Keswick within the Derwent 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.



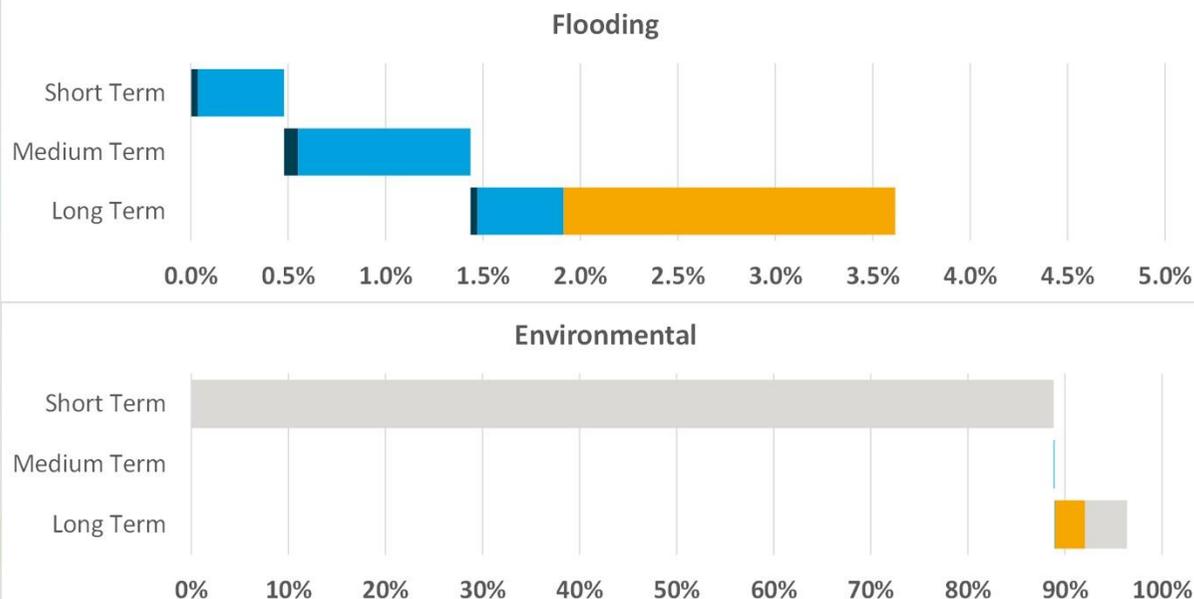
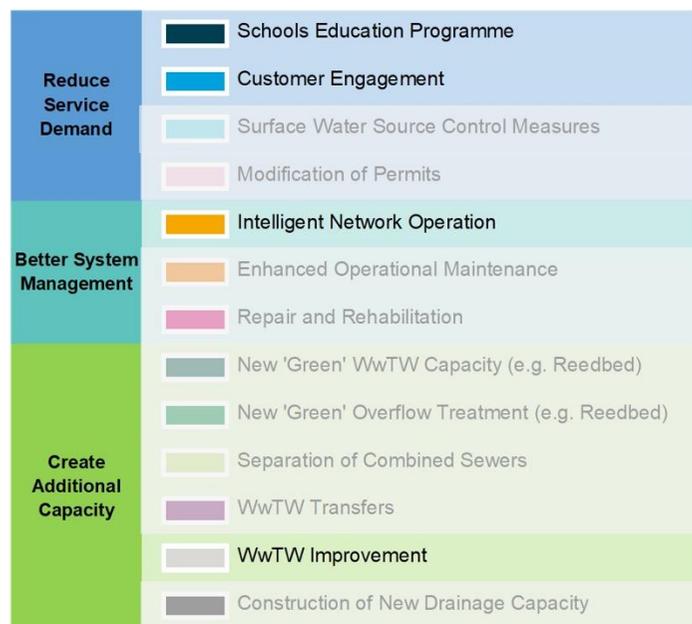
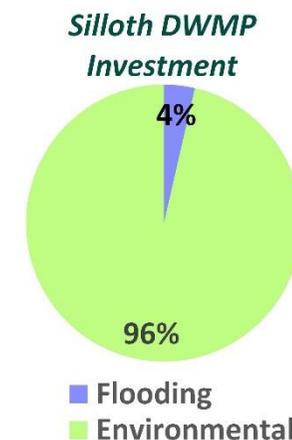
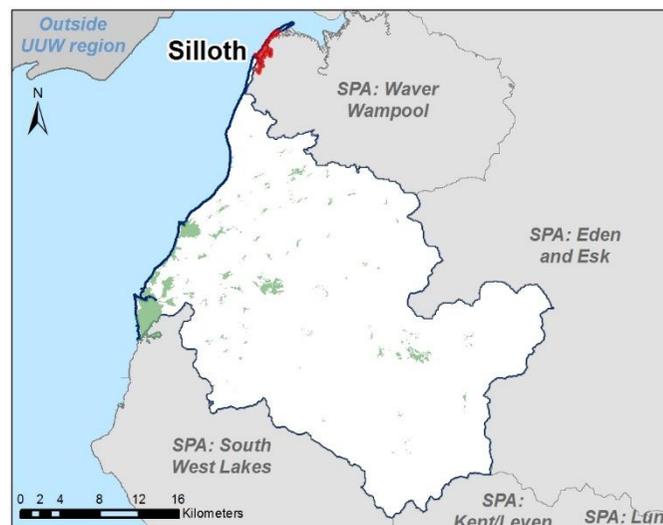
5.2.3.5 Silloth

Figure 25 Details of the DWMP investment plan for Silloth

The data on this page gives details of the investment plan for Silloth TPU. The plan shows the geographic location of Silloth within the Derwent 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 Workington

Figure 26 Details of the DWMP investment plan for Workington

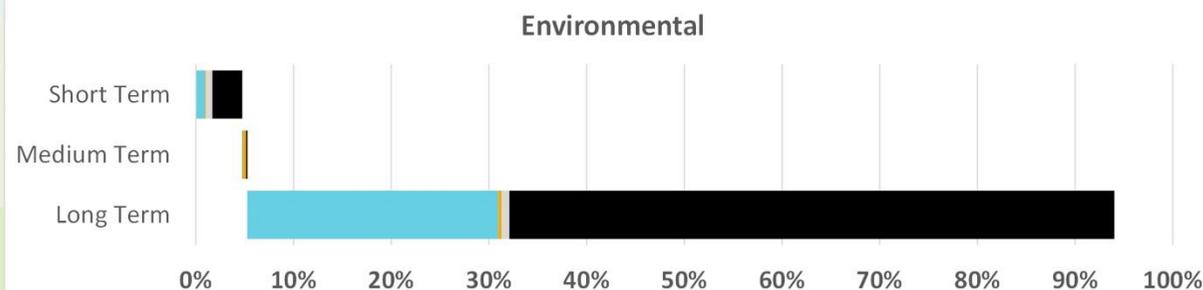
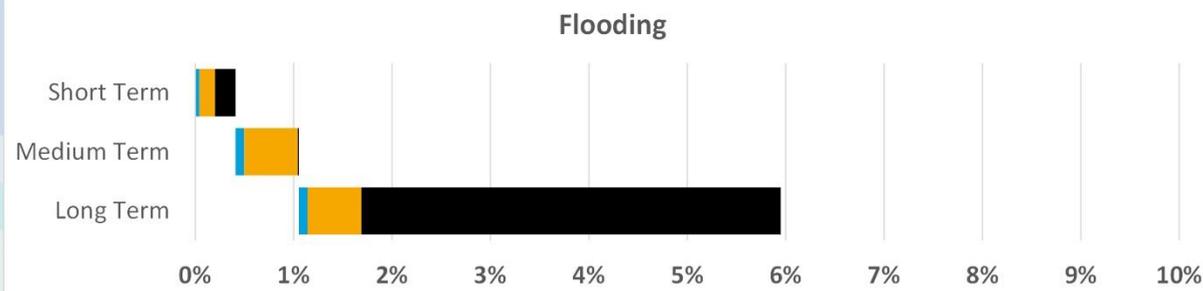
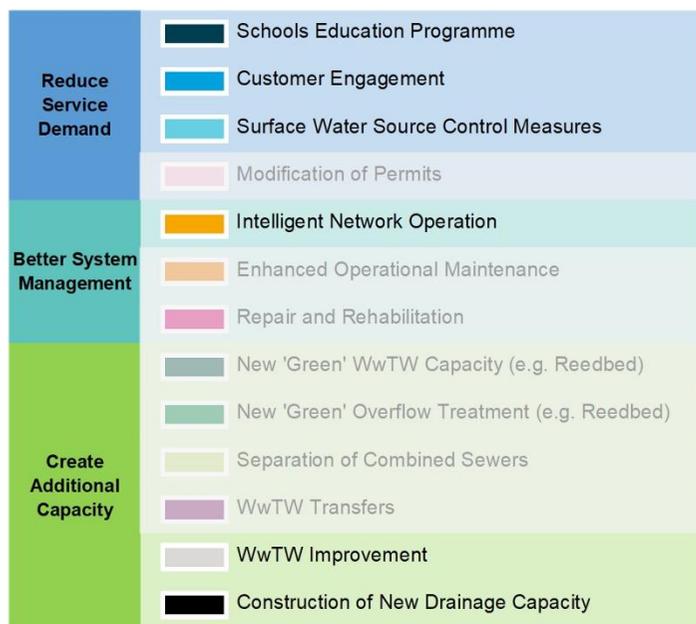
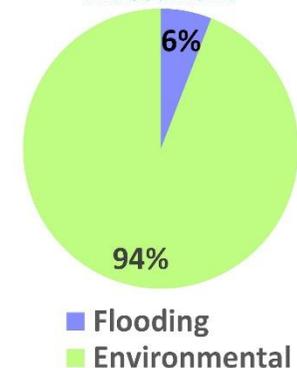
The data on this page gives details of the investment plan for Workington TPU. The plan shows the geographic location of Workington within the Derwent catchment.

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.



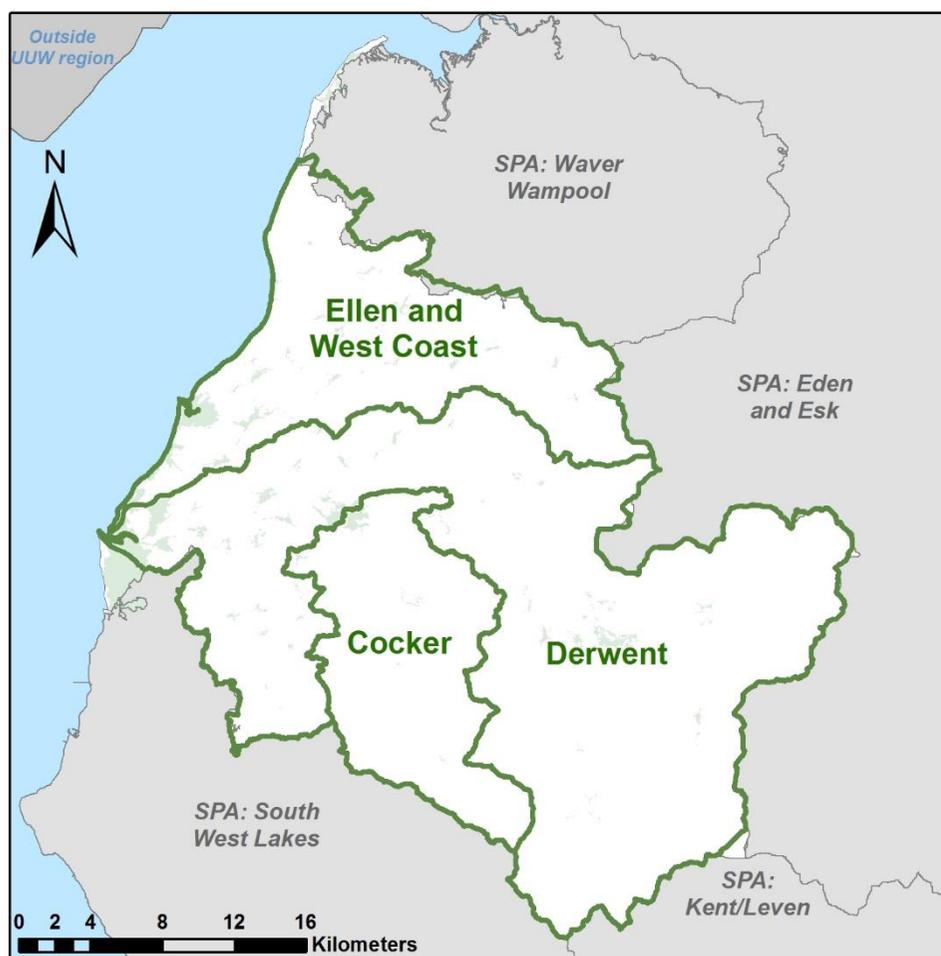
Workington DWMP Investment



5.2.4 TPUs with population less than 2,000

Within the Derwent 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 Derwent catchment area, aligned to local river systems. Within the Derwent catchment, there are three Environment Agency operational catchment areas, which can be seen in Figure 27.

Figure 27 Location of Environment Agency operational catchments within the Derwent SPA



Environment Agency Operational Catchment	TPUs
Cocker	Buttermere, Cockerham, Cornhow, Eaglesfield, Forton, Lorton, Middleton, Pilling
Derwent	Asby, Bassenfell, Bassenthwaite, Blind Crake, Branthwaite, Bridekirk, Broughton Cross, Camerton, Crossgate, Dovenby, Dub Wath, Embleton, Fell Dyke, Fisher Place, Grange in Borrowdale, Great Broughton., Great Clifton, Grey Southern, Little Clifton, Mockerkin, Pardshaw, Redmain, Rosthwaite, Seatoller, Stannah, Stonethwaite, Sunderland, Swirls, Thornthwaite, Threlkeld, Ullock
Ellen and West Coast	Allerby, Allonby, Birkby, Blennerhasset, Bothel, Bullgill, Crosscanonby, Edderside, Gilcrux, Greengill, Hayton, Ireby, Plumbland, Prospect & Oughterside, Threapland, Torpenhow, Uldale, Wardhall Guards, Watch Hill, Watchhill West, West Newton, Westmoor End

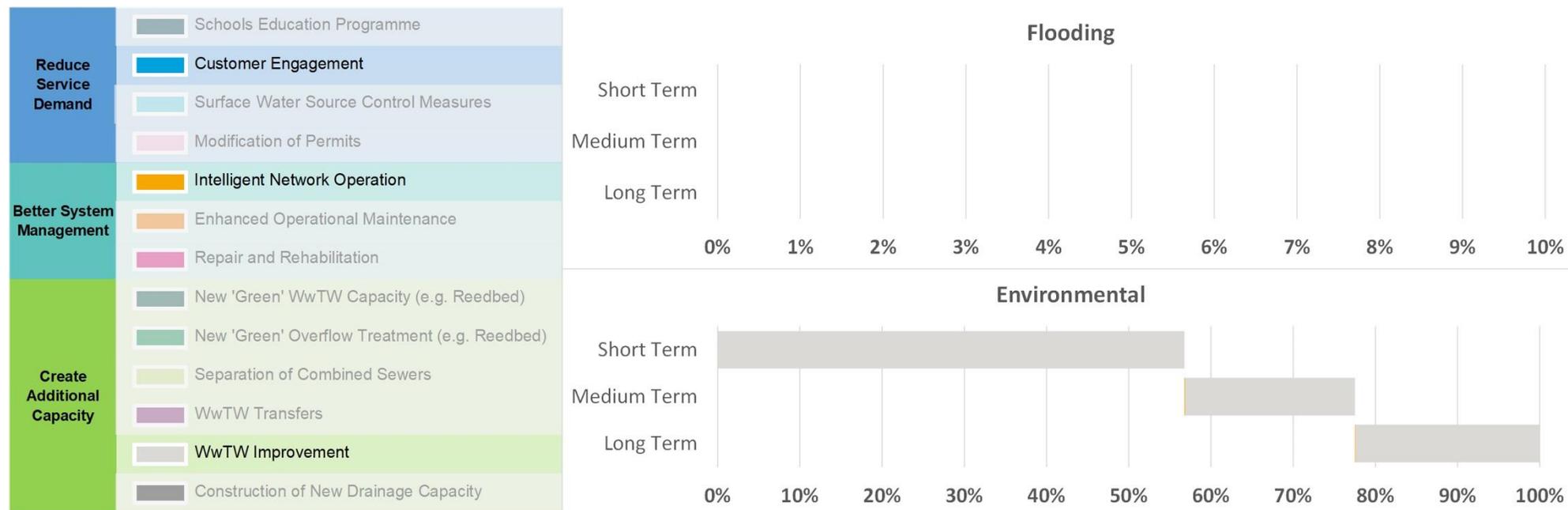
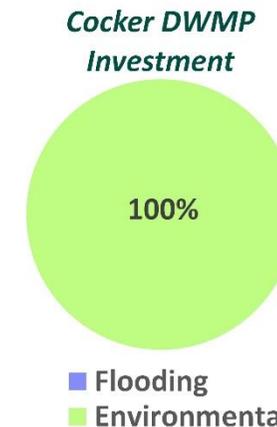
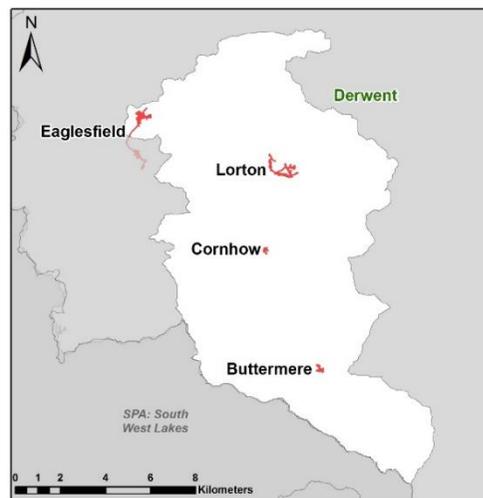
5.2.4.1 TPUs with population less than 2,000: Cocker operational catchment (OC)

Figure 28 Details of the DWMP investment plan for the Cocker OC

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



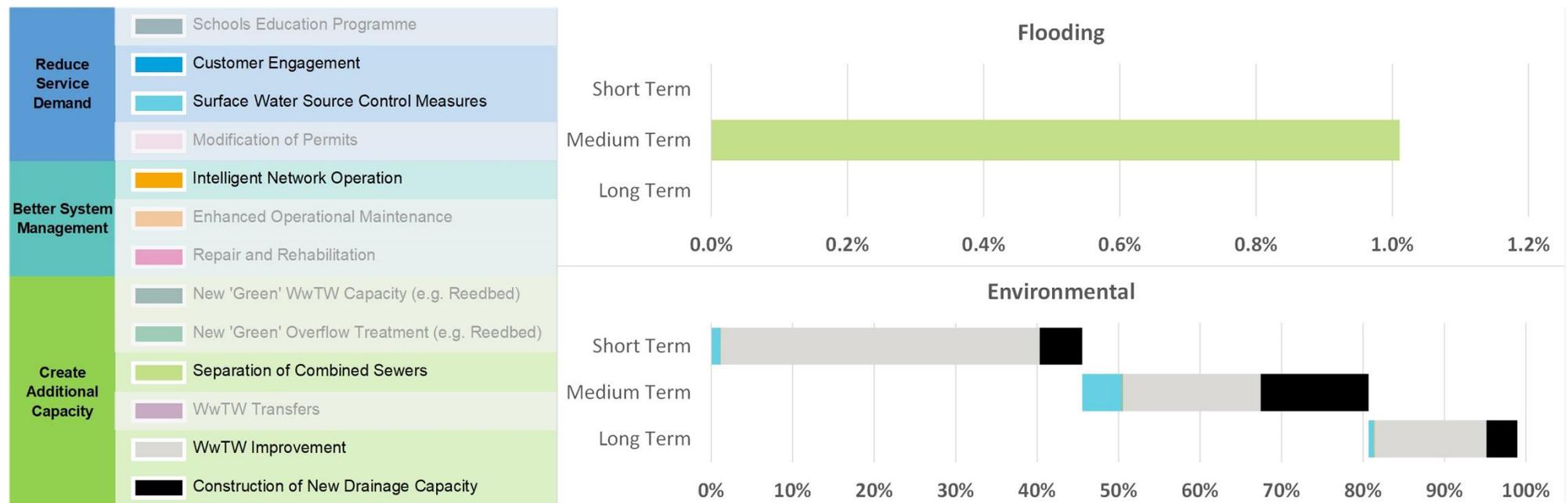
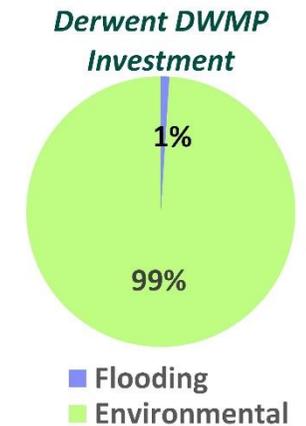
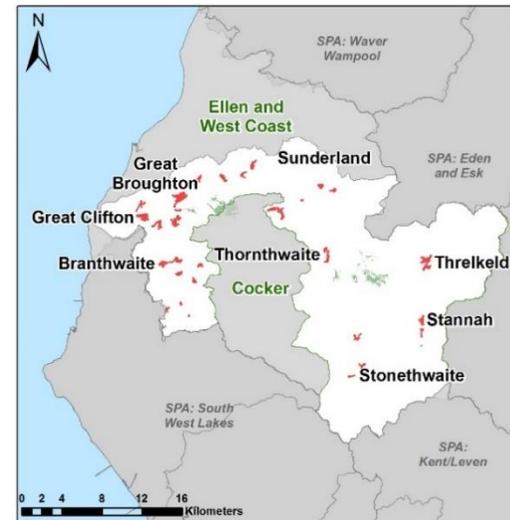
5.2.4.2 TPUs with population less than 2,000: Derwent operational catchment (OC)

Figure 29 Details of the DWMP investment plan for the Derwent OC

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



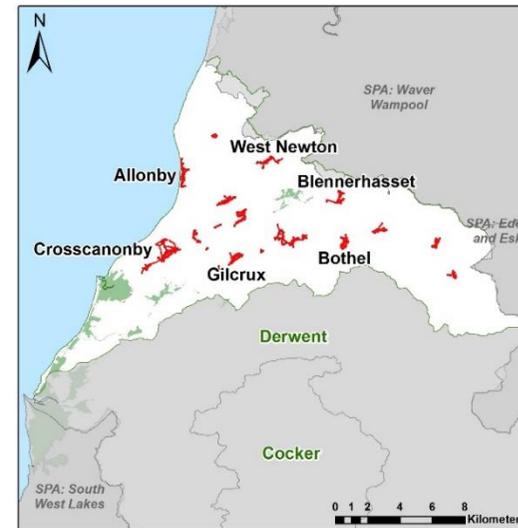
5.2.4.3 TPUs with population less than 2,000: Ellen and West Coast operational catchment (OC)

Figure 30 Details of the DWMP investment plan for the Ellen and West Coast OC

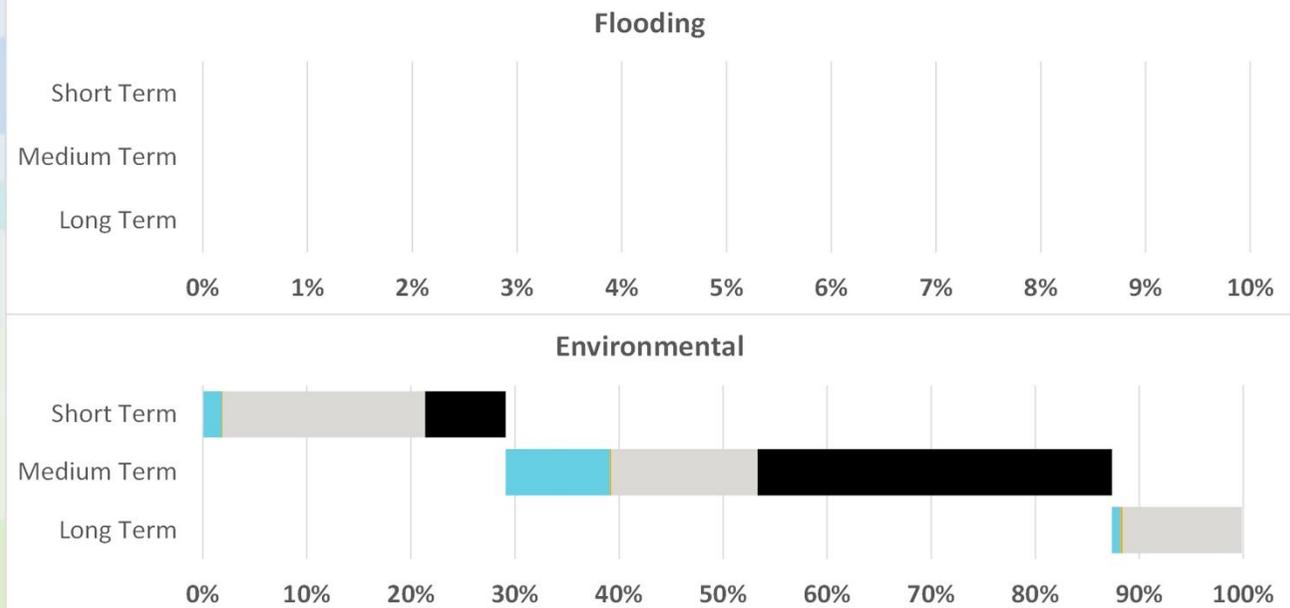
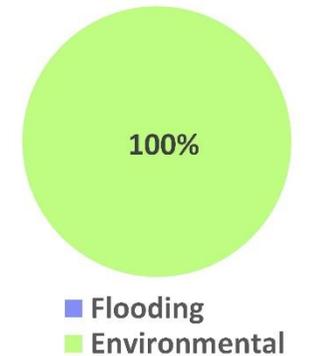
The data on this page gives details of the investment plan for the TPUs within the Ellen and West Coast OC. The plan shows the geographic location of these TPUs within the Ellen and West Coast OC.

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.



Ellen and West Coast DWMP Investment



5.3 Other projects and investment

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

5.3.1 Better Rivers: Better North West

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

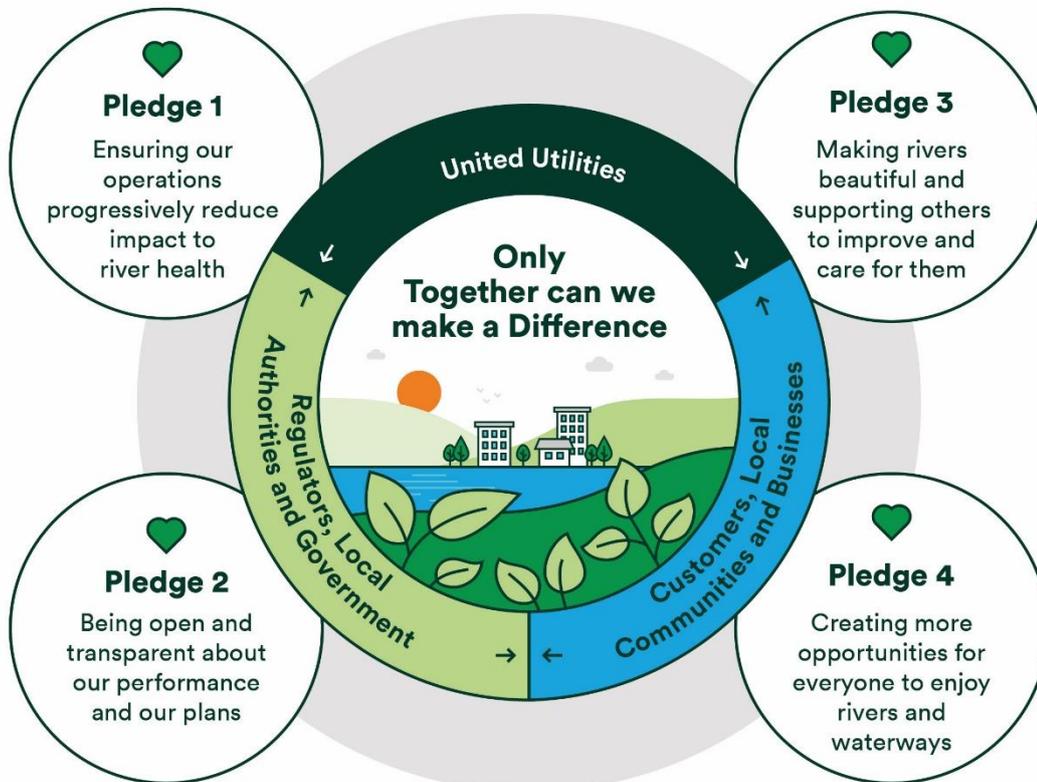
We want to demonstrate how we are addressing concerns regarding storm overflows and making our contribution to improving river health. Through our Better Rivers: Better North West plan, we have made four pledges which will include improving our wastewater network and treatment assets, collecting more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

).

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

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

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



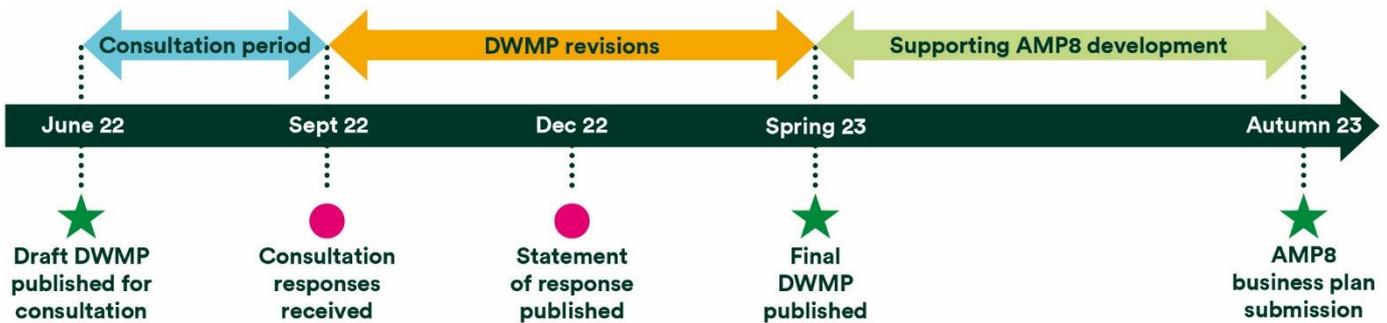
6. Embedding the DWMP

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

The DWMP encompasses a host of documents covering different topic areas from assessing risks to identifying opportunities, and the SPA documents like this one for the Derwent 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 Derwent catchment.

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

Figure 32 Timeline of key milestones



7. References

- [1] <https://environment.data.gov.uk/catchment-planning/ManagementCatchment/3028>
- [2] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3095>
- [3] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3132>
- [4] <https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3168>
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- [6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1120229/North-West-FRMP-2021-2027.pdf
- [7] <https://www.mycoastline.org.uk/shoreline-management-plans/>
- [8] <https://www.gov.uk/government/publications/surface-water-management-plan-technical-guidance>
- [9] <https://westcumbriacatchmentpartnership.co.uk/>
- [10] <https://westcumbriariverstrust.org/areas/derwent>

Appendix A

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

1	Aspatria	11	Cockermouth	21	Fell Dyke	31	Little Clifton	41	Threlkeld
2	Bassenthwaite	12	Cornhow	22	Fisher Place	32	Plumbland	42	Thornthwaite
3	Blennerhasset	13	Crosscanonby	23	Gilcrux	33	Prospect & Oughterside	43	Westmoor End
4	Bothel	14	Crossgate	24	Grange In Borrowdale	34	Rosthwaite	44	West Newton
5	Bridekirk	15	Dearham	25	Great Broughton	35	Seatoller	45	Workington
6	Broughton Cross	16	Dovenby	26	Great Clifton	36	Silloth	46	Allerby
7	Branthwaite	17	Dub Wath	27	Grey Southern	37	Stannah	47	Allonby
8	Bullgill	18	Eaglesfield	28	Hayton	38	Stonethwaite	48	Asby
9	Buttermere	19	Edderside	29	Keswick	39	Sunderland		
10	Camerton	20	Embleton	30	Lorton	40	Threapland		

Table A.2 List of TPUs which did not trigger for RBCS across environment, flooding or wastewater treatment works categories

TPU Name	Environment	Flooding	Wastewater Treatment Works
Bassenfell	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Blind Crake	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Greengill	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Ireby	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Legburthwaite	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Mockerkin	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Pardshaw	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Redmain	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Swirls	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Torpenhow	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Uldale	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Ullock	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS

Wardhall Guards	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Watch Hill	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Watchhill West	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS

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Water for the North West