United Utilities Water

DRAFT Drainage and Wastewater Management Plan 2023

Weaver Gowy DWMP

Document Reference: SPA_13

June 2022

United Utilities

Water for the North West

Contents

Acronyms

For a list of acronyms, refer to document C0003.

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. This is the first time that we are developing the plan and we have taken a comprehensive approach as we recognise the importance of long-term planning.

The heart of the plan will be built around collaborative and innovative working whilst 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 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 Weaver Gowy SPA.

2. Background to the Weaver Gowy catchment

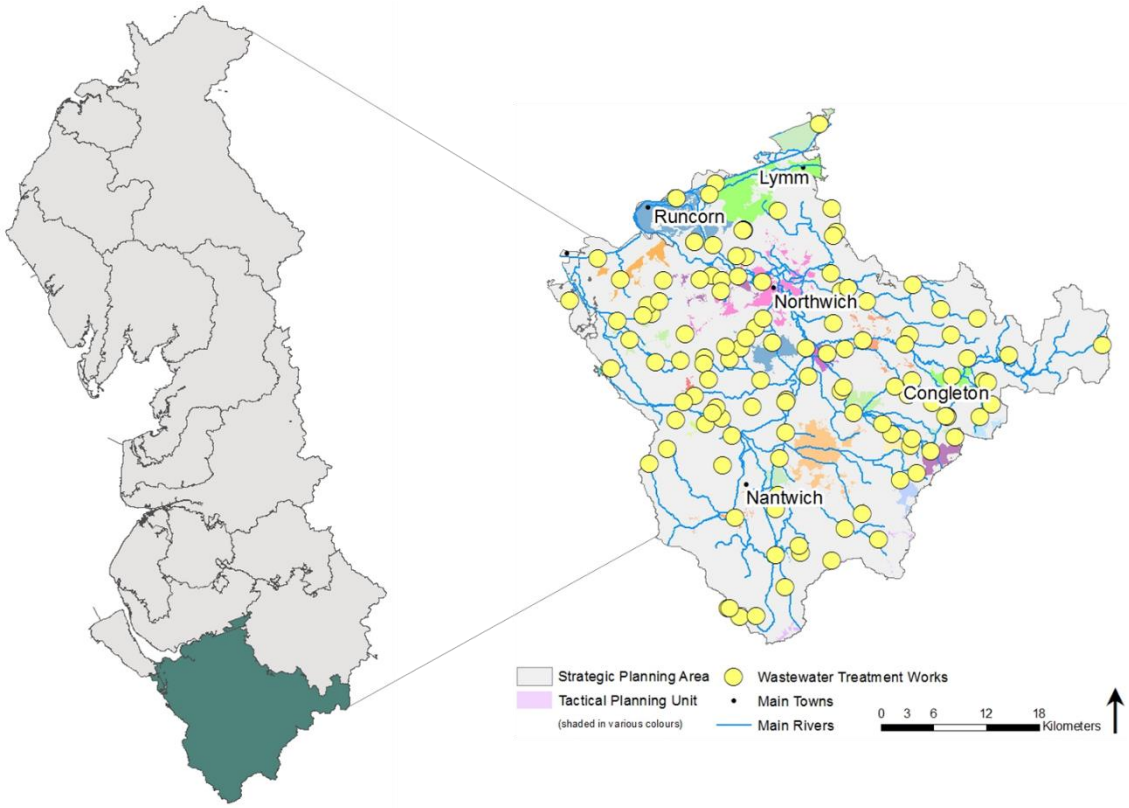
The Weaver Gowy catchment covers a large area (1753.3km^2) in the southern-most part of the region incorporating Cheshire East and Cheshire West and Chester council areas. The catchment is largely composed of low-lying countryside and made up of a number of small towns such as Northwich, Congleton and Nantwich as well as a number of more industrialised areas along the Mersey Estuary such as Runcorn and Ellesmere Port [1]. The River Weaver and the River Gowy are the main rivers which flow through the catchment and drain into the Mersey Estuary in the north-east.

There are four main operational sub catchments in the Weaver Gowy:

- Gowy – the sub catchment is host the to the River Gowy which carries water drained from the western part of the Cheshire hills north-west toward the Mersey Estuary at Ellesmere Port [2].
- Upper Weaver – the sub catchment is located in the south of Cheshire and carries water from the eastern parts of the Peckforton hills and the western perimeters of the Cheshire plain into the Lower Weaver sub catchment [3].
- Lower Weaver – the sub catchment is located in the north of Cheshire and carries water drained throughout a large area of the rest of the catchment into the Mersey Estuary [4].
- Dane – the sub catchment covers the east of Cheshire and carries water drained into the River Dane from the western side of the Peak District towards Northwich where it drains into the Lower Weaver [5].

There are 120 wastewater tactical planning units (TPU, also known as wastewater treatment work (WwTW drainage catchments) within the Weaver Gowy SPA. A TPU is the drainage catchment area encompassing all the sewers and wastewater assets e.g. pumping stations, which drain into the associated wastewater treatment works. The TPUs within the SPA vary in size from larger catchments such as Crewe to smaller, rural catchments such as Ince. The TPUs are highlighted in Figure 3.

Figure 3 Map of the Weaver Gowy SPA



There are numerous strategic management plans within the Weaver Gowy that are owned by various other organisations. Within the Weaver Gowy 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 SPA. 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 Weaver Gowy catchment
River Basin Management Plan (RBMP) [6] **Owner:** Environment Agency	A river basin district covers an entire river system, including river, lake, groundwater, estuarine and coastal water bodies. The RBMP aim is to improve the quality of our water environment to best support wildlife, agriculture, and businesses, and to boost regeneration and recreation.	The main reasons for not achieving good ecological status are physical modifications and pollution from rural areas, towns, cities, transport and wastewater. Future challenges predicted by the Environment Agency include physical modifications, invasive non-native species and pollution from a range of sources.
Flood Risk Management Plan (FRMP) [7] **Owner:** Environment Agency	The FRMP is a strategic plan, which reviews and develops measures to manage the risk of flooding from rivers, the sea, surface water, groundwater and reservoirs. The plan outlines flood risk areas, hazards, and sets out measures and objectives to manage flood risk.	In the Weaver Gowy catchment, there are over 17,000 people (3%) and 4,000 non-residential properties at risk of flooding. Approximately 5% of agricultural land, 26% of SSSI sites and 67% of Ramsar sites are also at risk. Fluvial flooding is mostly attributed to the River Weaver and the River Dane. There are some areas of the catchment, such as Northwich which have some form of flood protection. The Environment Agency are reviewing assets in rural areas to determine flood reduction benefits such as watercourse maintenance and pumped assets. Within the catchment, there are meres, moss land and bogs which could be used for river flow attenuation to help manage flood risk. Across the Weaver Gowy catchment there are 20 measures from earlier plans to manage flood risk.

Surface Water Management Plan (SWMP) [8] **Owner:** Lead Local Flood Authority (LLFA)		A SWMP is a plan which outlines the preferred surface water strategy for a location. Although owned and led by the LLFA, a SWMP is produced in collaboration with other drainage owners, water companies included. Partners work together to understand the surface water flood risk in an area and agree an approach to address these issues innovatively and in a cost-effective way, and where appropriate, in partnership. A SWMP is a long-term plan and should influence development. The decision on whether a SWMP is appropriate is down to the LLFA, generally they are produced for areas considered to experience a high flood risk. 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.
Catchment Based Approach (CaBA) Catchment Plan [6] [9] [10] **Owner:** Weaver Gowy Catchment Partnership	The aim of the partnership is to bring together stakeholders to create and deliver a focussed, sustainable and collaborative action plan to deliver benefits within the catchment.	The vision of the Weaver Gowy catchment partnership is that all waterbodies in the catchment will be clean and healthy, supporting abundant wildlife, valued by people and enabling sustainable economic growth. They hope to achieve this by collecting a robust evidence base to identify, prioritise and address the needs of the catchment. Businesses and communities will be engaged, and will work collectively to deliver water quality improvements and manage water quantity to protect people and wildlife from the influences of climate change, floods and drought. Current risks in the catchment include: • Water quality including run off from agriculture, septic tanks, sewage, industrial discharges and pollution incidents. Also, nutrient and sediment loadings. • Habitat and wildlife suffer due to current and past industrial discharges compounded by river modifications including weirs and locks that act as barriers to fish migration and degraded bankside habitat. Pressures on habitat such as overgrazing and trampling of banks by livestock, tree removal, and artificial channel modifications are also a key issue. • Flooding affects numerous communities and businesses across the catchment. • Invasive non-native species is a widespread issue across the catchment and includes species such as giant hogweed, Himalayan balsam and Japanese knotweed.

2.1 Strategic Planning Groups (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 Weaver Gowy SPA we have engaged with stakeholders such as:

- The Environment Agency;
- Cheshire West and Chester Council;
- Cheshire East Council;
- Cheshire Wildlife Trust;
- St Helens Borough Council;
- Halton Borough Council;
- Warrington Borough Council; and
- Groundwork (Cheshire, Lancashire and Merseyside, host of the Weaver Gowy 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 Weaver Gowy catchment are outlined in Section 4.

Figure 4 DWMP framework for engagement

3. Risk identification

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

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

3.1 Risk Based Catchment Screening (RBCS) and Horizon Scan

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

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

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

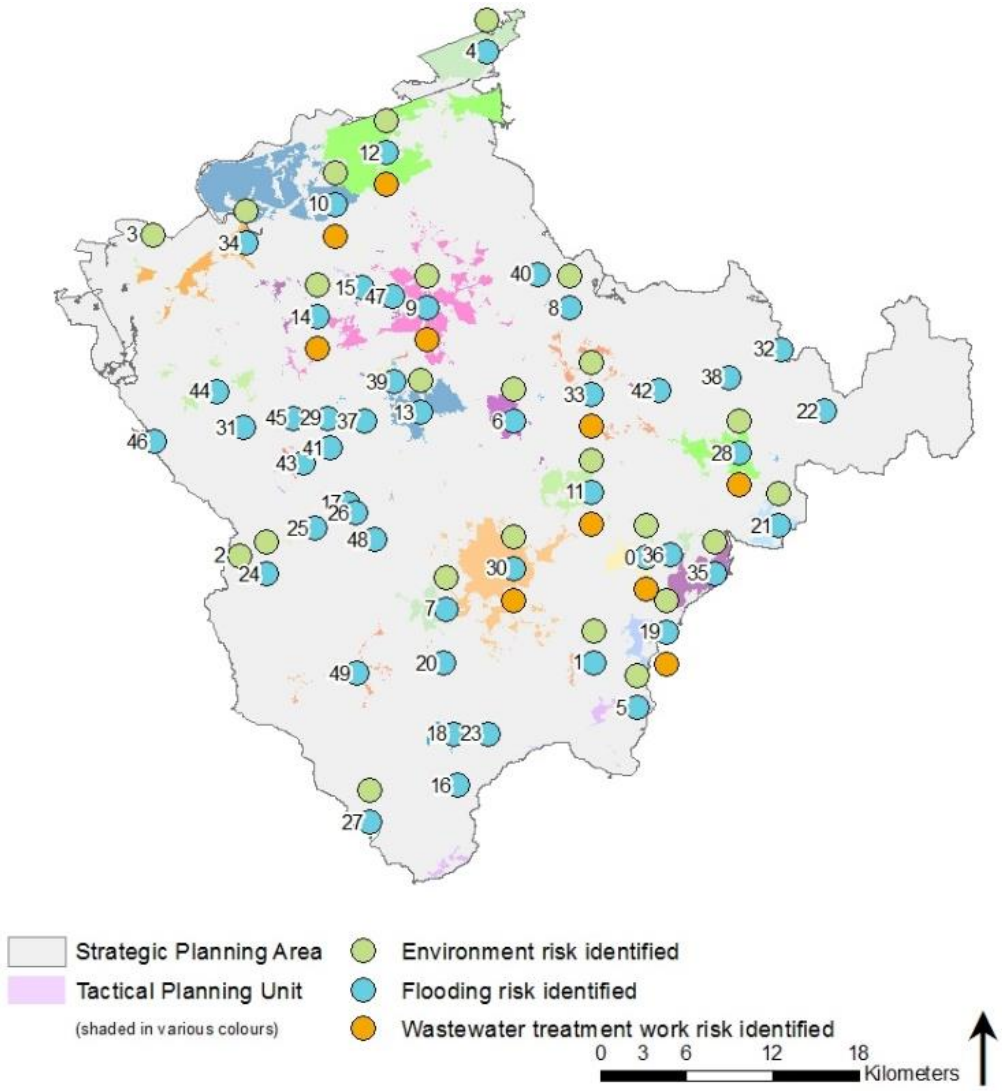
Within the Weaver Gowy SPA, the RBCS stage identified 53 out of 120 TPUs that required further investigation and therefore passed onto the BRAVA stage (outlined in Section 3.2).

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 in the Appendix. Environmental and flooding categories are the most common within the Weaver Gowy catchment, which is supported by the highest triggered RBCS assessments which are:

- Storm Overflow Assessment Framework - (24/120) – Environment; and
- External Sewer Flooding - (45/120) – Flooding.

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

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



Map no.	TPU name	Map no.	TPU name	Map no.	TPU name	Map no.	TPU name
0	Alsager	16	Adderley	32	Gawsworth	48	Wardle
1	Betley	17	Alpraham	33	Holmes Chapel	49	Wrenbury
2	Bickerton	18	Audlem	34	Helsby		
3	Ince	19	Audley	35	Kidsgrove		
4	Irlam	20	Baddington	36	Lawton Gate		
5	Madeley	21	Biddulph	37	Little Budworth South		
6	Middlewich	22	Bosley	38	Marton (Macclesfield)		
7	Nantwich	23	Buerton South	39	Marton North		
8	Nether Peover	24	Bulkeley	40	Plumley		
9	Northwich	25	Bunbury	41	Rushton		
10	Runcorn	26	Calveley	42	Swettenham		
11	Sandbach	27	Calver Hall North	43	Tarporley		
12	Warrington South	28	Congleton	44	Tarvin		
13	Winsford	29	Cotebrook	45	Utkinton		
14	Kingsley	30	Crewe	46	Waverton		
15	Acton Bridge	31	Duddon	47	Weaverham		

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 Weaver Gowy 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
Acton Bridge						
Alpraham						
Alsager						
Audlem						
Audley						
Baddington						
Betley						
Bickerton						
Biddulph						
Bosley						
Brereton						
Buerton South						
Bulkeley						
Bunbury						
Calveley						
Calver Hall North						
Congleton						
Cotebrook						
Crewe						
Crowton						
Duddon						
Gawsworth						
Helsby						
Holmes Chapel						

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
Ince						
Irlam						
Kidsgrove						
Kingsley						
Madeley						
Marton (Macclesfield)						
Marton North						
Middlewich						
Moston West						
Nantwich						
Nether Peover						
Northwich						
Plumley						
Runcorn						
Rushton						
Sandbach						
Swettenham						
Tarporley						
Tarvin						
Utkinton						
Wardle						
Warrington South						
Waverton						
Weaverham						
Winsford						
Wrenbury						

Table 3 Flooding BRAVA results

Key

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

	Flooding												
Tactical Planning Unit	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**
Acton Bridge													
Adderley													
Alpraham													
Alsager													
Audlem													
Audley													
Baddington													
Betley													
Bickerton													
Biddulph													
Bosley													
Brereton													
Buerton South													
Bulkeley													
Bunbury													
Calveley													
Calver Hall North													
Congleton													
Cotebrook													

	Flooding												
Tactical Planning Unit	Internal Flooding Risk	External 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**
Crewe													
Crowton													
Duddon													
Gawsworth													
Helsby													
Holmes Chapel													
Ince													
Irlam													
Kidsgrove													
Kingsley													
Lawton Gate													
Little Budworth South													
Madeley													
Marton (Macclesfield)													
Marton North													
Middlewich													
Moston West													
Nantwich													
Nether Peover													
Northwich													
Plumley													
Runcorn													
Rushton													

Tactical Planning Unit	Flooding												
	Internal Flooding Risk	External 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
Sandbach													
Swettenham													
Tarporley													
Tarvin													
Utkinton													
Vale Royal Abbey													
Wardle													
Warrington South													
Waverton													
Weaverham													
Winsford													
Wrenbury													

Table 4 Wastewater treatment works BRAVA results

Tactical Planning Unit	Wastewater Treatment Works		
	Risk of Wastewater Treatment Works (WwTW) Capacity		
	2020	2030	2050
Alpraham			
Alsager			
Arclid			
Audlem			
Audley			
Betley			
Biddulph			
Bosley			
Bulkeley			
Bunbury			
Calveley			
Calver Hall North			
Congleton			
Crewe			
Crowton			
Duddon			
Gawsworth			
Helsby			
Holmes Chapel			
Irlam			
Kidsgrove			

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

Tactical Planning Unit	Wastewater Treatment Works		
	Risk of Wastewater Treatment Works (WwTW) Capacity		
	2020	2030	2050
Kingsley			
Lawton Gate			
Little Budworth South			
Madeley			
Marton (Macclesfield)			
Marton North			
Middlewich			
Mouldsworth Motor Museum			
Nantwich			
Nether Peover			
Northwich			
Plumley			
Runcorn			
Rushton			
Sandbach			
Swettenham			
Tarporley			
Tarvin			
Utkinton			
Wardle			
Warrington South			
Waverton			
Weaverham			
Winsford			
Wrenbury			

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
Ackers Crossing Avondale			
Ackers Crossing Macclesfield Canal			
Acton Bridge			
Adderley			
Allostock Booth Bed Lane			
Allostock Hulme Hall Lane			
Alpraham			
Alsager			
Antrobus			
Arclid			
Audlem			
Audley			
Austerson			
Baddington			
Beeston			
Betley			

Resilience	
	More resilient
	Less resilient
	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
Biddulph			
Bosley			
Brereton			
Brindley			
Brookhouse Green			
Buerton North			
Buerton South			
Bulkeley			
Bunbury			
Byley			
Calveley			
Cholmondeston			
Church Minshull East			
Church Minshull West			
Congleton			
Cotebrook			
Crewe			
Crowton			
Darnhall			
Delamere			
Duddon			

	Resilience Assessment		
	Environmental	Flooding	
Tactical Planning Unit	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
Dunkirk			
Dutton			
Eaton			
Flash			
Fords Lane Mow Cop			
Gawsworth			
Gorsey Bank			
Hassall			
Helsby			
Holmes Chapel			
Hoo Green			
Ince			
Irlam			
Kerminsham			
Kidsgrove			
Kingsley			
Lawton Gate			

	Resilience Assessment		
	Environmental	Flooding	
Tactical Planning Unit	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
Little Budworth North			
Little Budworth South			
Little Leigh Central			
Little Leigh East			
Madeley			
Manley			
Marton North			
Marton South			
Middlewich			
Moston South			
Moston West			
Mouldsworth			
Nantwich			
Nether Peover			
Newbold 1-14 Brownlow Heath			
Newton Hollows			
Northwich			
Oldfields			
Plumley			
Runcorn			
Rushton			
Sandbach			
Stanthorne			

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
Swettenham			
Tabley			
Tarporley			
Tarvin			
Timbersbrook			
Timbersbrook cloud view			
Tiverton			
Utkinton			
Vale Royal Abbey			
Wardle			
Warrington South			
Waverton			
Weaverham			
Wervin			
Whitegate			
Whitley Town Green No 1			
Whitley Town Green No 2			
Whitley Town Green No 3			
Wimboldsley			
Winsford			
Wrenbury			

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 Weaver Gowy, the Alsager TPU was 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.

There are no TPUs within the Weaver Gowy SPA that were identified as having 'strategic growth'.

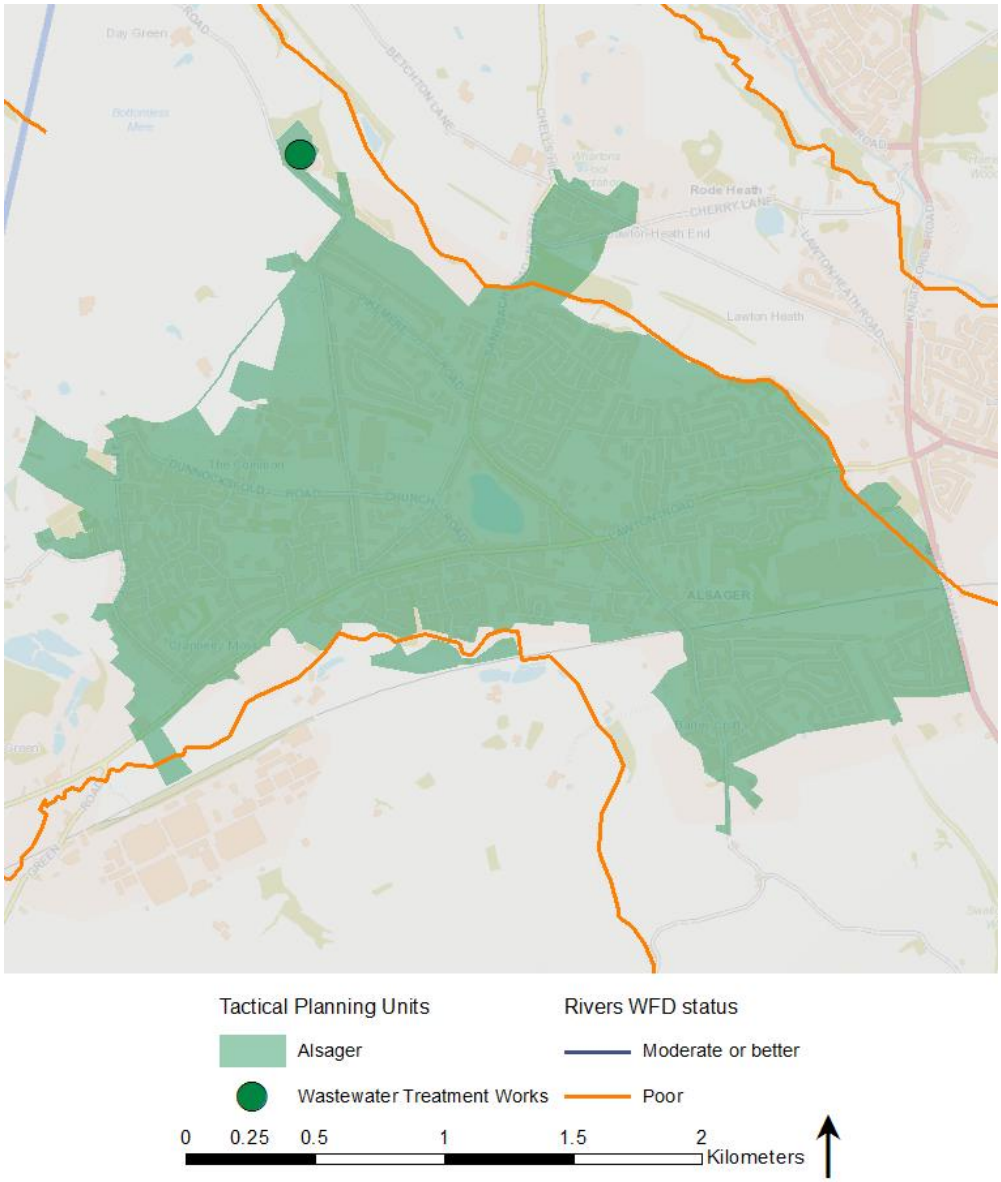
Note: Water Industry National Environment Programme (WINEP) and storm overflows guidance are still being developed. This could lead to significant changes in preferred options and could result in large-scale, short and long-term investment needs. This will be fully reviewed between draft and final DWMP publication, in addition to other aspects such as nutrient neutrality, bathing waters and shellfish water expectations. Between draft and final DWMPs the impact of storm overflow requirements will also require optimising against the other needs and opportunities.

3.3.3 Alsager

The Alsager TPU is to the south east of the Weaver Gowy SPA (Figure 6), consisting of over 180km of sewer network which serves over 5,700 properties and a residential population of approximately 12,700 people. The population is projected to grow significantly, with an increase of 20% by 2050, which could drive associated development and increase pressure on our network and assets. The two watercourses, Kidsgrove Stream (including Day Green Stream) and Valley Brook (Source to Englesea Brook), are both classed as 'poor' under the Water Framework Directive (WFD) 2019.

Alsager 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, pollution, sewer collapse, and blockages by 2050. The WINEP and storm overflows guidance are still being developed. This could lead to significant changes and investment to both wastewater treatment works and the drainage network.

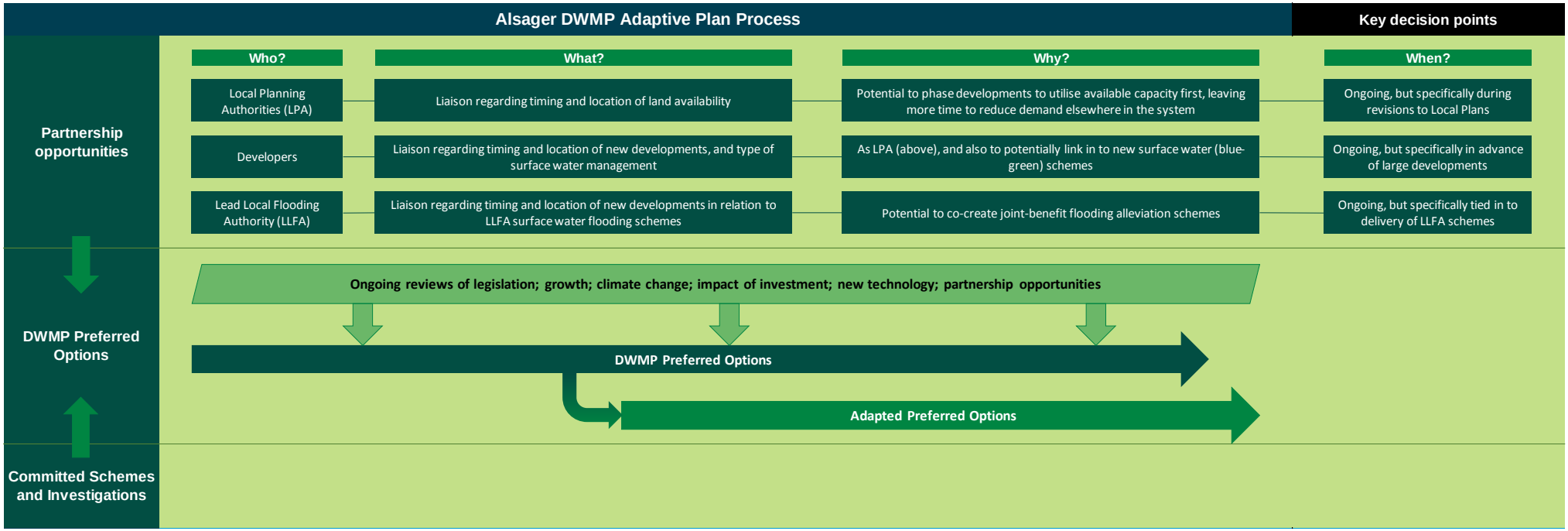
Figure 6 Map of the Alsager TPU



3.3.3.1 Alsager adaptive plan

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

Figure 7 Adaptive planning process



Partnership working

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 Alsager adaptive plan, reflecting the different option types identified as being appropriate for Alsager. 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.

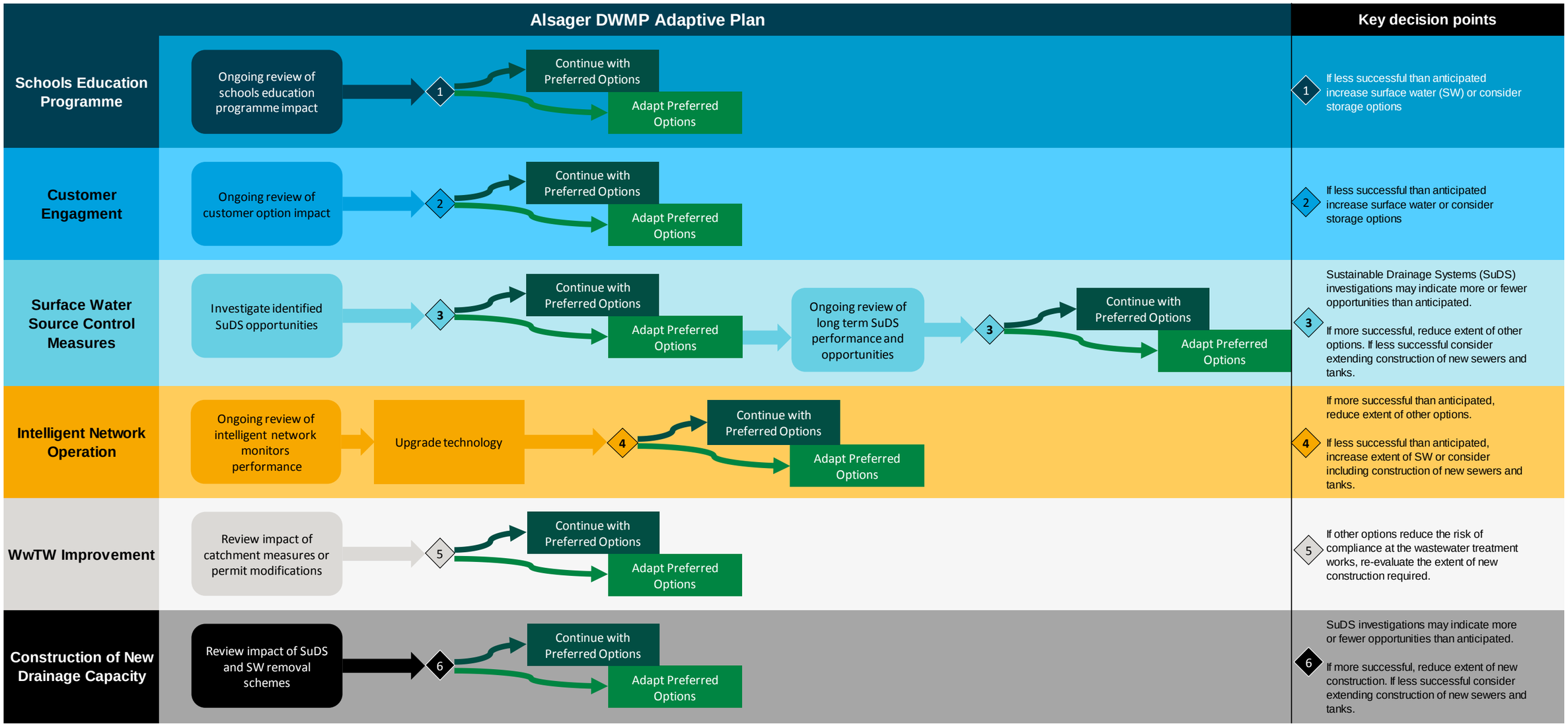
Within Alsager, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 5.3).

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 5.3) until there is more certainty. It is therefore important that both the adaptive plan and the optimised plan are developed together.

Figure 8 Alsager 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

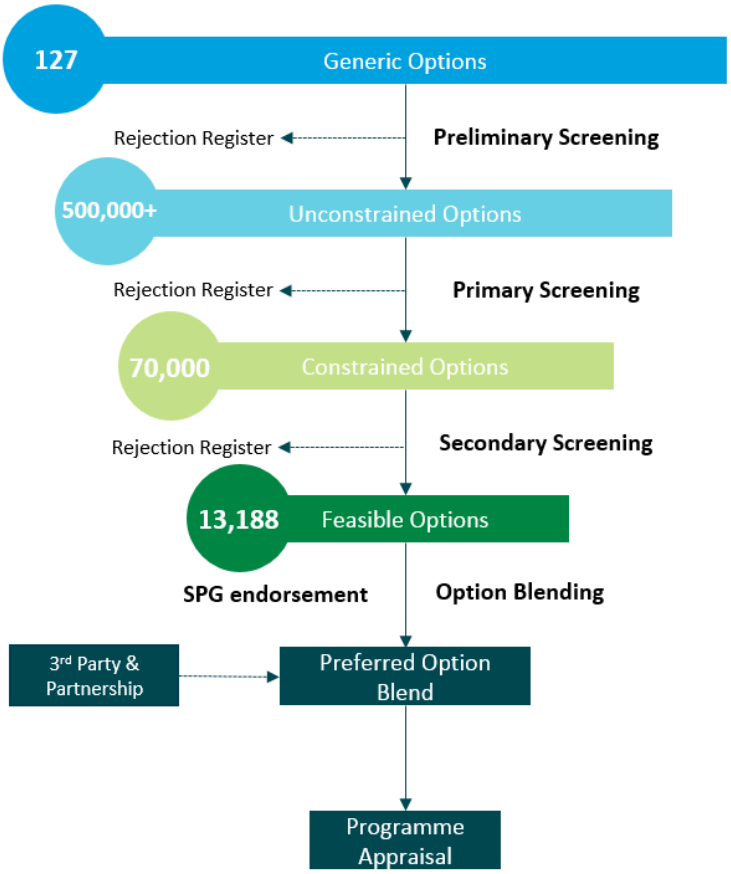


Figure 10 Options hierarchy

4.1 Weaver Gowy partnership options

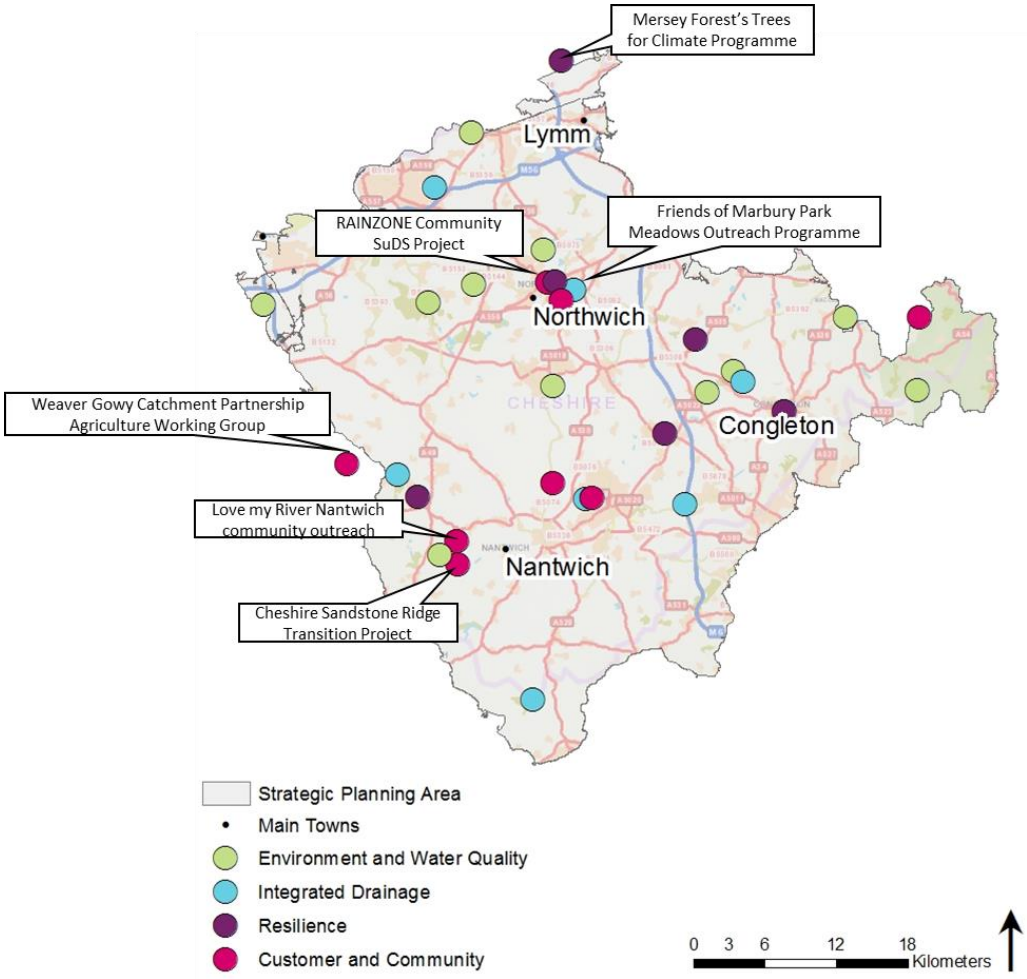
In order to identify and develop potential partnership options in the Weaver Gowy SPA, through the SPG we have shared the results from the risk identification stages such as BRAVA. This was done through a series of workshops and the purpose was to identify areas of shared risk and partnership opportunities which have been reviewed against the wider DWMP options development process (refer to Section 5.2).

The options shared were reviewed by the DWMP team and a second SPG workshop was held to gather additional information regarding potential partnership opportunities. This allowed us to understand timescales, likelihood of investment and potential organisations involved. An opportunities pipeline 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 necessarily funded schemes. However, they provide an indication of areas where we may be able to work collaboratively with partners in the future when more certainty is ascertained about need and funding. Examples of potential partnership locations are shown in Figure 11.

We have actively engaged with our SPGs to ensure that this is a collaborative process. Moving forwards, we are currently developing our Partnership Framework for the investment cycle 2025 – 2030 and beyond. The DWMP partnership opportunities pipeline will feed into this, forming an initial view of partners and opportunities. When developing the business plan, further engagement will be undertaken to where an opportunity is aligned to a 2025 – 2030 investment need. In addition to scheme specific collaboration opportunities, we recognise the need for more strategic partnerships and we will build on successes from historic partnerships in the North West.

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

Figure 11 Overview of the potential partnership opportunities in the Weaver Gowy SPA



4.1.1 Wider partnerships within the Weaver Gowy catchment

Within the Weaver Gowy 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 the Northwich partnership that we are proud be involved in within the Weaver Gowy SPA.

Figure 12 Example of the Northwich partnership

Northwich Flood Partnership

Over the last three years, the area of Northwich has experienced substantial flooding from multiple sources, inundating homes and businesses. Northwich benefitted from a fluvial flood risk management schemes in 2017 which has been successful in retaining river flows within the channel during subsequent flooding events. However, the integrated nature of drainage assets in Northwich has meant that instead, flooding has manifested as surface water and sewer flooding behind the defence. As Flood Risk Management authorities, UUW, the Environment Agency and Cheshire West and Chester Council have come together to reduce the risk of flooding in the future.

In the interim, a bespoke contingency plan has been written for Northwich, which is trialling innovative agreements to operate assets differently for the benefit of flood risk management. In the long term, all organisations are contributing to building an integrated model of the area to determine what investment is needed for a sustainable solution. This will continue to advance and the DWMP will support the delivery of any potential partnership solution.

5. Options for the Weaver Gowy

5.1 Options considered

Following a number of iterative screening processes outlined in Section 4, a list of feasible options was developed for each TPU within the Weaver Gowy SPA. Options can be categorised into a number of categories:

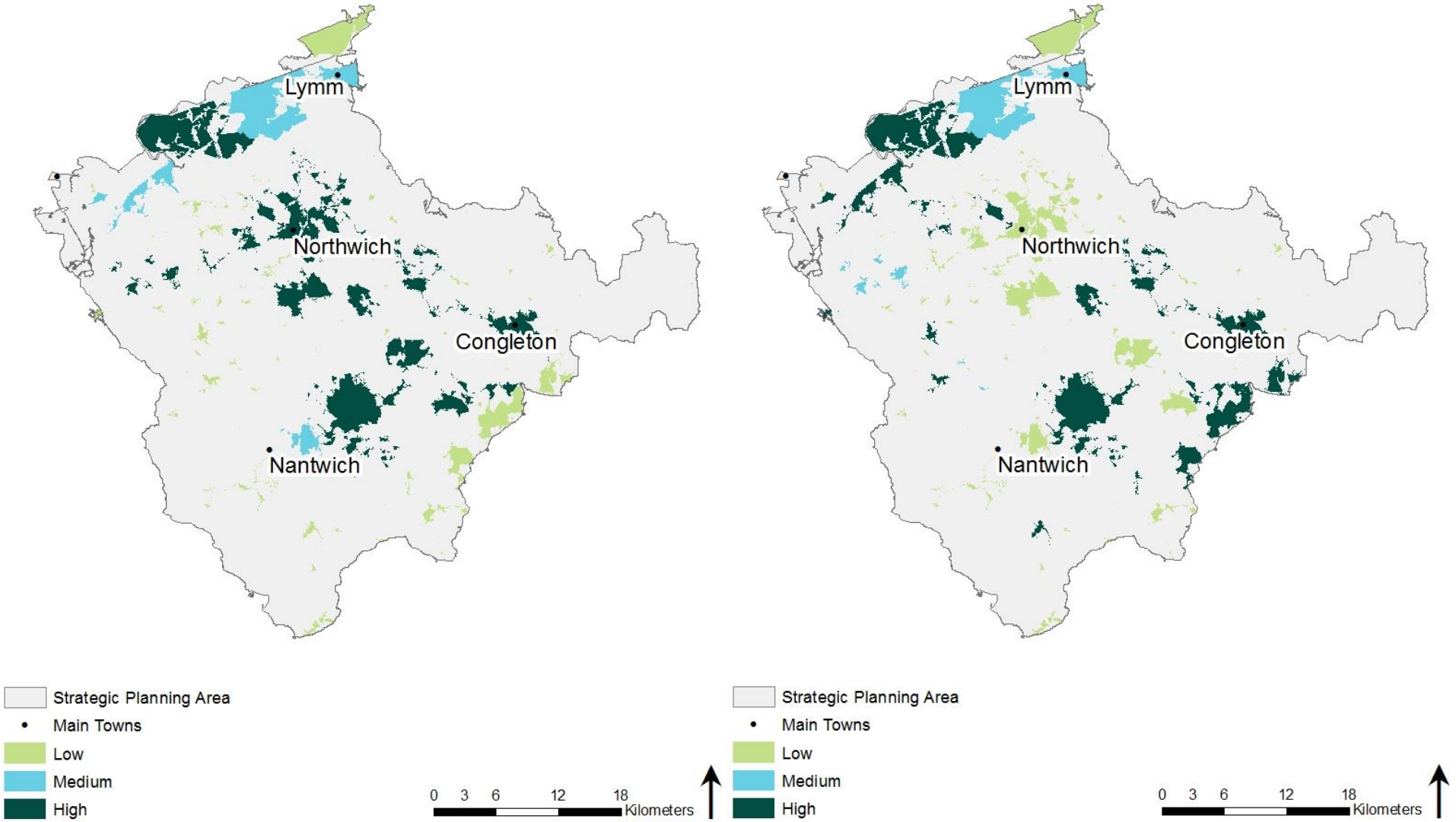
- Customer engagement;
- Monitor and investigate;
- Upstream management;
- Catchment management;
- Operational enhancement;
- Optimisation;
- Refurb/New asset (blue/green); and
- Refurb/New asset (grey).

Of these options 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 Weaver Gowy SPA customer engagement options (Figure 13) 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 areas such as Congleton TPU.

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 Kidsgrove and Audley TPUs (Figure 13).

Figure 13 Maps show the benefit of implementing regional customer engagement (left) and sustainable drainage solutions (right) options across the Weaver Gowy SPA



5.2 Preferred options

Note: Water Industry National Environment Programme (WINEP) and storm overflows guidance are still being developed. This could lead to significant changes in preferred options and could result in large-scale, short and long term investment needs. This will be fully reviewed between draft and final DWMP publication, in addition to other aspects such as nutrient neutrality, bathing waters and shellfish water expectations. Between draft and final DWMPs the impact of storm overflow requirements will also require optimising against the other needs and opportunities detailed in this section to assess synergy/conflict and best value.

The data below do not include planned investment in addressing storm overflows. The future standards for overflows are currently the subject of the Government's Storm Overflow Discharge Reduction Plan Consultation, and the outcome is not yet determined, so it has not been possible to include these in the screening process described below.

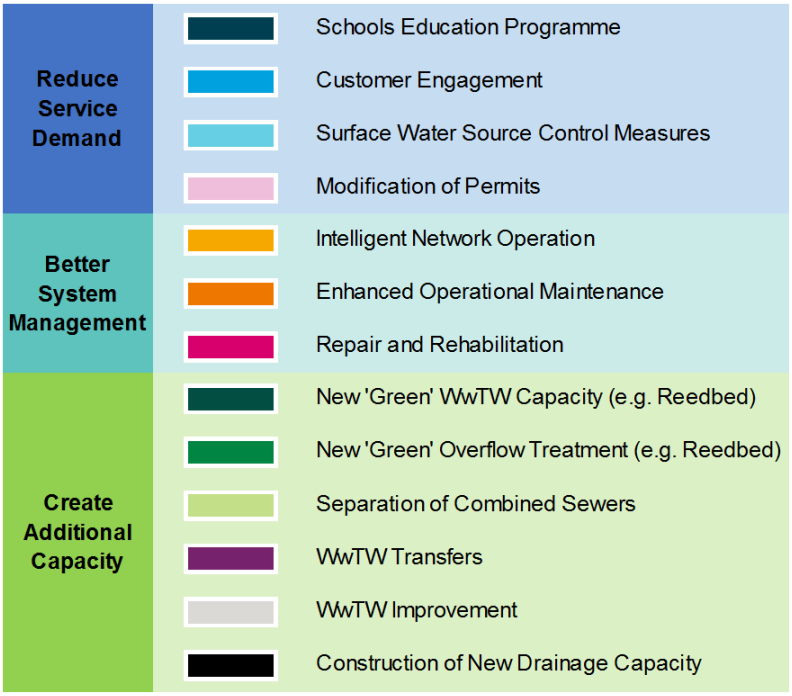
A high-level regional assessment has been carried out to estimate the likely investment requirements to address all overflow risks, but due to the uncertainty described above, this has not been broken down by Strategic Planning Areas. This information can be found in the DWMP main document.

Utilising data collected at the various stages of developing the DWMP (BRAVA, partnership opportunities and the data in Figure 13), preferred options were selected using a decision support tool and following the hierarchy principles. We have also included in this plan high confidence schemes that we believe are likely to have secured investment.

In addition the partnership opportunities highlighted in Section 4.1 are considered key for delivery of the options set out below. These will be investigated in detail in preparation for the investment plan for the period 2025-2030.

The following colour schemes are used for all charts and graphs in this section to represent each option type (Figure 14).

Figure 14 Option types



The first four option types are all grouped under the strategic heading of 'Reduce Service Demand', and are options that focus on either reducing the amount of wastewater that is produced, or preventing it from reaching the sewer network.

The second strategic group is 'Better System Management' and looks to try and manage and operate the existing assets in a more efficient or effective manner.

The final group is 'Create Additional Capacity'. This is about 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.

Across the Weaver Gowy SPA, the outcomes seen as a result of potential investment and benefit in each option type are shown in Figures 15, 16 and 17 respectively.

Figures 15 and 16 show how potential investment could be split between the three high-level option strategies – reduce demand, system management and new capacity – and then further sub-divides these into the individual option types.

Figure 15 shows potential options to address environmental planning objectives, which incorporate:

- Wastewater treatment work permit compliance;
- WINEP compliance; and
- Pollution of watercourses.

Figure 16 shows potential options to address flooding planning objectives, which incorporate:

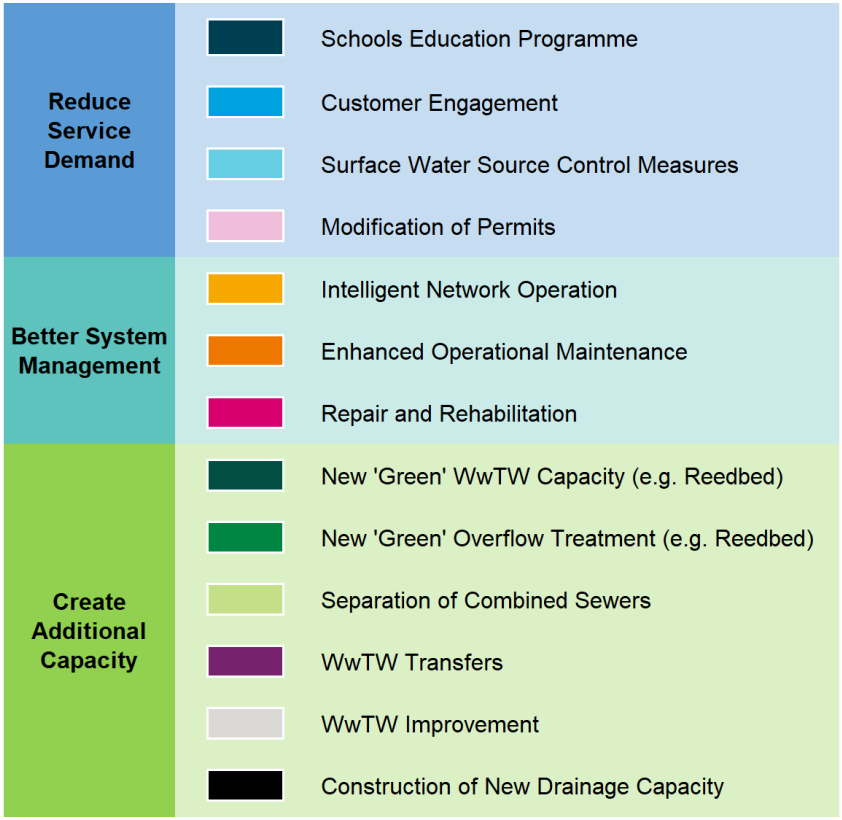
- Internal flooding;
- External flooding;
- Highway and open space flooding; and
- 1 in 50-year flooding.

Note that the percentages shown in Figures 15 and 16 are the proportions of investment within each planning objective type (flooding and environmental), but the total values of flooding and environmental investment are not equal. This split can be seen in more detail for each TPU in Section 5.3.

Figure 17 shows how these options could contribute to addressing the planning objectives – environmental and flooding.

Figure 15 Weaver Gowy Strategic Planning Area: Distribution of environmental investment by option type

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 improvements in wastewater treatment works. This chart does not show planned investment in improving overflow performance as these are not based on cost beneficial assessments.



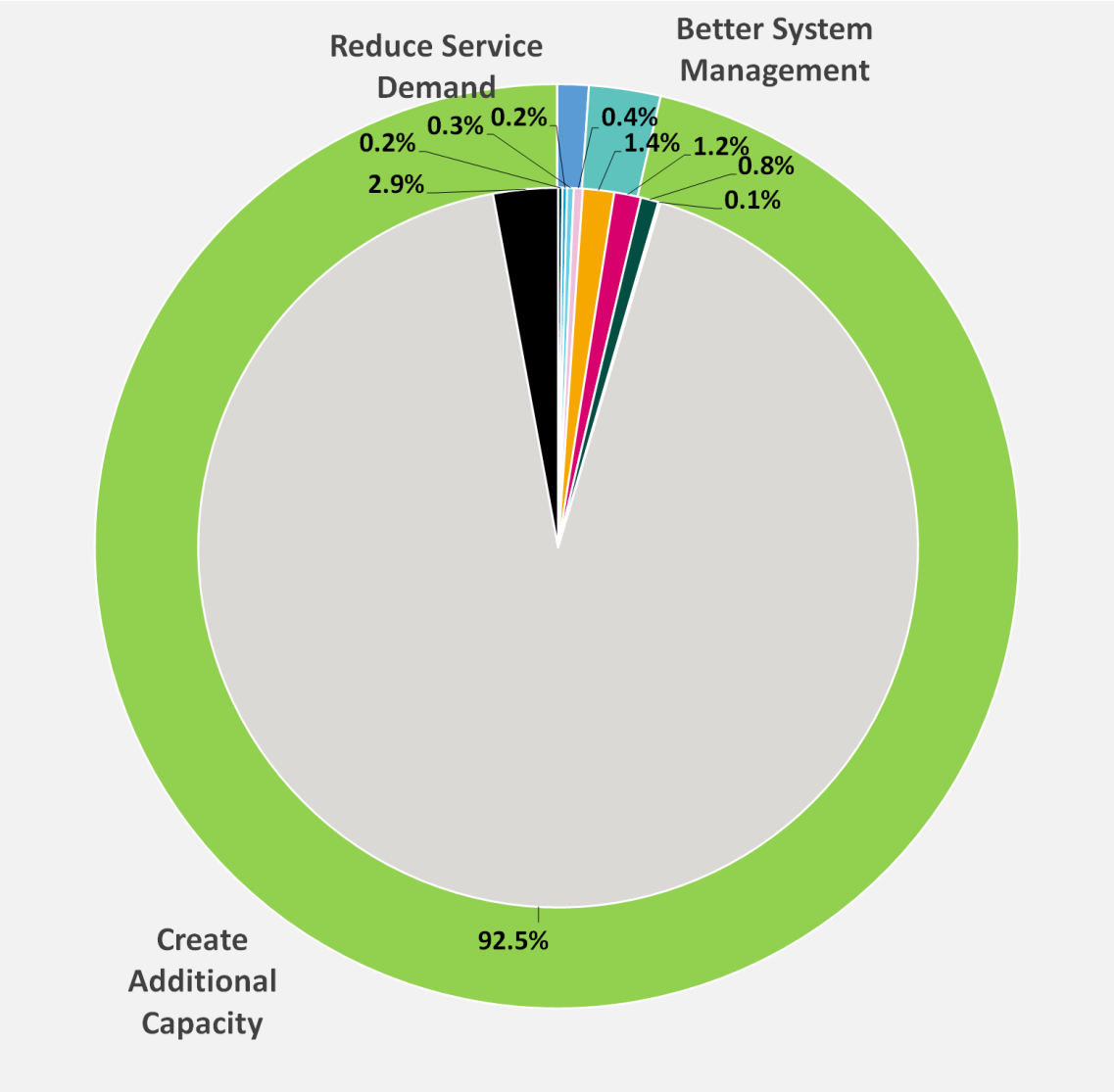


Figure 16 Weaver Gowy Strategic Planning Area: Distribution of flooding investment by option type

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

Around 11% of potential investment could be in improving existing system management, around 47% could be used in separating water from combined sewers and 8% could be used on the construction of new stormwater storage tanks.

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

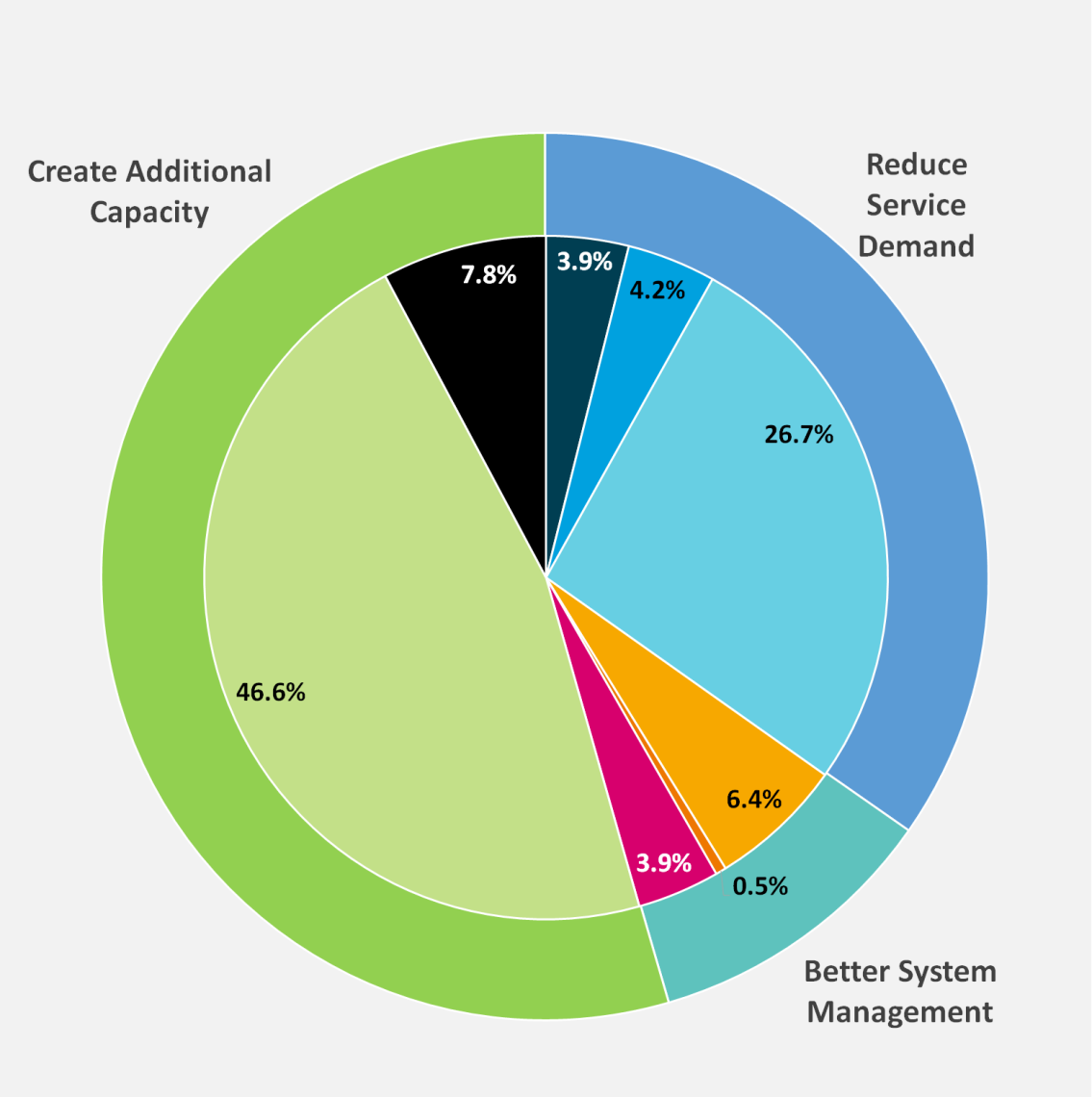
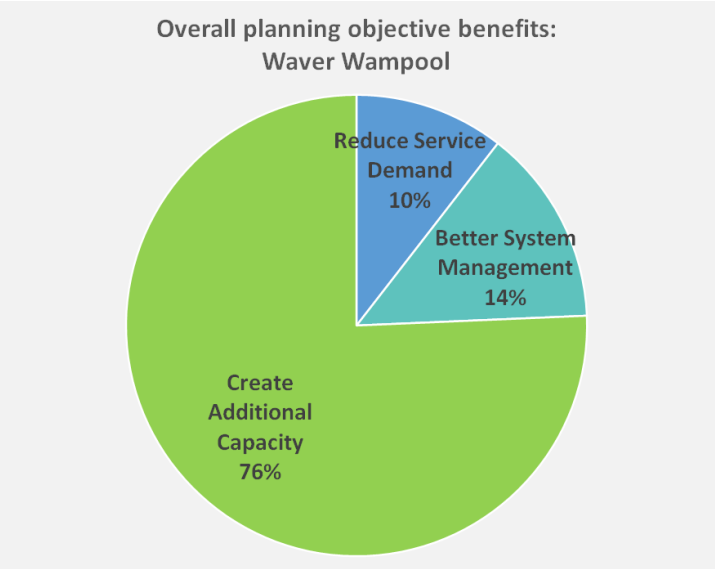


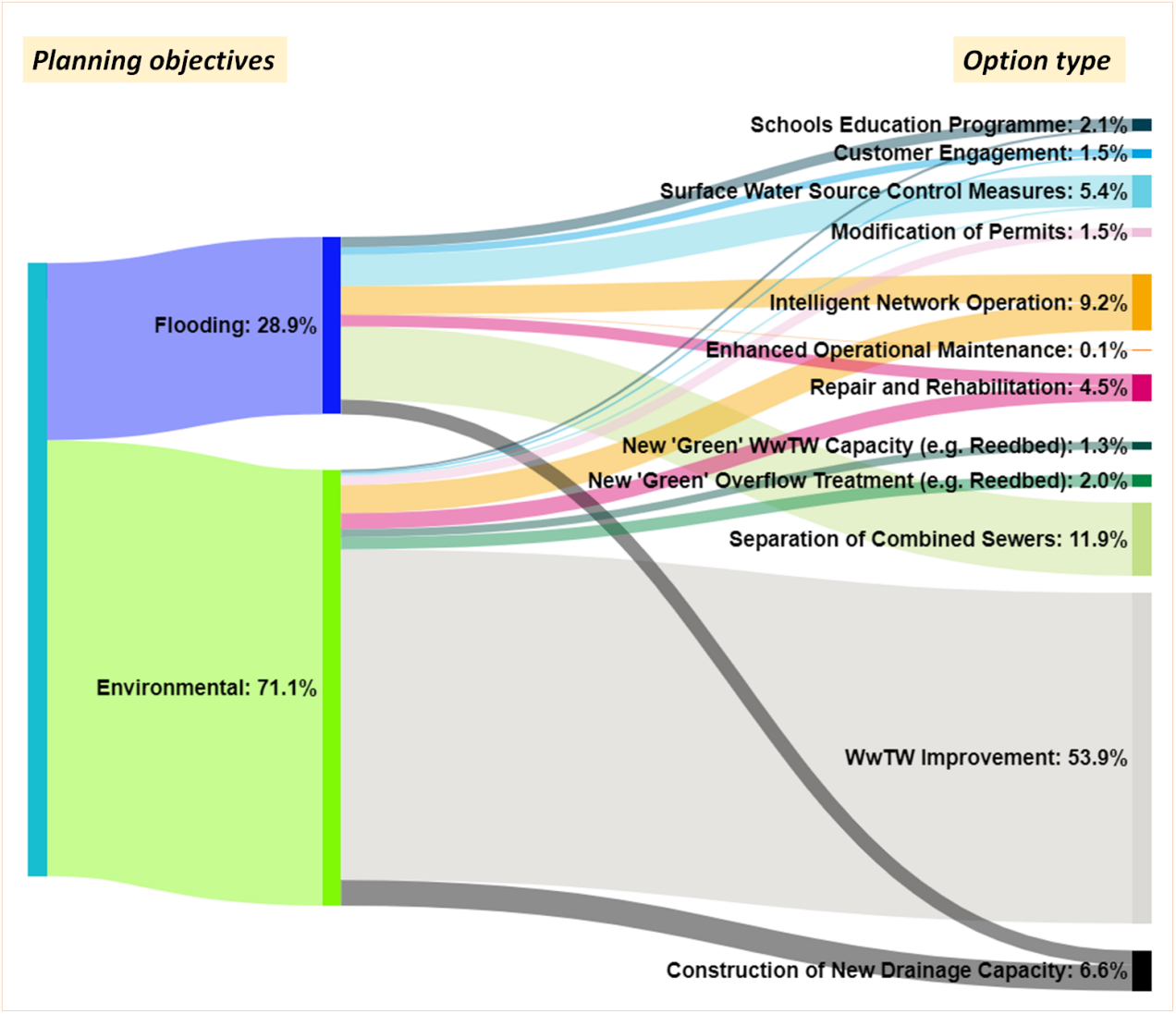
Figure 17 Distribution of benefit by option type within Weaver Gowy SPA

This page shows how different option types may be used to realise benefits against different planning objectives within the Weaver Gowy SPA.

United Utilities Water (UUW) commitments to improving flooding performance could be met through the reduction of surface water flows, including the separation of combined sewers, schools and customer engagement programmes, improved operational maintenance systems, and the construction of new stormwater drainage capacity.

Environmental planning objectives could be met mainly through improvements to wastewater treatment works, including 'green' wastewater and overflow treatment, improved operational maintenance systems, and provision of stormwater storage capacity.



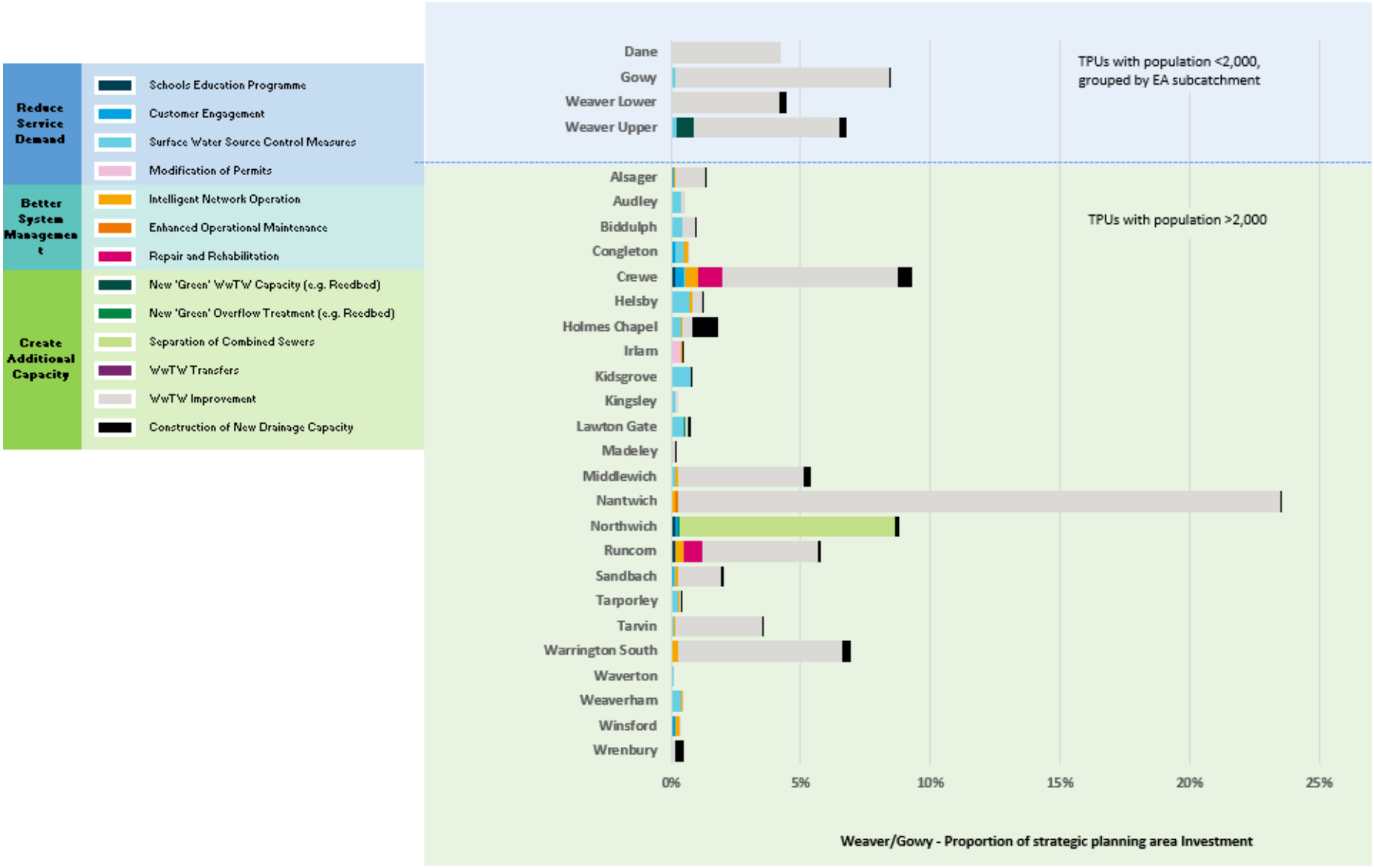


5.3 Overview of preferred options in each TPU

Figure 18 shows the proportion of Weaver Gowy catchment potential investment in each TPU, split up by option type. 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 SPA sub catchment (Environment Agency Operational Catchment boundaries).

It can be seen that in the Weaver Gowy SPA, the largest TPUs see the largest potential investment, which is split predominantly between surface water control, improved system management, and construction of new storm water storage tanks.

Figure 18 Proportion of investment seen in each TPU within the Weaver Gowy SPA



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

5.3.1 Alsager

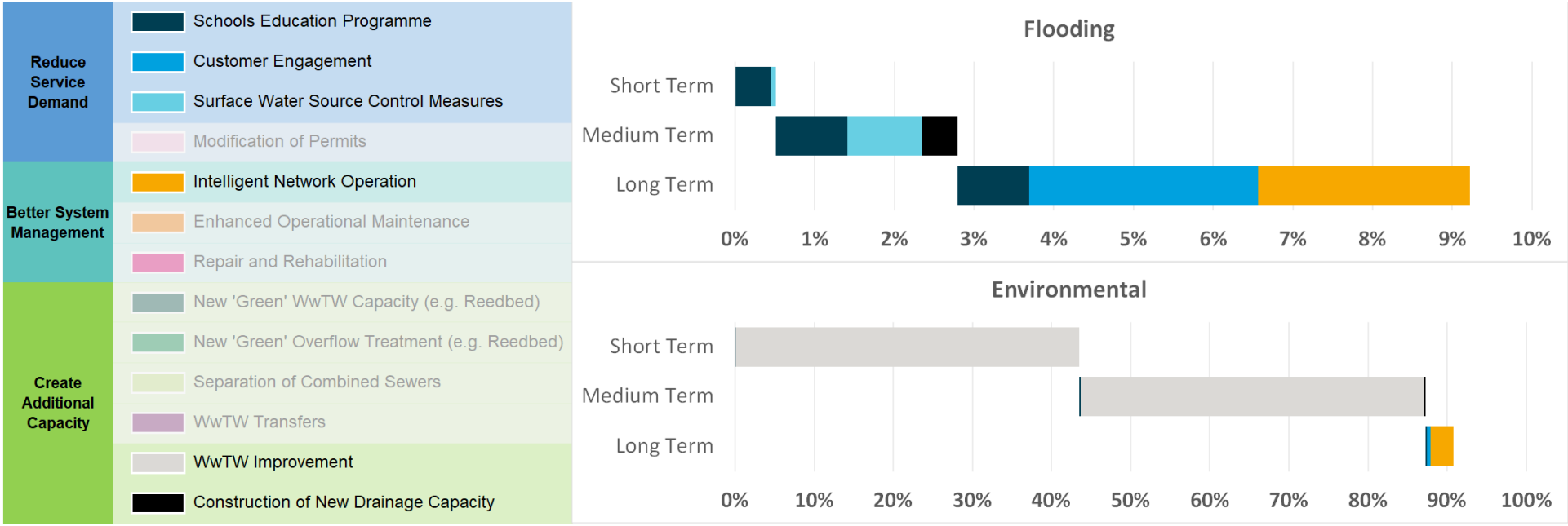
The results from the DWMP show that if we were to invest in Alsager over the next 25 years, around 9% of the investment in Alsager could be to address flooding risks, and around 91% of investment could be to address environmental risks.

In the short and medium term, investments could be through wastewater treatment works improvements to ensure permit compliance and a small amount through school education programmes.

In the medium term, to address flooding risk, there could be investment in surface water control measures (e.g. SuDS) and construction of new drainage capacity.

In the longer term, there could be significant investment in customer engagement programmes and the installation of intelligent network monitoring systems.

Figure 19 Short, medium and long-term investment in the Alsager TPU, distributed by option type



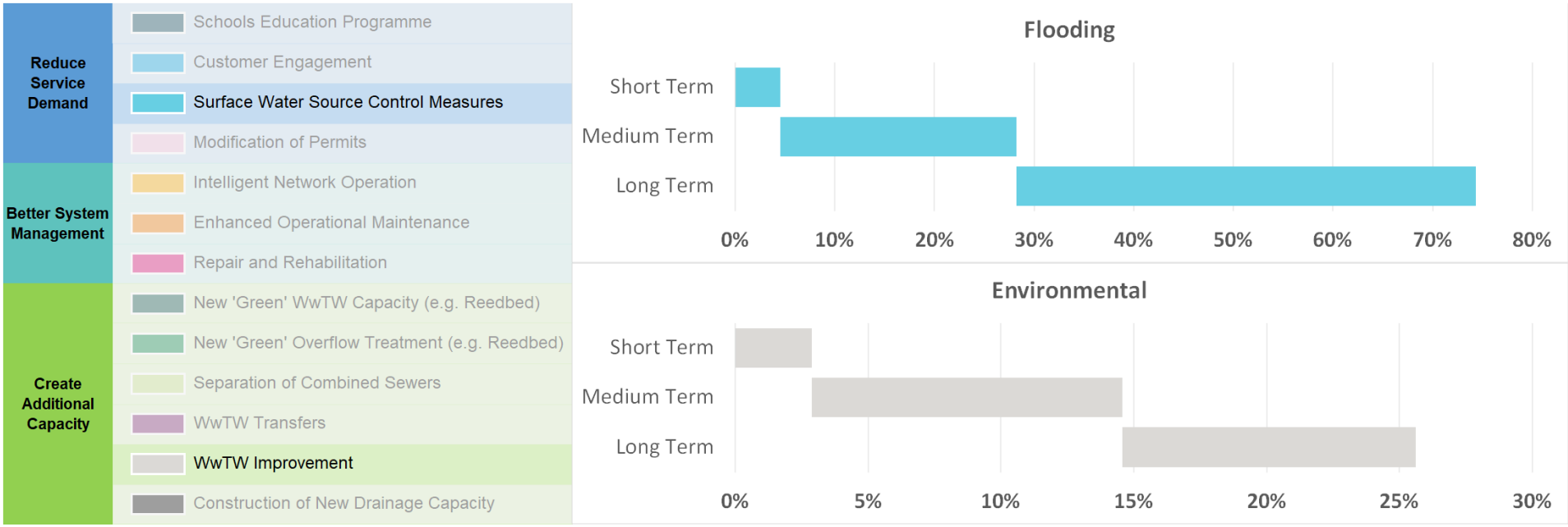
5.3.2 Audley

The results from the DWMP show that if we were to invest in Audley over the next 25 years, around 74% of the investment could be to address flooding risks, and around 26% of investment could be to address environmental risks.

In the short, medium and long term, flooding risks could be addressed through investments in surface water source control measures, such as SuDS.

Environmental risks could be addressed through wastewater treatment works improvements to ensure permit compliance.

Figure 20 Short, medium and long-term investment in the Audley TPU, distributed by option type



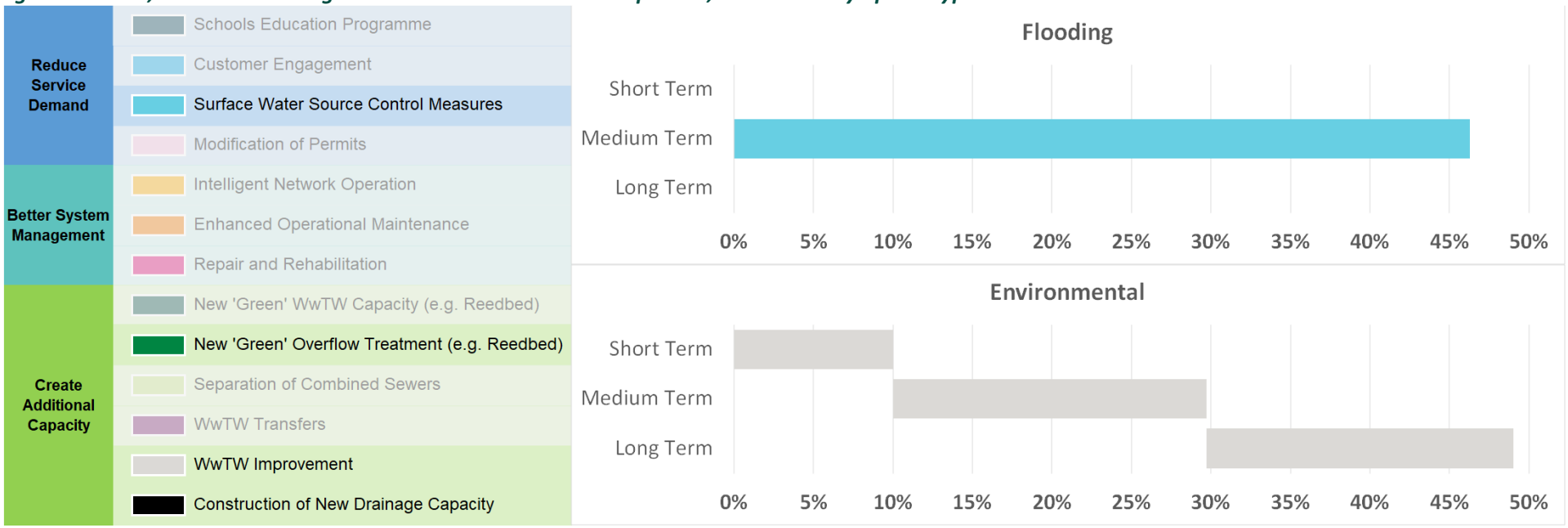
5.3.3 Biddulph

The results from the DWMP show that if we were to invest in Biddulph over the next 25 years, around 47% of the investment could be to address flooding risks, and around 53% of investment could be to address environmental risks.

In the short term, investments could be through wastewater treatment works improvements to ensure permit compliance and new 'green' overflow treatment such as reed beds.

In the medium and long term, investment could continue at the wastewater treatment works and there could be significant investment in surface water source control measures, such as SuDS.

Figure 21 Short, medium and long-term investment in the Biddulph TPU, distributed by option type



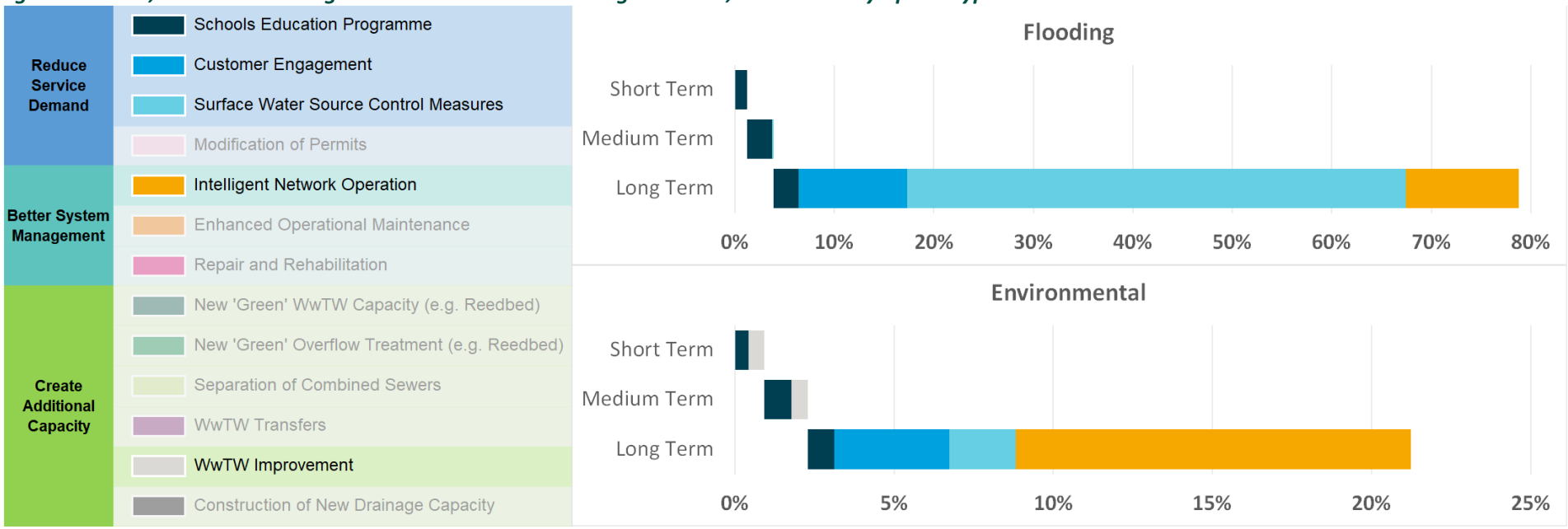
5.3.4 Congleton

The results from the DWMP show that if we were to invest in Congleton over the next 25 years, around 79% of the investment could be to address flooding risks, and around 21% of investment could be to address environmental risks.

In the short and medium term, investments could be through wastewater treatment works improvements to ensure permit compliance and through school education programmes.

In the longer term, investments could be through surface water source control measures, and the existing intelligent network monitoring systems that are already in place will be replaced or updated. School education programmes could continue and customer engagement programmes could also be implemented.

Figure 22 Short, medium and long-term investment in the Congleton TPU, distributed by option type



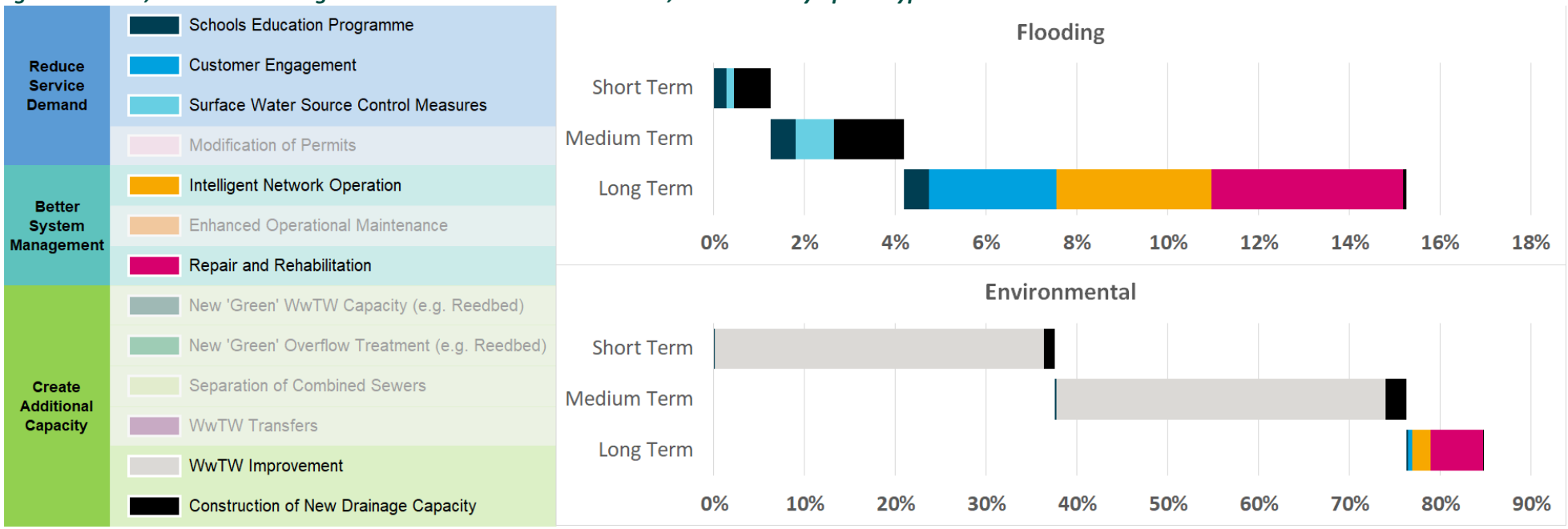
5.3.5 Crewe

The results from the DWMP show that if we were to invest in Crewe over the next 25 years, around 15% of the investment could be to address flooding risks, and around 85% of investment could be to address environmental risks.

In the short and medium term, investments could be through wastewater treatment works improvements to ensure permit compliance, and flooding risks could be addressed through school education programmes, customer engagement and the construction of new drainage capacity.

In the longer term, investments could be through the updating or replacement of the existing intelligent network monitoring systems that are already in place. Additionally, there could be investment in school education and customer engagement programmes, and the repair and rehabilitation of the network.

Figure 23 Short, medium and long-term investment in the Crewe TPU, distributed by option type



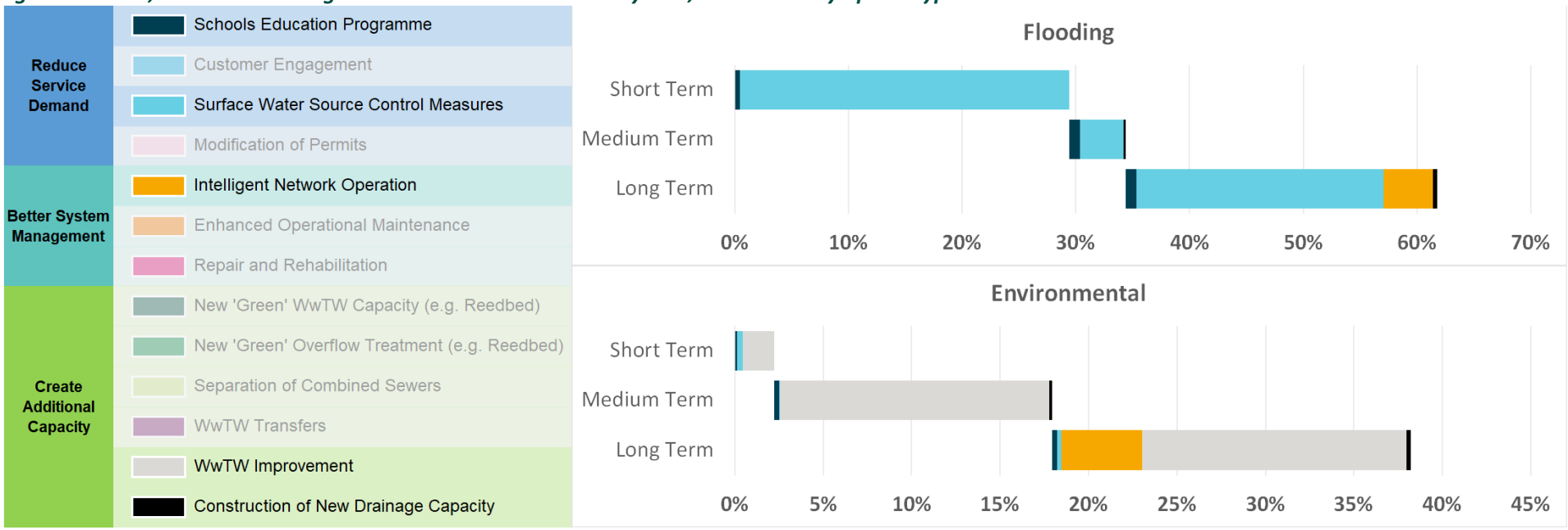
5.3.6 Helsby

The results from the DWMP show that if we were to invest in Helsby over the next 25 years, around 62% of the investment could be to address flooding risks, and around 38% of investment could be to address environmental risks.

In the short and medium term, investments could be through surface water source control measures, such as SuDS, and also through school education programmes, customer engagement and wastewater treatment works improvements to ensure permit compliance.

In the longer term, investment could continue at the wastewater treatment works, and there could be investment in the installation of new intelligent network monitoring systems.

Figure 24 Short, medium and long-term investment in the Helsby TPU, distributed by option type



5.3.7 Holmes Chapel

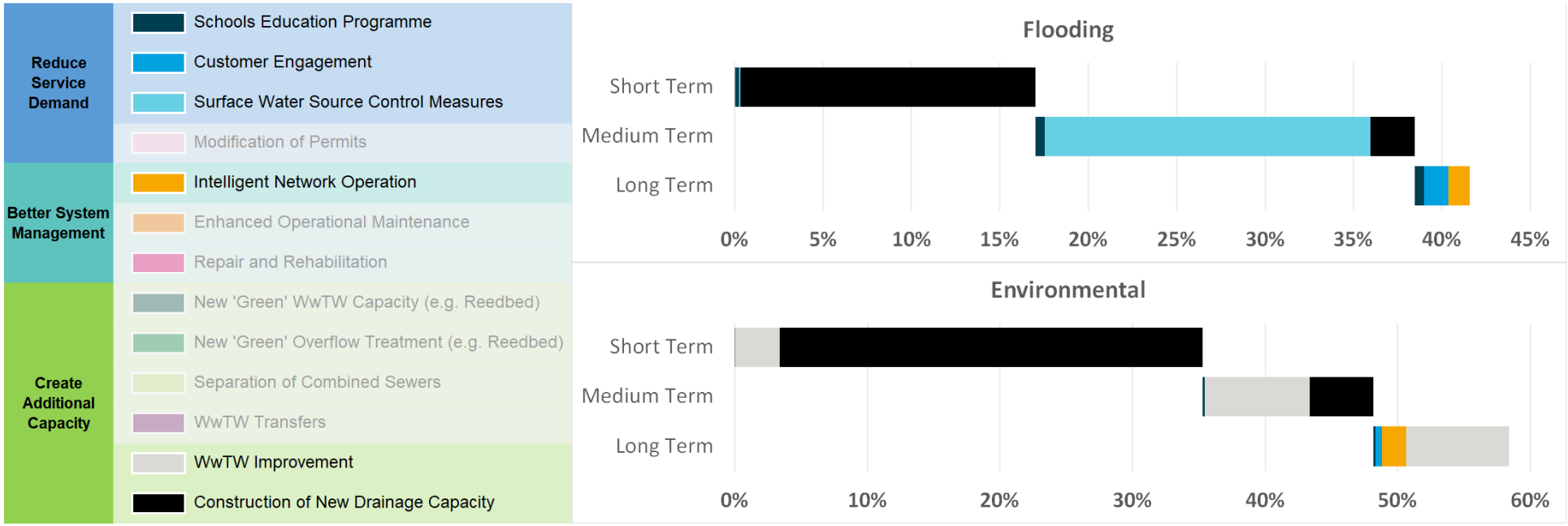
The results from the DWMP show that if we were to invest in Holmes Chapel over the next 25 years, around 42% of the investment could be to address flooding risks, and around 58% of investment could be to address environmental risks.

In the short term, investments could be through wastewater treatment works improvements to ensure permit compliance, and the construction of new drainage capacity.

In the medium term, investments could be through surface water source control measures, such as SuDS and improvements at the wastewater treatment works and in the construction of new drainage capacity could continue.

In the longer term, investments could be through the installation of intelligent network monitoring, customer engagement and the continuation of improvements at the wastewater treatment works.

Figure 25 Short, medium and long-term investment in the Holmes Chapel TPU, distributed by option type



5.3.8 Irlam

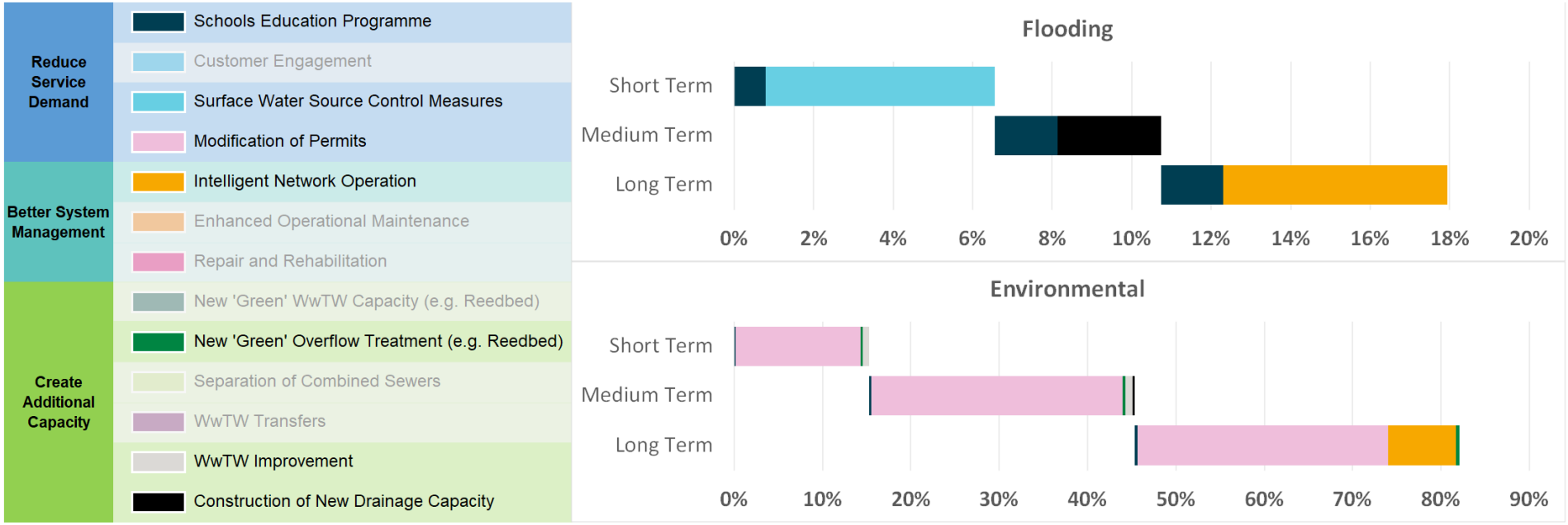
The results from the DWMP show that if we were to invest in Irlam over the next 25 years, around 18% of the investment could be to address flooding risks, and around 82% of investment could be to address environmental risks.

In the short term, investments to address flooding risks could be through surface water source control measures, such as SuDS and through school education programmes. In the medium term this could be supplemented with the construction of new drainage capacity, for example new sewers or storm water storage.

In the short and medium term, environmental risks could be addressed through modification of permits.

In the long term, in addition to the continuation of the above options, intelligent network monitoring systems could also be installed.

Figure 26 Short, medium and long-term investment in the Irlam TPU, distributed by option type



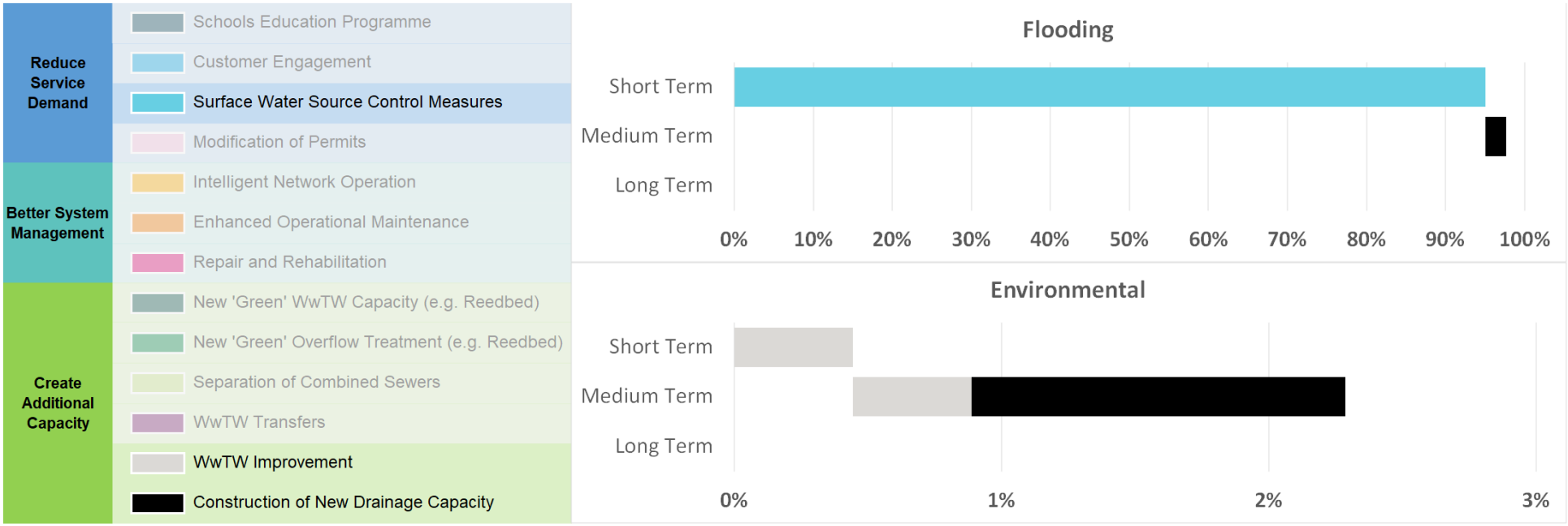
5.3.9 Kidsgrove

The results from the DWMP show that if we were to invest in Kidsgrove over the next 25 years, around 98% of the investment could be to address flooding risks, and around 2% of investment could be to address environmental risks.

In the short term, investments to address flooding risks could be through surface water source control measures, such as SuDS, followed by the construction of new drainage capacity in the medium term.

To address environmental risks in the short and medium term, there could be wastewater treatment works improvements to ensure permit compliance, and continue with the construction of new drainage capacity.

Figure 27 Short, medium and long-term investment in the Kidsgrove TPU, distributed by option type



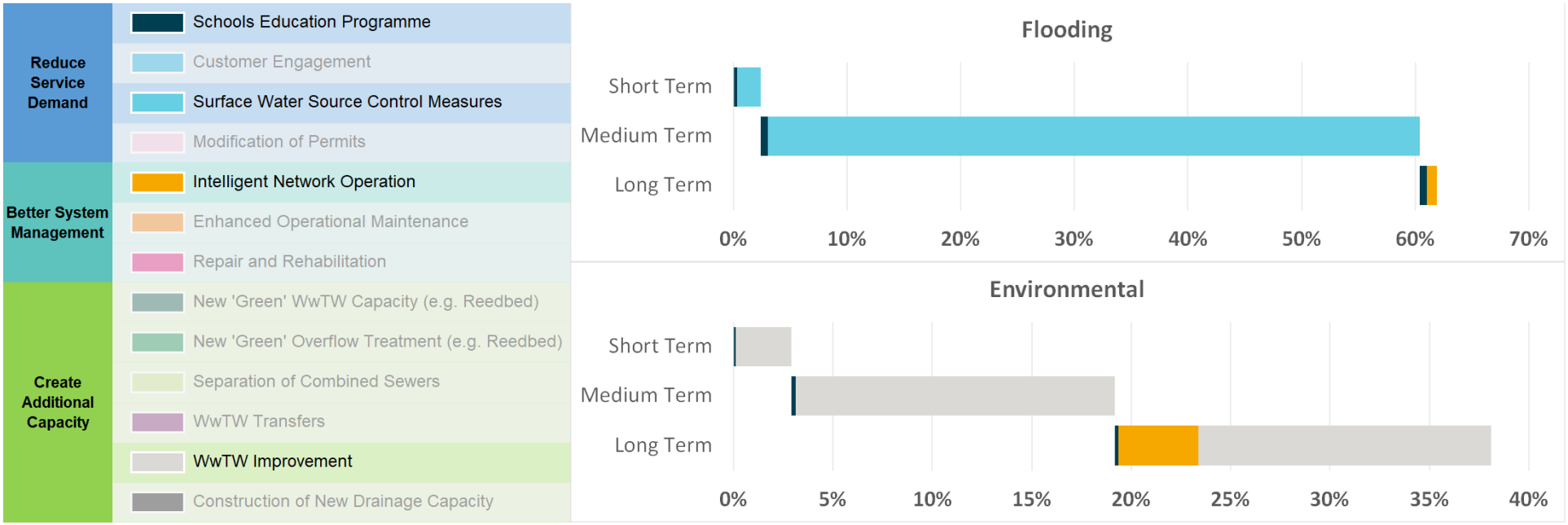
5.3.10 Kingsley

The results from the DWMP show that if we were to invest in Kingsley over the next 25 years, around 62% of the investment could be to address flooding risks, and around 38% of investment could be to address environmental risks.

In the short and medium and long term investments could be through surface water source control measures, such as SuDS, and through wastewater treatment works improvements to ensure permit compliance.

In the longer term, intelligent network monitoring systems could be installed and carry out school education programmes.

Figure 28 Short, medium and long-term investment in the Kingsley TPU, distributed by option type



5.3.11 Lawton Gate

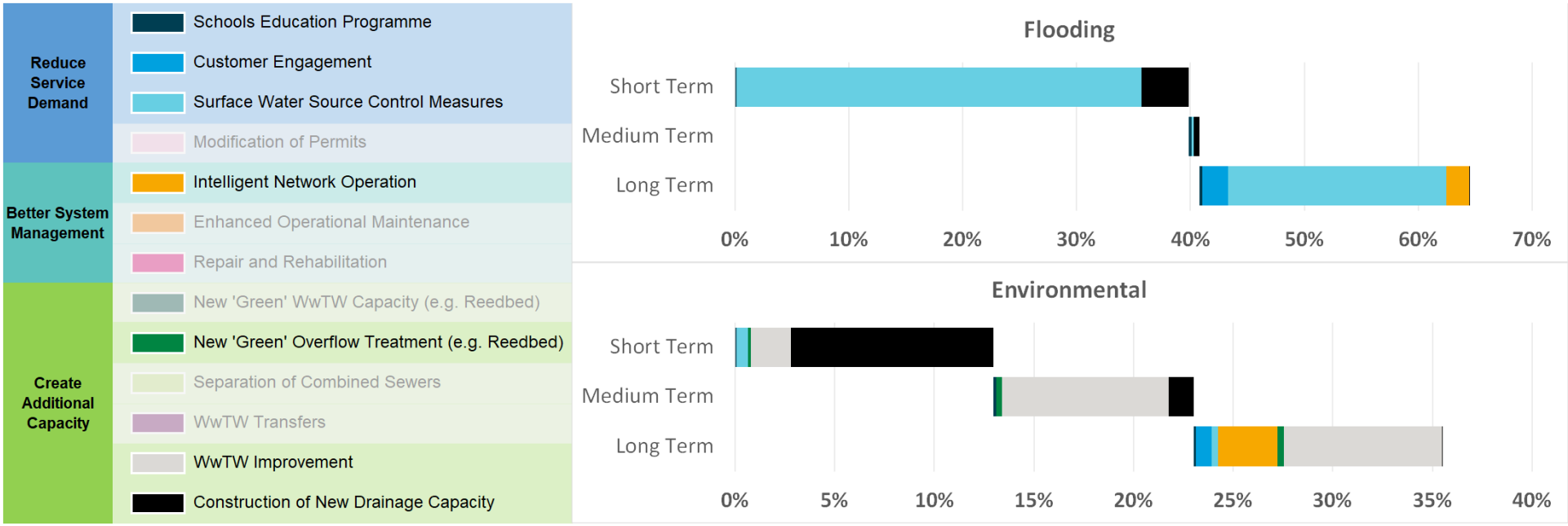
The results from the DWMP show that if we were to invest in Lawton Gate over the next 25 years, around 64% of the could be to address flooding risks, and around 36% of investment could be to address environmental risks.

In the short term, investments could be through surface water source control measures, such as SuDS, and through construction of new drainage capacity.

In the medium term, investments could continue through the construction of new drainage capacity and wastewater treatment works improvements to ensure permit compliance.

In the longer term, investments could be through further improvements at the wastewater treatment works, surface water source control measures, such as SuDS and the installation of intelligent network operation systems.

Figure 29 Short, medium and long-term investment in the Lawton Gate TPU, distributed by option type



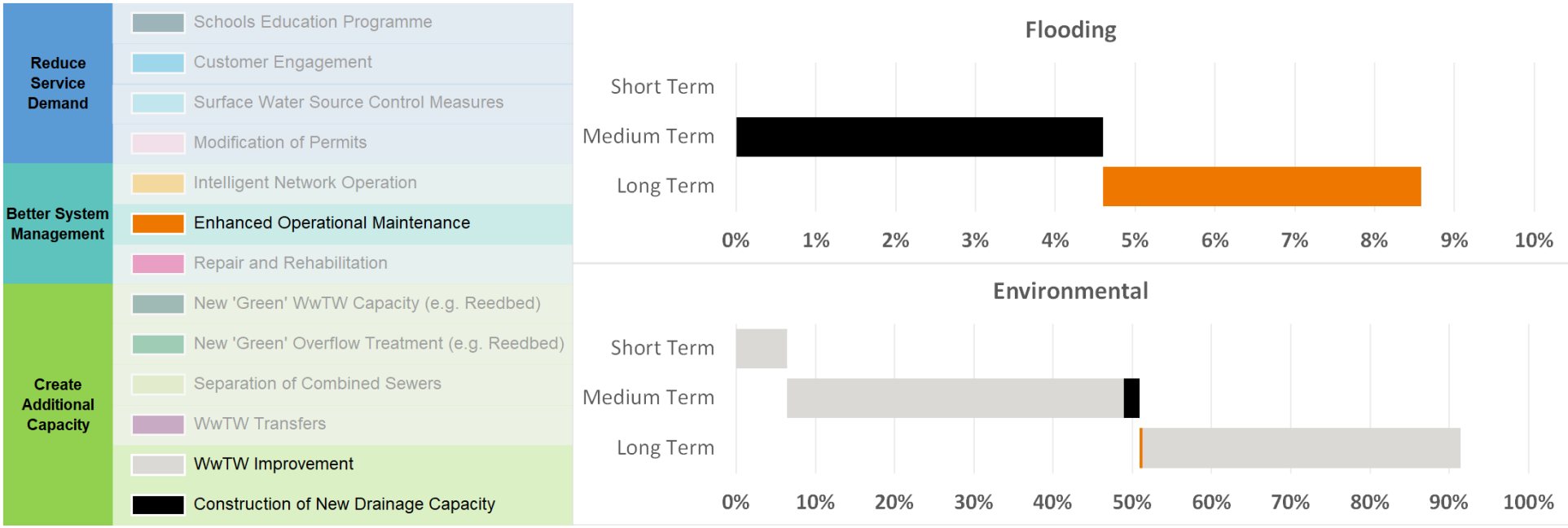
5.3.12 Madeley

The results from the DWMP show that if we were to invest in Madeley over the next 25 years, around 91% of the investment could be to address flooding risks, and around 9% of investment could be to address environmental risks.

In the short, medium and long term, investments to address environmental risks could be through wastewater treatment works improvements to ensure permit compliance

To address flooding risks, medium term investment could be in construction of new drainage capacity and longer term investment will be in enhanced operational maintenance in the network.

Figure 30 Short, medium and long-term investment in the Madeley TPU, distributed by option type



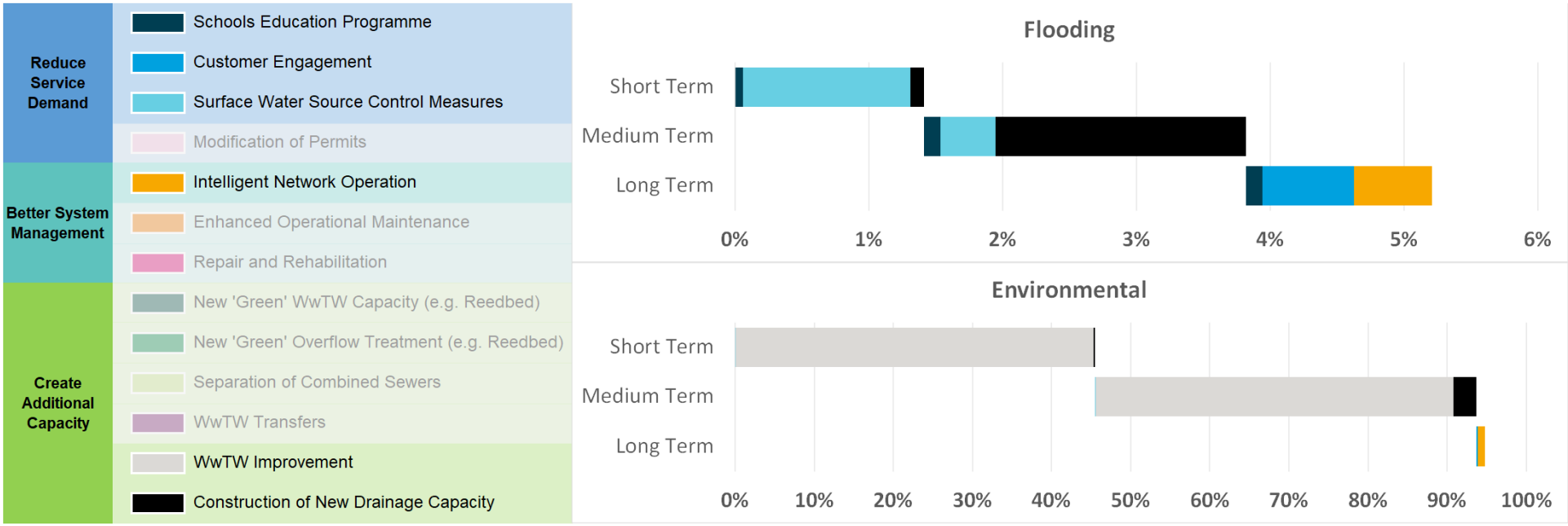
5.3.13 Middlewich

The results from the DWMP show that if we were to invest in Middlewich over the next 25 years, around 5% of the investment could be to address flooding risks, and around 95% of investment could be to address environmental risks.

In the short and medium term, investments could be through wastewater treatment works improvements to ensure permit compliance, construction of new drainage capacity and surface water source control measures, such as SuDS.

In the longer term, investments could be through customer engagement programmes and the installation of intelligent network operation systems.

Figure 31 Short, medium and long-term investment in the Middlewich TPU, distributed by option type



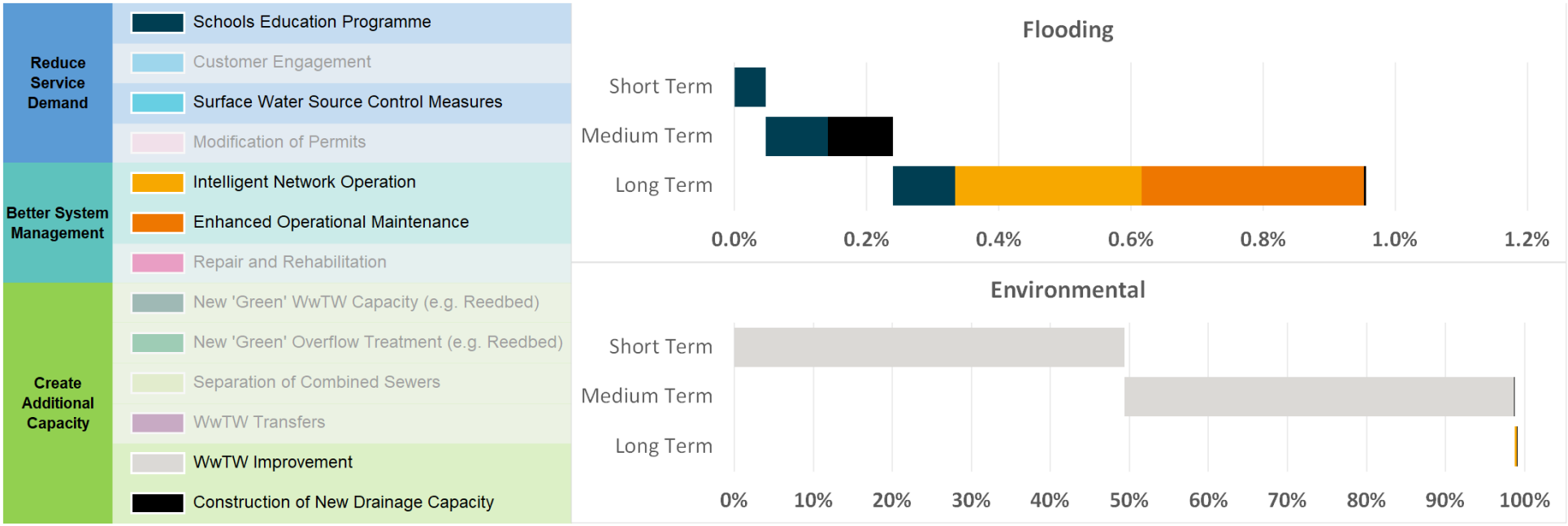
5.3.14 Nantwich

The results from the DWMP show that if we were to invest in Nantwich over the next 25 years, around 1% of the investment could be to address flooding risks, and around 99% of investment could be to address environmental risks.

Environmental risks could be addressed in the short and medium term through wastewater treatment works improvements to ensure permit compliance. Flooding risk could be addressed through and school education programmes and construction of new drainage capacity.

In the longer term, investments could be through customer engagement, introduction of intelligent network operation and enhanced operational maintenance.

Figure 32 Short, medium and long-term investment in the Nantwich TPU, distributed by option type



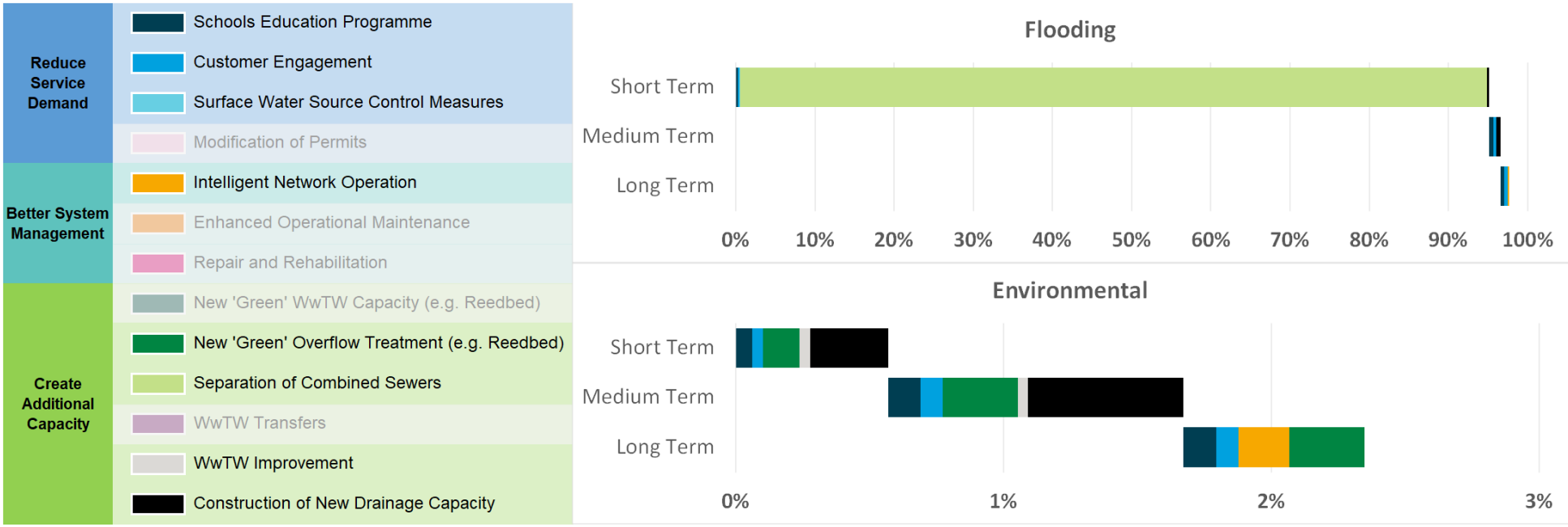
5.3.15 Northwich

The results from the DWMP show that if we were to invest in Northwich over the next 25 years, around 98% of the investment could be to address flooding risks, and around 2% of investment could be to address environmental risks.

The vast majority of investment in the short term to address flooding risks could be through the separation of combined sewers.

Environmental risks could be addressed through the short, medium and long term through the construction of new drainage capacity, new 'green' overflow treatment such as reed beds, and school and customer engagement programmes.

Figure 33 Short, medium and long-term investment in the Northwich TPU, distributed by option type



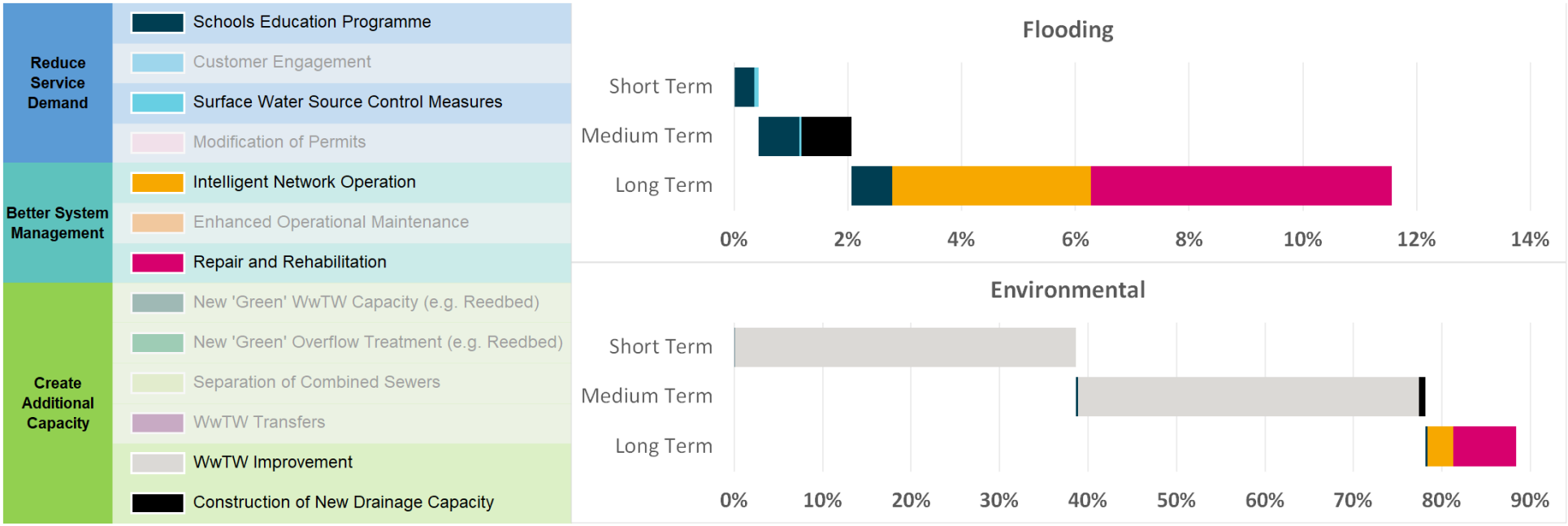
5.3.16 Runcorn

The results from the DWMP show that if we were to invest in Runcorn over the next 25 years, around 12% of the investment could be to address flooding risks, and around 88% of investment could be to address environmental risks.

In the short and medium term investment could be through wastewater treatment works improvements to ensure permit compliance and construction of new drainage capacity. We could also invest in school education and customer engagement programmes.

In the longer term, existing intelligent network monitoring systems that are already in place could be updated and replaced, and repair and rehabilitate the network.

Figure 34 Short, medium and long-term investment in the Runcorn TPU, distributed by option type



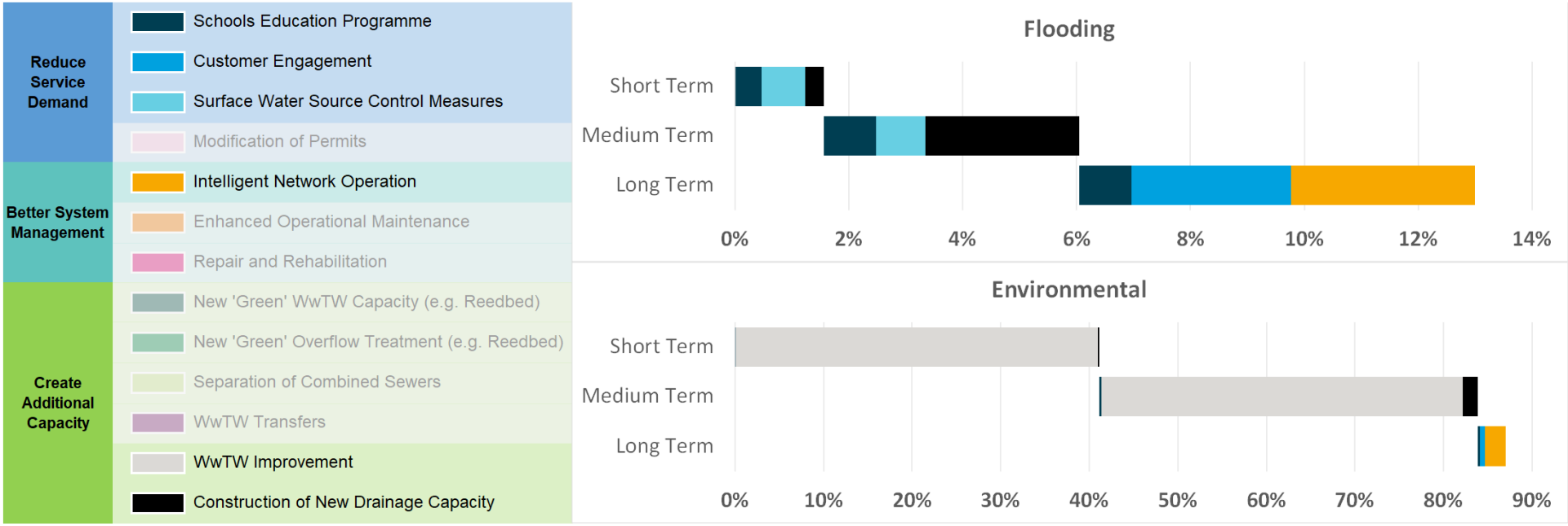
5.3.17 Sandbach

The results from the DWMP show that if we were to invest in Sandbach over the next 25 years, around 13% of the investment could be to address flooding risks, and around 87% of investment could be to address environmental risks.

In the short and medium term investment could through wastewater treatment works improvements to ensure permit compliance, construction of new drainage capacity, school education programmes and surface water source control measures such as SuDS.

In the longer term, there could be investment to introduce intelligent network monitoring systems and customer engagement programmes as well as continuing with all previous options.

Figure 35 Short, medium and long-term investment in the Sandbach TPU, distributed by option type



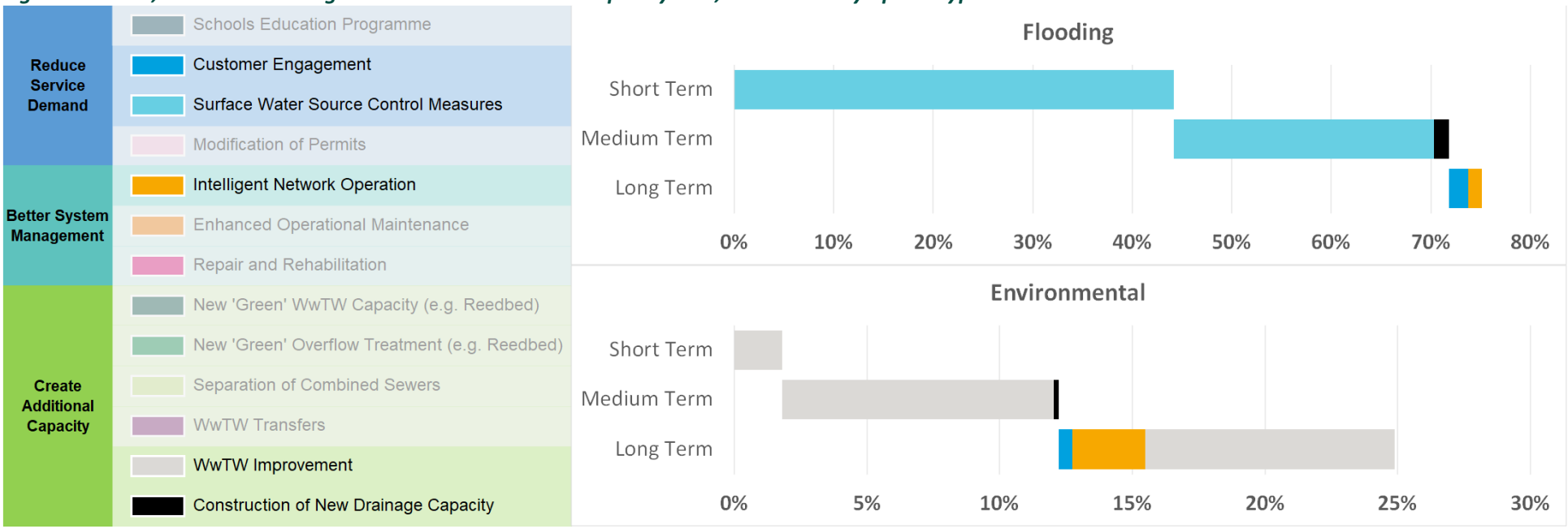
5.3.18 Tarporley

The results from the DWMP show that if we were to invest in Tarporley over the next 25 years, around 75% of the investment could be to address flooding risks, and around 25% of investment could be to address environmental risks.

In the short and medium term investment could be through wastewater treatment works improvements to ensure permit compliance, and surface water source control measures such as SuDS.

In the longer term, there could be investment in introducing intelligent network monitoring systems and customer engagement programmes, as well as continuing with all previous options.

Figure 36 Short, medium and long-term investment in the Tarporley TPU, distributed by option type



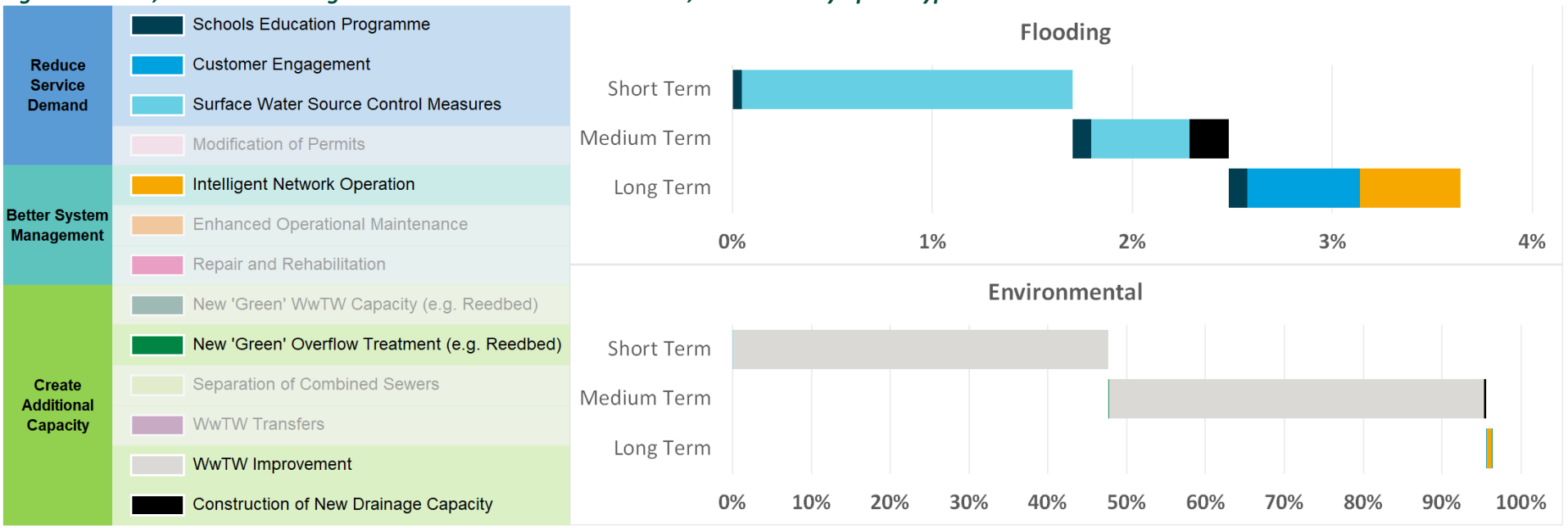
5.3.19 Tarvin

The results from the DWMP show that if we were to invest in Tarvin over the next 25 years, around 4% of the investment could be to address flooding risks, and around 96% of investment could be to address environmental risks.

In the short and medium term investment could be to address environmental risks through wastewater treatment works improvements to ensure permit compliance. Flooding risks could be addressed through surface water source control measures such as SuDS.

In the longer term, the existing intelligent network monitoring systems that are already in place could be replaced and updated, and invest in customer engagement as well as continuing with all previous options.

Figure 37 Short, medium and long-term investment in the Tarvin TPU, distributed by option type



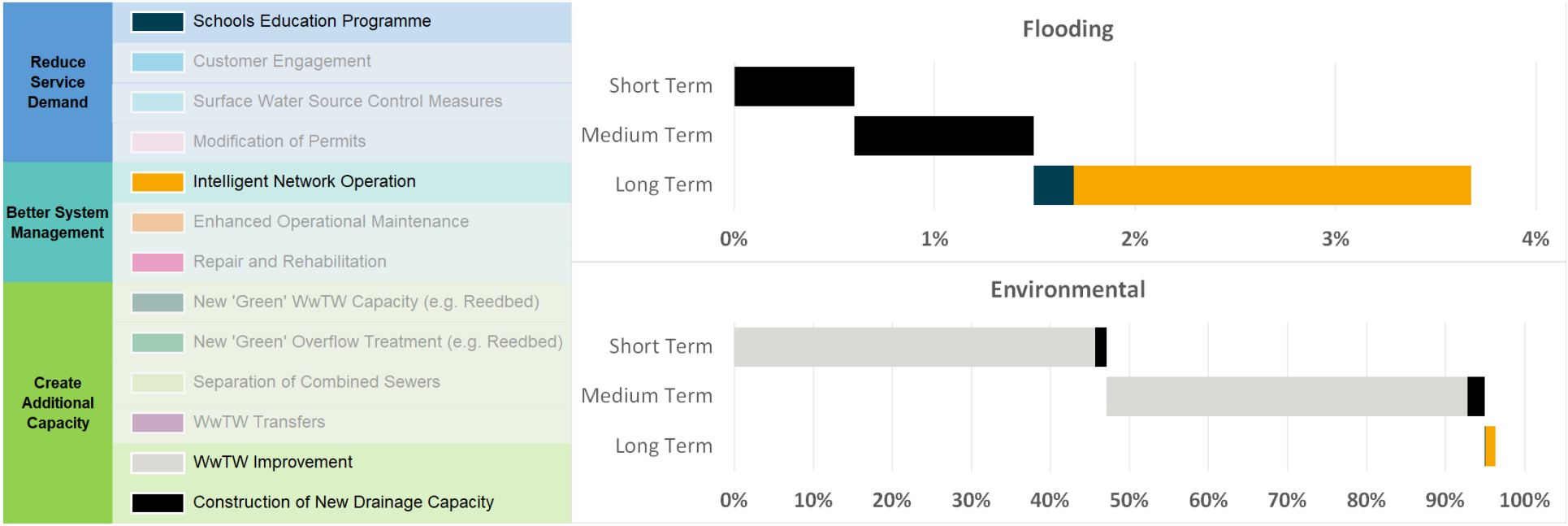
5.3.20 Warrington South

The results from the DWMP show that if we were to invest in Warrington South over the next 25 years, around 4% of the investment could be to address flooding risks, and around 96% of investment could be to address environmental risks.

In the short and medium term investment could be to address environmental risks through wastewater treatment works improvements to ensure permit compliance. Flooding risks could be addressed through the construction of new drainage capacity.

In the longer term, intelligent network monitoring systems could be introduced and invest in customer engagement.

Figure 38 Short, medium and long-term investment in the Warrington South TPU, distributed by option type

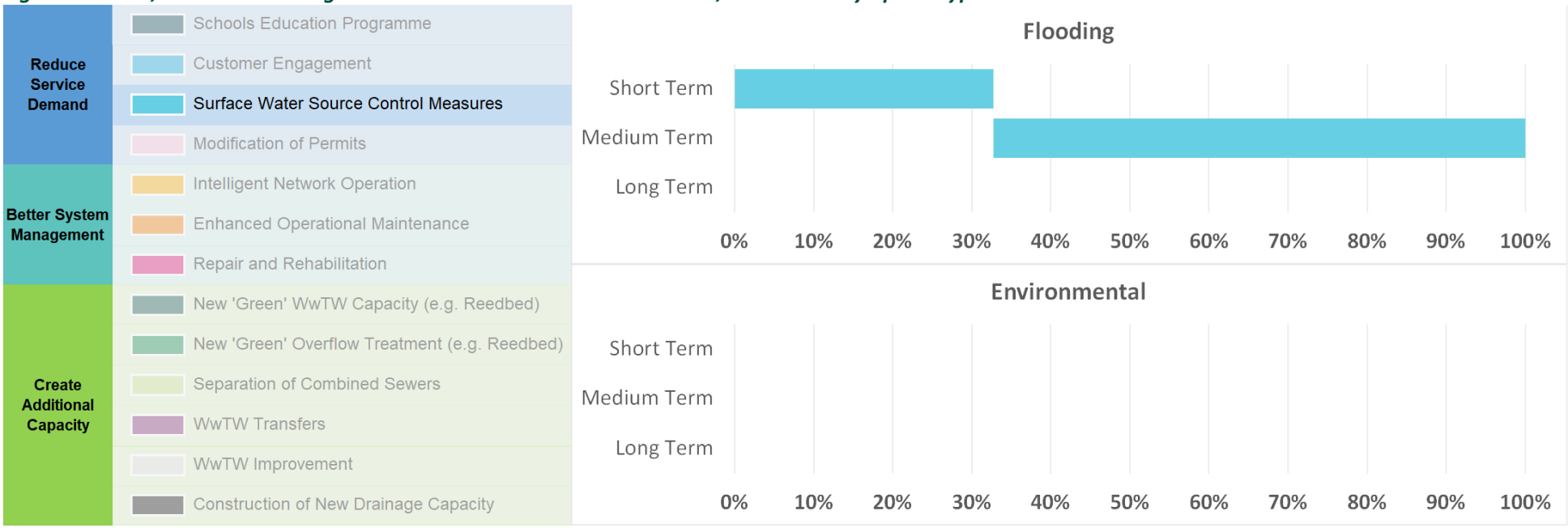


5.3.21 Waverton

The results from the DWMP show that if we were to invest in Waverton over the next 25 years, all potential investment could be to address flooding risks.

In the short and medium term investment could be through surface water control measures such as SuDS.

Figure 39 Short, medium and long-term investment in the Waverton TPU, distributed by option type



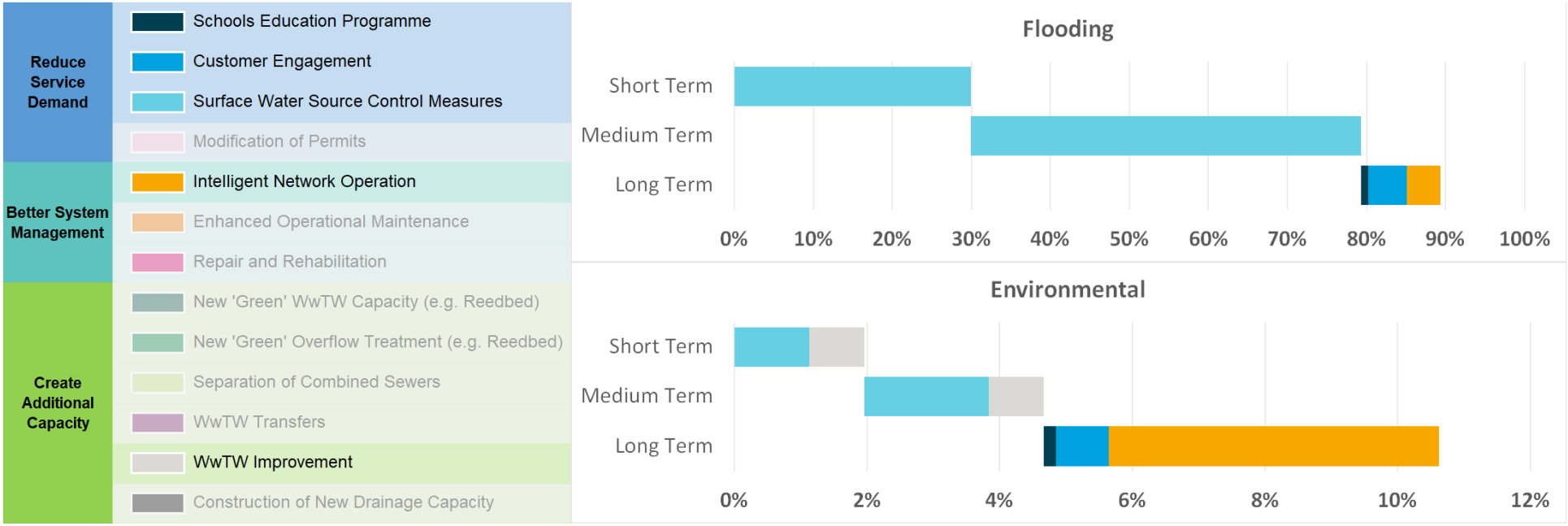
5.3.22 Weaverham

The results from the DWMP show that if we were to invest in Weaverham over the next 25 years, around 89% of the investment could be to address flooding risks, and around 11% of investment could be to address environmental risks.

In the short and medium term investment could be through surface water control measures such as, SuDS, and wastewater treatment works improvements to ensure permit compliance.

In the longer term, intelligent network monitoring systems could be introduced and invest in school educations and customer engagement programmes.

Figure 40 Short, medium and long-term investment in the Weaverham TPU, distributed by option type



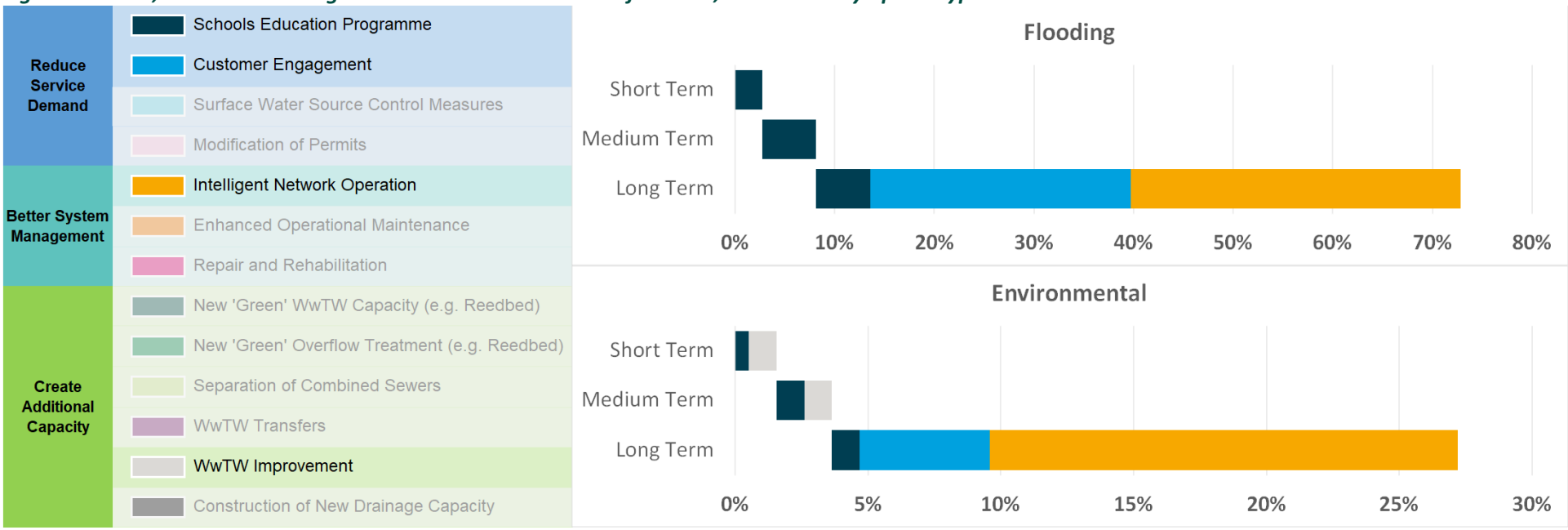
5.3.23 Winsford

The results from the DWMP show that if we were to invest in Winsford over the next 25 years, around 73% of the investment could be to address flooding risks, and around 27% of investment could be to address environmental risks.

In the short and medium term investment could be through school education programmes and wastewater treatment works improvements to ensure permit compliance.

In the longer term, intelligent network monitoring systems could be introduced and invest in customer engagement as well as continuing with school education programmes.

Figure 41 Short, medium and long-term investment in the Winsford TPU, distributed by option type



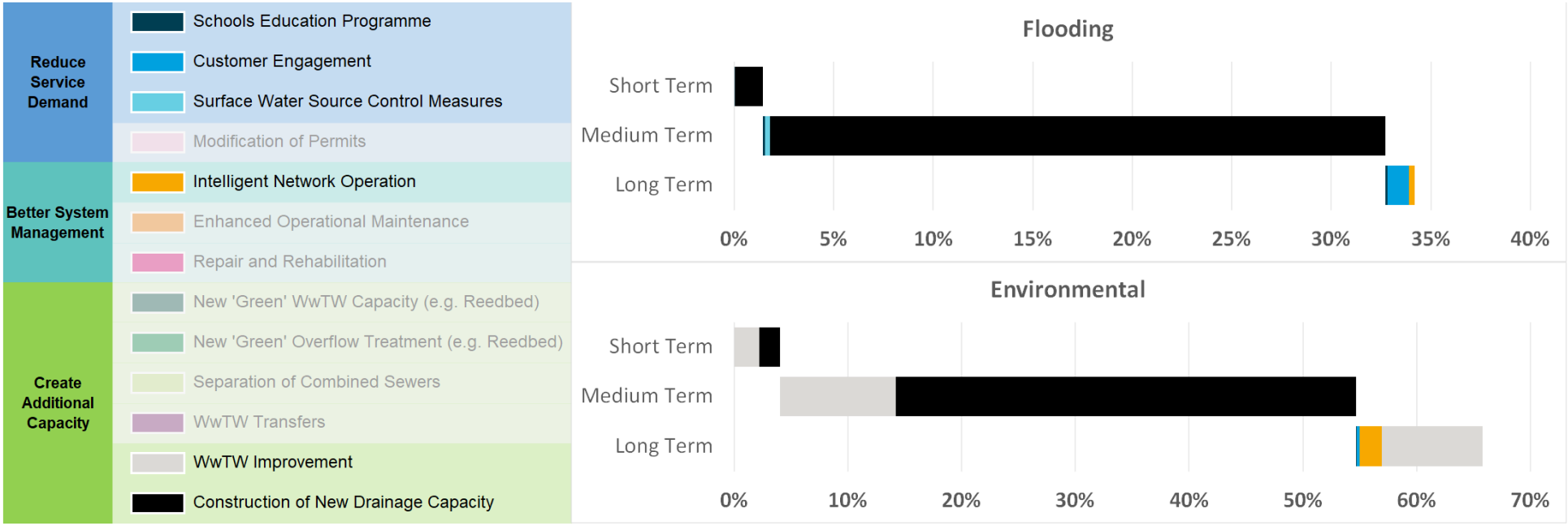
5.3.24 Wrenbury

The results from the DWMP show that if we were to invest in Wrenbury over the next 25 years, around 34% of the investment could be to address flooding risks, and around 66% of investment could be to address environmental risks.

In the short and medium term investment could be through the construction of new drainage capacity and wastewater treatment works improvements to ensure permit compliance.

In the longer term, intelligent network monitoring systems could be introduced as well as customer engagement programmes.

Figure 42 Short, medium and long-term investment in the Wrenbury TPU, distributed by option type



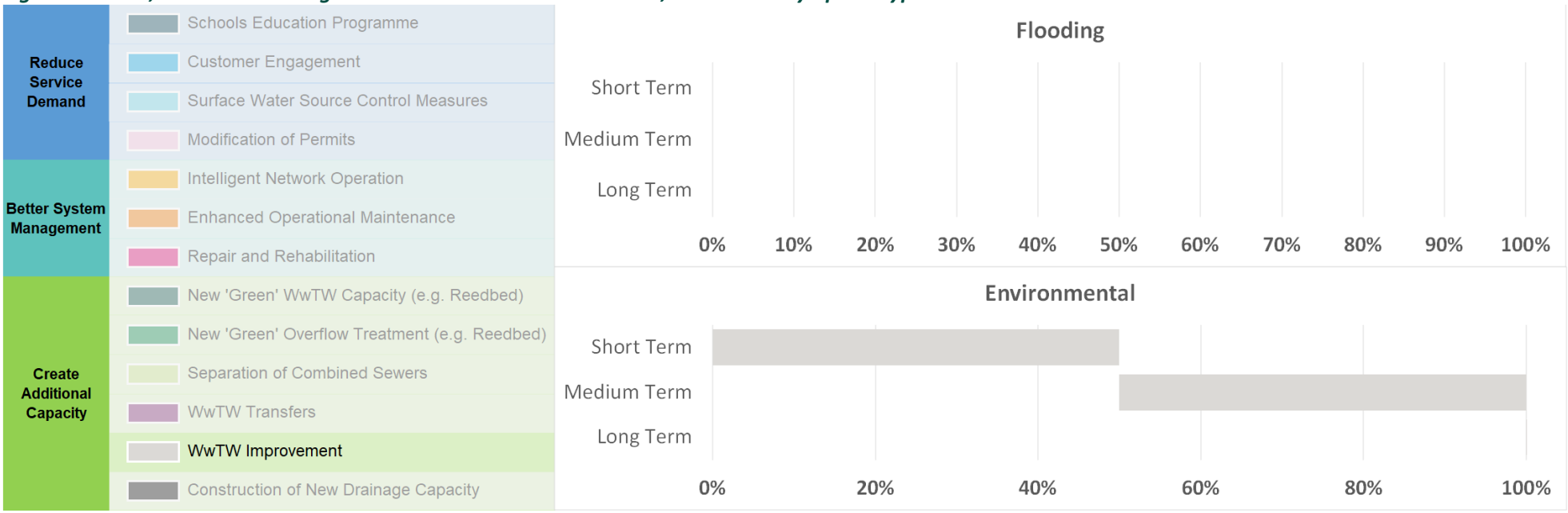
5.3.25 TPUs with population less than 2,000: Dane

The following TPUs each have a population of less than 2,000, and have therefore been grouped together:

- Ackers Crossing Avondale
- Ackers Crossing Green Gables
- Ackers Crossing Macclesfield Canal
- Alsager Crewe Road
- Arclid
- Biddulph Park
- Bosley
- Brookhouse Green
- Brereton
- Byley
- Eaton
- Flash
- Fords Lane Mow Cop
- Hassall
- Kerminsham
- Marton (Macclesfield)
- Moston South
- Moston West
- Newbold 1-14 Brownlow Heath
- Stanthorne
- Sproston
- Swettenham
- Timbersbrook
- Timbersbrook Cloud View
- Wimboldsley

All potential investment in these TPUs could address environmental risks, and could be through wastewater treatment works improvements to ensure permit compliance.

Figure 43 Short, medium and long-term investment in the Dane TPU, distributed by option type



5.3.26 TPUs with population less than 2,000: Gowy

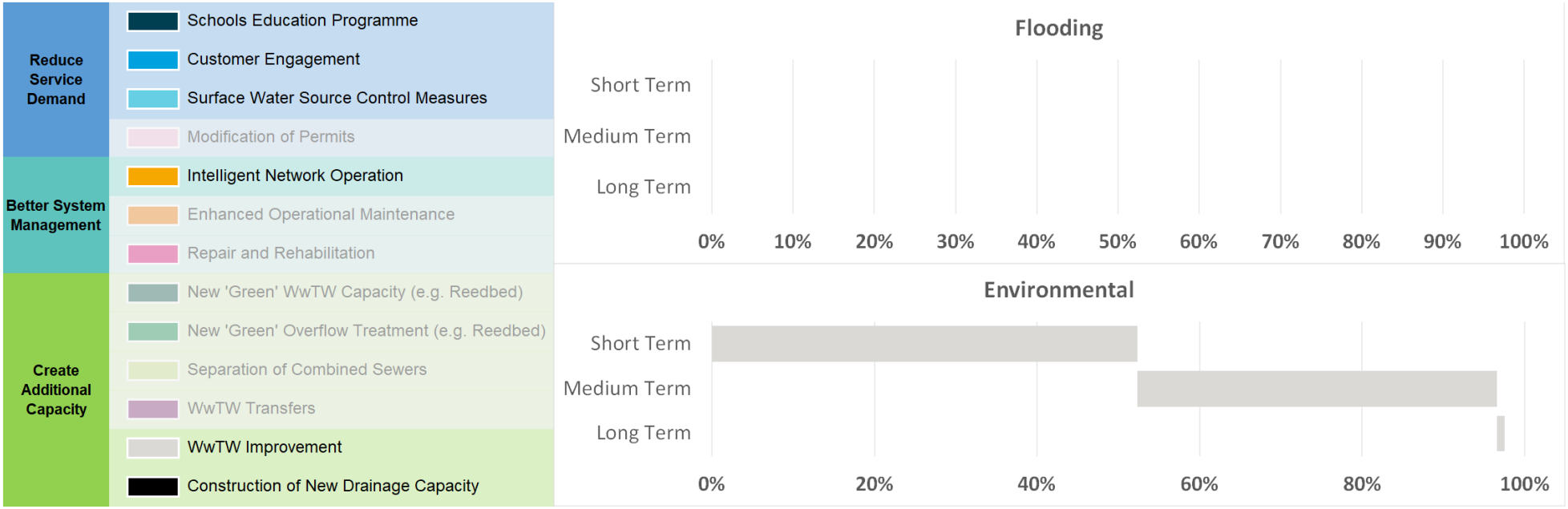
The following TPUs each have a population of less than 2,000, and have therefore been grouped together:

- Alpraham
- Barrow Broomhill
- Beeston
- Bunbury
- Calveley
- Duddon
- Ince
- Manley
- Manley New Pale Lane
- Mouldsworth
- Mouldsworth Motor Museum
- Tiverton
- Utkinton
- Wervin

All short, medium and long term potential investment to address environmental risks could be in wastewater treatment works improvements to ensure permit compliance.

Flooding risks could be addressed in the short, medium and long term using surface water control measures such as SuDS and construction of new drainage capacity.

Figure 44 Short, medium and long-term investment in the Gowy TPU, distributed by option type



5.3.27 TPUs with population less than 2,000: Weaver Lower

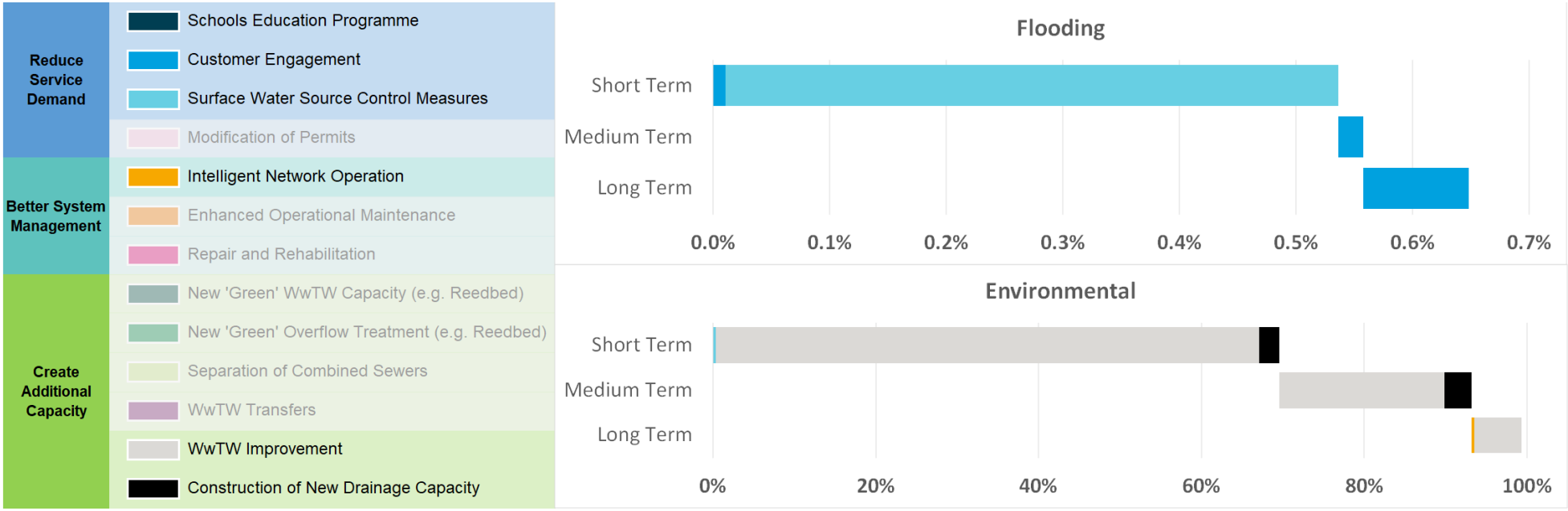
The following TPUs each have a population of less than 2,000, and have therefore been grouped together:

- Acton Bridge
- Allostock Booth Bed Lane
- Allostock Hulme Hall Lane
- Antrobus
- Aston Lane No3
- Aston Lane No9
- Cotebrook
- Crowton
- Delamere
- Dutton
- Gawsworth
- Hoo Green
- Kennel Bank
- Little Budworth North
- Little Budworth South
- Little Leigh Central
- Little Leigh East
- Marton North
- Marton South
- Nether Peover
- Newton Hollows
- Olliers (Hulme Lane, Lower Peover)
- Onston Lane
- Plumley
- Runcorn Road
- Rushton Eaton Lane
- Tabley
- Whitegate
- Whitley Town Green No 1
- Whitley Town Green No 2
- Whitley Town Green No 3

All short, medium and long term potential investment to address environmental risks could be wastewater treatment works improvements to ensure permit compliance.

Flooding risks could be addressed in the short, medium and long term using surface water control measures such as SuDS and construction of new drainage capacity.

Figure 45 Short, medium and long-term investment in the Weaver Lower TPU, distributed by option type



5.3.28 TPUs with population less than 2,000: Weaver Upper

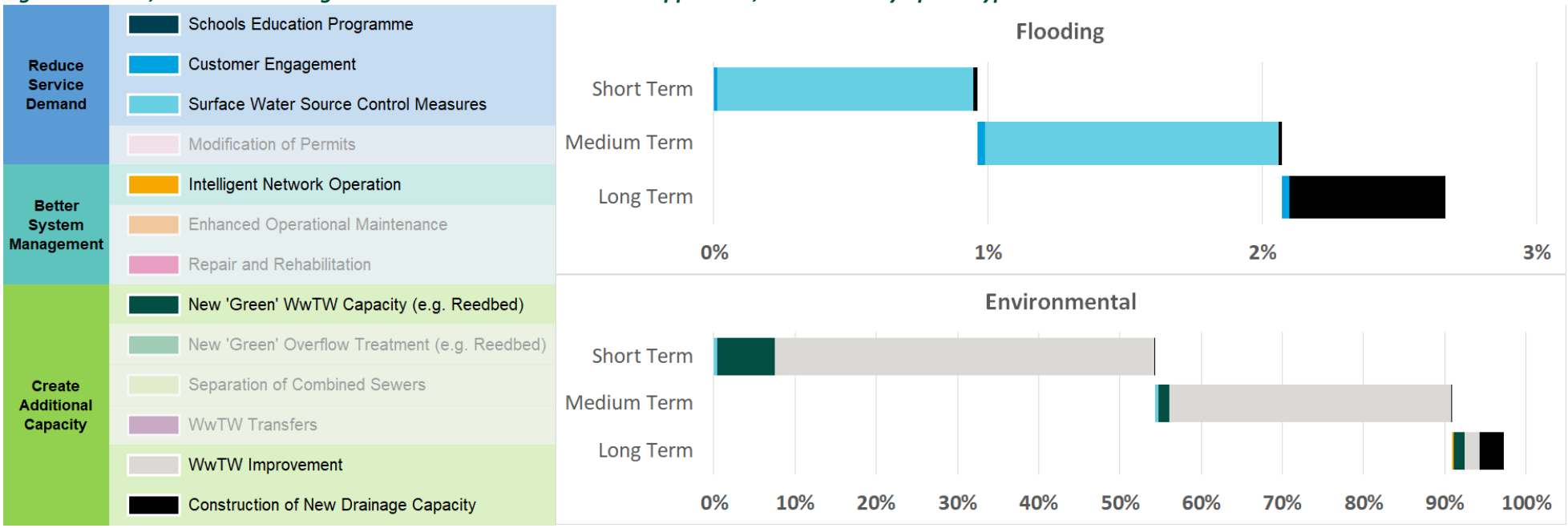
The following TPUs each have a population of less than 2,000, and have therefore been grouped together:

- Adderley
- Audlem
- Austerson
- Baddington
- Betley
- Bickerton
- Brindley
- Buerton North
- Buerton South
- Bulkeley
- Calver Hall North
- Calver Hall South
- Calverhall (Prees Road)
- Checkley
- Cholmondeston

All short, medium and long term potential investment to address environmental risks could be wastewater treatment works improvements to ensure permit compliance and new 'green' wastewater capacity such as reed beds.

Flooding risks could be addressed in the short, medium and long term using surface water control measures such as SuDS and construction of new drainage capacity.

Figure 46 Short, medium and long-term investment in the Weaver Upper TPU, distributed by option type



6. Next steps

The DWMP is inherently not a static plan so we will continue to work with stakeholders to develop partnership options and strategies which will make a difference within the Weaver Gowy SPA.

We are currently at draft publication (Figure 47) and between now and final publication in March 2023, we will reflect on updated guidance such as WINEP and storm overflows, and incorporate the feedback that we receive to ensure that the DWMP can build the best foundation to allow the North West to thrive in years to come.

Figure 47 Timeline between draft and final publication

We welcome your feedback on our draft publication of our first DWMP. Please get in touch using our mailbox:

DWMPConsultation@uuplc.co.uk

7. References

[1] https://storymaps.arcgis.com/collections/4305167c12e044dd9cde46bee044878a?item=1

[2] https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3205

[3] https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3525

[4] https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3524

[5] https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3120

8. Appendix

Table A.1 List of TPUs which did not trigger for RBCS across environment, flooding or wastewater treatment works categories

TPU name	Environment	Flooding	Wastewater Treatment Works
Ackers Crossing Avondale	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Ackers Crossing Green Gables	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Ackers Crossing Macclesfield Canal	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Allostock Booth Bed Lane	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Allostock Hulme Hall Lane	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Alsager Crewe Road	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Antrobus	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Arclid	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Aston Lane No3	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Aston Lane No9	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Austerson	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Barrow Broomhill	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Beeston	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Betton Crossing (Betton)	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Biddulph Park	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Brereton	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Brindley	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Brookhouse Green	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Buerton North	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Byley	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Calver Hall South	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Calverhall (Prees Road)	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Checkley	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Cholmondeston	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Church Minshull East	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Church Minshull West	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Crowton	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Darnhall	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Delamere	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Dunkirk	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Dutton	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Eaton	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Flash	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Fords Lane Mow Cop	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Gorsey Bank	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Hassall	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Hilbre Bank	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Hoo Green	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Kennel Bank	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS

Kerminsham	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Little Budworth North	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Little Leigh Central	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Little Leigh East	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Manley	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Manley New Pale Lane	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Marton South	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Moston South	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Moston West	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Mouldsworth	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Mouldsworth Motor Museum	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Newbold 1-14 Brownlow Heath	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Newton Hollows	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Oldfields	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Olliers (Hulme Lane, Lower Peover)	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Onston Lane	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Runcorn Road	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Rushton Eaton Lane	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Sproston	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Stanthorne	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Tabley	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Timbersbrook	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Timbersbrook cloud view	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Tiverton	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Vale Royal Abbey	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Wervin	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Whitegate	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Whitley Town Green No 1	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Whitley Town Green No 2	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Whitley Town Green No 3	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS
Wimboldsley	Not triggered in RBCS	Not triggered in RBCS	Not triggered in RBCS

United Utilities Water Limited / United Utilities Group PLC

Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

unitedutilities.com

United Utilities

Water for the North West