United Utilities Water

DRAFT Drainage and Wastewater Management Plan 2023

Upper Mersey DWMP

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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 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.

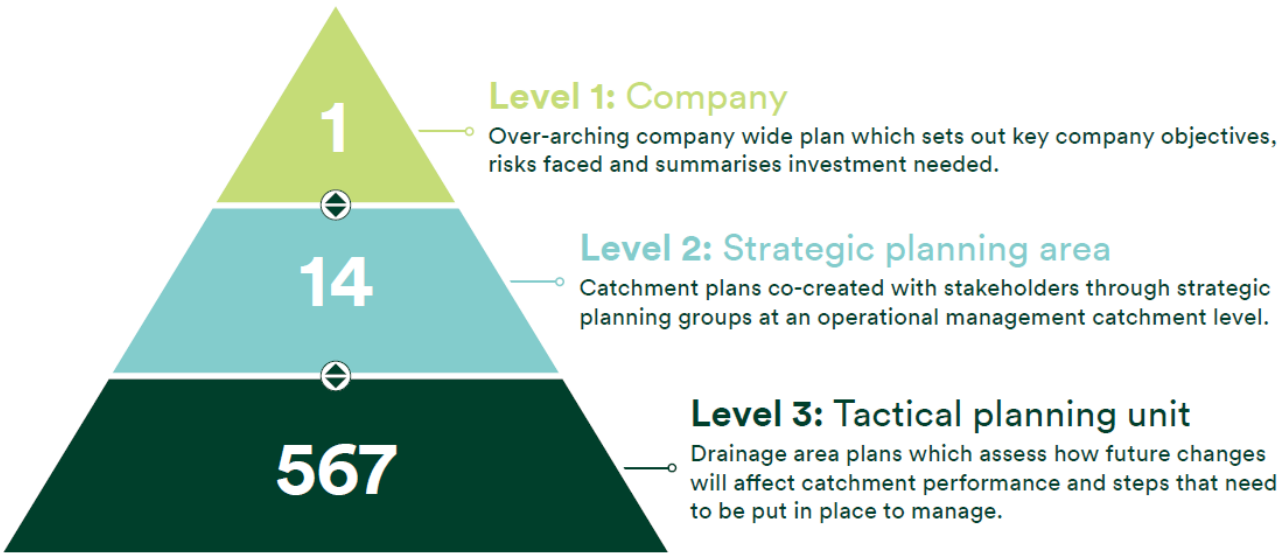
By developing the DWMP, we have an opportunity to:

- 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 Upper Mersey SPA.

2. Background to the Upper Mersey catchment

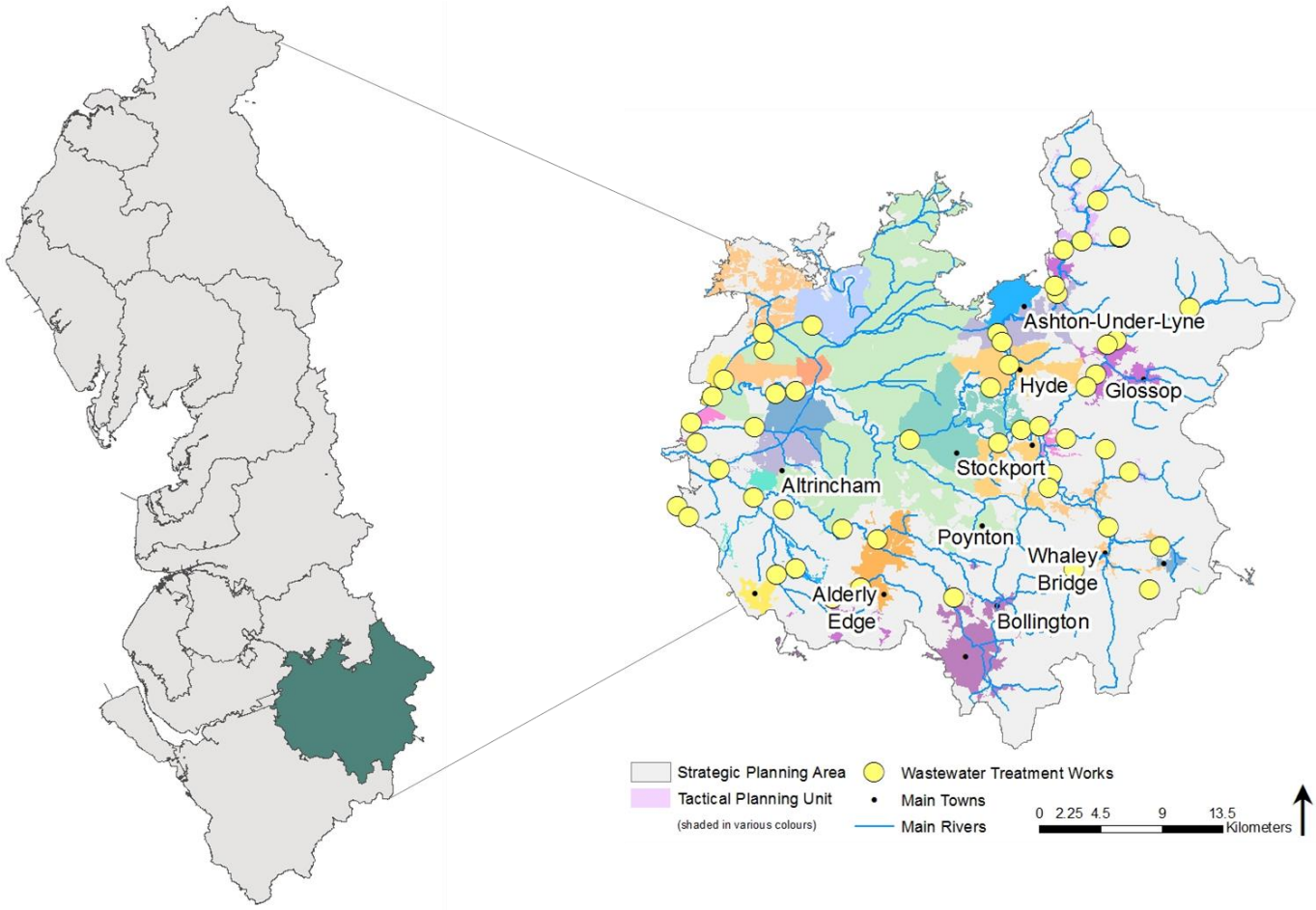
The Upper Mersey is a large catchment (1182km^2) in the south-east of the region incorporating a significant area of Greater Manchester and parts of the South Pennine Moors [1]. The catchment has varied land use ranging from rural areas in the south-east such as Whaley Bridge and Buxton as well as semi-urban areas such as Alderley Edge and Knutsford and urban areas such as Stockport and Altrincham. The catchment is host to the Rivers Etherow, Goyt and Tame as well as the Rivers Bollin and Dean [1].

There are two main operational sub catchments in the Upper Mersey:

- Bollin Dean Mersey Upper – the sub catchment is on the western side of the Upper Mersey catchment and runs from the edge of the Peak District National Park to the Manchester ship canal [2].
- Goyt Etherow Tame – the sub catchment is on the eastern side of the Upper Mersey and runs through large portions of heavily modified water courses in Greater Manchester towards the Manchester Ship Canal.

There are 48 wastewater tactical planning units (TPU), also known as wastewater treatment works (WwTW drainage catchments) within the Upper Mersey 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 Davyhulme to smaller, rural catchments such as High Legh. The TPUs are highlighted in Figure 3.

Figure 3 Map of the Upper Mersey SPA



There are numerous strategic management plans within the Upper Mersey that are owned by various other organisations. Within the Upper Mersey 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 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 Upper Mersey catchment
River Basin Management Plan (RBMP)[3] **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 invasive non-native species, physical modifications and pollution from a range of sources.
Flood Risk Management Plan (FRMP) [4] **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 Upper Mersey catchment, over 24,000 people (2%), 10,500 residential properties and 3,100 non-domestic properties are at risk of fluvial flooding. Approximately 7% of agricultural land and 50% of Ramsar sites are at risk of flooding. A key challenge in this catchment is managing ageing infrastructure and complex interactions between sources of flooding. There is a need to better understand surface water flooding and to work in partnership where surface water, fluvial and sewer flooding interact. The December 2015 floods affected numerous areas of the catchment. Since the floods, a programme of recovery is in place which includes asset inspection and repair, community engagement and investigations to understand flood mechanisms. Economic growth and development in Manchester could present collaboration and funding opportunities if complementary options can be identified to reduce flood risk and allow development. Across the Upper Mersey catchment there are 21 measures from earlier plans to manage flood risk.

Surface Water Management Plan (SWMP) [5] **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] **Owner:** Upper Mersey Catchment Partnership	The aim of the partnership is to bring together stakeholders to create and deliver a focussed, sustainable and collaborative action plan to deliver benefits within the catchment.	The catchment partnership's mission is to: • promote and encourage the preservation, restoration, and development of urban and rural waterways and environment for the benefit of the public; and • promote the use and access of waterways for social interests and recreation. The Upper Mersey covers a varied area of rural, intensely urban and semi-urban land. The watercourses in the Upper Mersey have classifications that fall between good and poor (based on 2016 data). The majority of waterbodies in the catchment, approximately 70%, are classified as moderate. The good classifications are in the upland areas to the east of the catchment, with the poor classified waters being found in the low lying, more urbanised areas near Manchester and Stockport.

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 benefits 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 Upper Mersey SPA, we have engaged with stakeholders such as:

- The Environment Agency;
- Greater Manchester Combined Authority (GMCA); and
- Mersey Rivers Trust (host of the Upper Mersey 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 Upper Mersey 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.

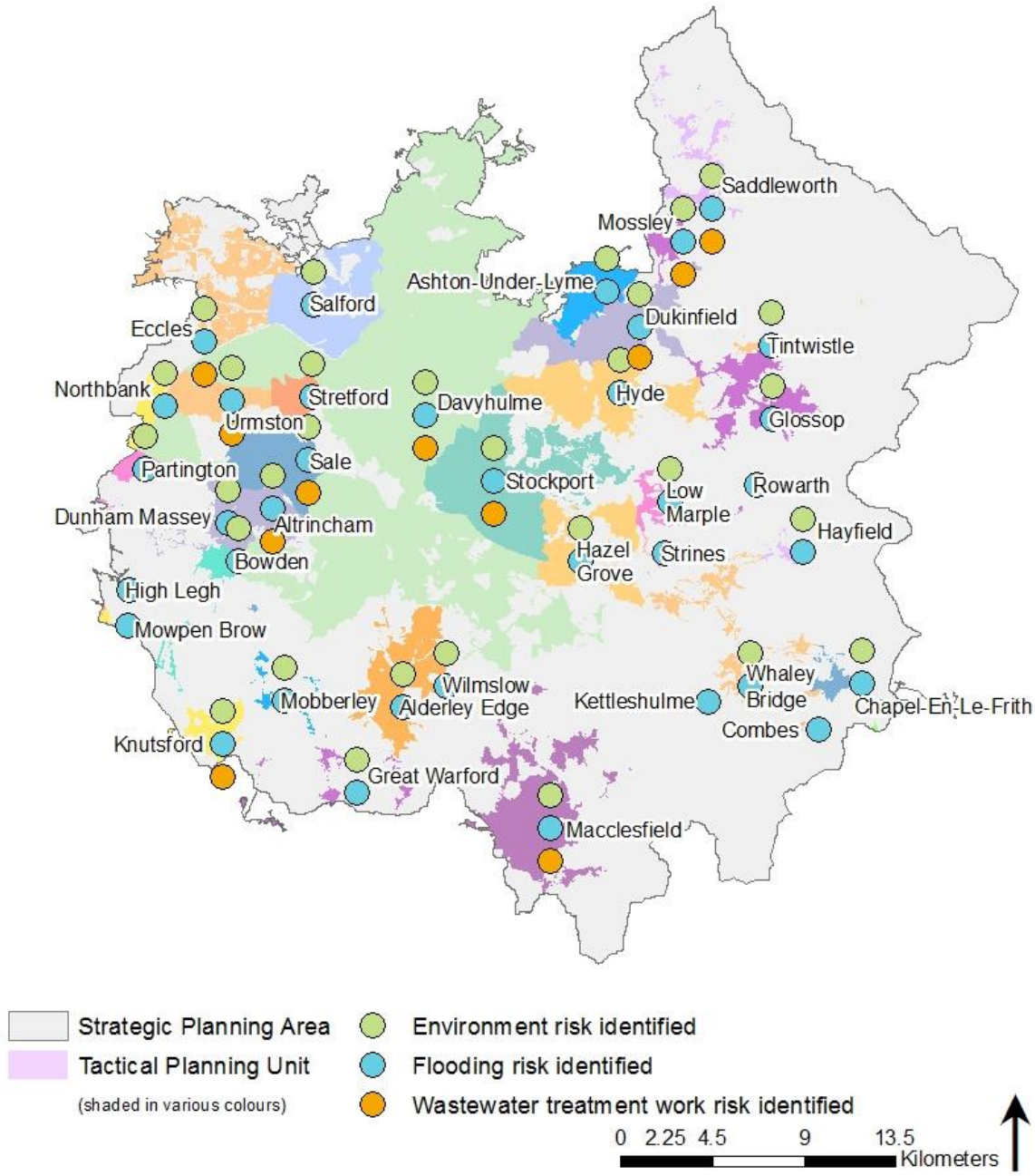
Within the Upper Mersey SPA, the RBCS stage identified 36 out of 48 TPUs that required further investigation and therefore passed onto the BRAVA stage (outlined in Section 3.2).

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

- Storm Overflow Assessment Framework – (30/48) – Environment; and
- External Sewer Flooding – (33/48) – Flooding.

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

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



3.2 Baseline Risk and Vulnerability Assessment (BRAVA) and resilience

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

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

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

The BRAVA and resilience results for the Upper Mersey 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
Alderley Edge						
Altrincham						
Ashley						
Ashton-Under-Lyne						
Bowden						
Chapel-en-le-Frith						
Combes						
Davyhulme						
Dukinfield						
Dunham Massey						
Eccles						
Glossop						
Great Warford						
Hayfield						
Hazel Grove						
High Legh						
Hyde						

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
Kettleshulme						
Knutsford						
Low Marple						
Macclesfield						
Mobberley						
Mossley						
Mowpen Brow						
Northbank						
Partington						
Rowarth						
Saddleworth						
Sale						
Salford						
Stockport						
Stretford						
Strines						
Tintwistle						
Urmston						
Whaley Bridge						
Wilmslow						

Table 3 Flooding BRAVA results

Key

No concern (forecast)

Potential area of focus (forecast)

Area of focus (forecast)

Not assessed

Tactical Planning Unit	Flooding												
	Internal Flooding Risk			External Flooding Risk			Sewer Collapse Risk	Risk of Flooding in a Storm (1:50yr)		Flooding of Open Spaces			Blockage Assessment
	2020	2030	2050	2020	2030	2050	2020	2020	2050	2020	2030	2050	2020
Alderley Edge													
Altrincham													
Ashley													
Ashton-Under-Lyne													
Bowden													
Chapel-en-le-Frith													
Combes													
Davyhulme													
Dukinfield													
Dunham Massey													
Eccles													
Glossop													
Great Warford													
Hayfield													
Hazel Grove													
Heron Lane													
High Legh													
Hyde													

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
Kettleshulme													
Knutsford													
Low Marple													
Macclesfield													
Mobberley													
Mossley													
Mowpen Brow													
Northbank													
Partington													
Rowarth													
Saddleworth													
Sale													
Salford													
Stockport													
Stretford													
Strines													
Tintwistle													
Urmston													
Whaley Bridge													
Wilmslow													

Table 4 Wastewater treatment works BRAVA results

Tactical Planning Unit	Wastewater Treatment Works		
	Risk to wastewater treatment works (WwTW) capacity		
	2020	2030	2050
Alderley Edge			
Altrincham			
Ashton-Under-Lyne			
Bowden			
Chapel-en-le-Frith			
Davyhulme			
Dukinfield			
Dunham Massey			
Eccles			
Glossop			
Great Warford			
Hayfield			
Hazel Grove			
High Legh			
Hyde			
Knutsford			
Low Marple			
Macclesfield			
Mobberley			
Mossley			

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

Tactical Planning Unit	Wastewater Treatment Works		
	Risk to wastewater treatment works (WwTW) capacity		
	2020	2030	2050
Mowpen Brow			
Northbank			
Partington			
Saddleworth			
Sale			
Salford			
Stockport			
Stretford			
Urmston			
Whaley Bridge			
Wilmslow			

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
Alderley Edge			
Altrincham			
Ashley			
Ashton-Under-Lyne			
Bowden			
Castleshaw			
Chapel-en-le-Frith			
Combes			
Davyhulme			
Dukinfield			
Dunham Massey			
Eccles			
Glossop			
Great Warford			
Hayfield			
Hazel Grove			
High Legh			
Holly Grove			
Hyde			
Kettleshulme			
Knutsford			

Resilience	
	More resilient
	Less resilient
	Not assessed

	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
Low Marple			
Lymefield Terrace			
Macclesfield			
Millbrook Cottages			
Mobberley			
Mossley			
Mowpen Brow			
Northbank			
Partington			
Rowarth			
Saddleworth			
Sale			
Salford			
Stockport			
Stretford			
Strines			
Tintwistle			
Turf Lea			
Urmston			
Warburton Lane			
Whaley Bridge			
Wilmslow			

3.3 Problem characterisation

3.3.1 Complex catchments

Complex catchments were determined through problem characterisation using a combination of complex and strategic catchment scores based on strategic need (largely derived from growth and climate forecast models) and modelled risks in each of the TPUs (largely based on BRAVA). Within the Upper Mersey, three TPUs were identified to be 'complex' based on problem characterisation:

- Knutsford;
- Macclesfield; and
- Salford.

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 there are a number of TPUs in the Upper Mersey catchment which have been identified as either having 'strategic growth' or being linked to potential solutions to nearby growth, and for the purpose of this document, they have been grouped together as the 'Manchester West' area. The key TPUs are:

- Altrincham;
- Davyhulme;
- Partington;
- Sale;
- Stretford; and
- Urmston.

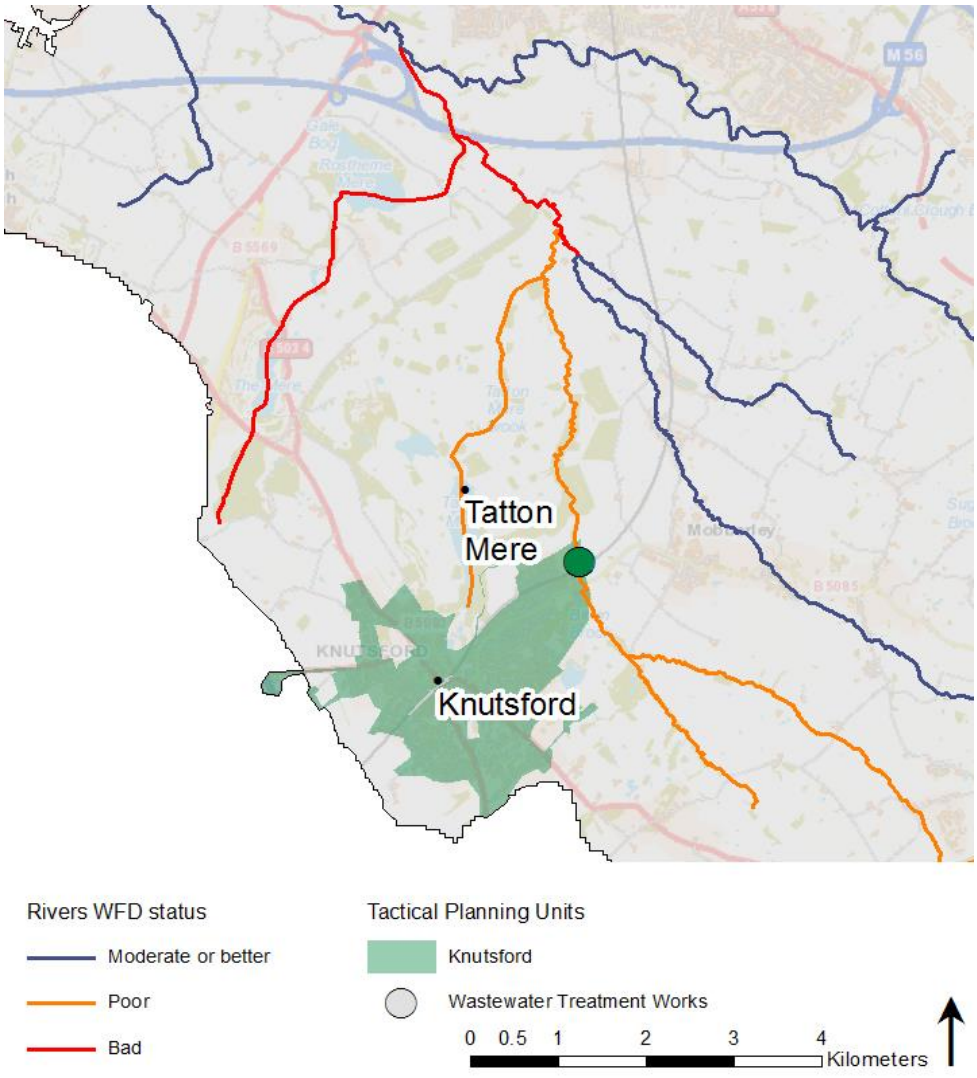
Note: Water Industry National Environment Programme (WINEP) and storm overflows guidance are still being developed. This could lead to significant changes in preferred options and could result in large-scale, short and long-term investment needs. This will be fully reviewed between draft and final DWMP 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 Knutsford

The Knutsford TPU (Figure 6) is to the south-west of the Upper Mersey SPA. Across the TPU approximately 200km of sewer network serves a residential population of nearly 13,000 people and over 6,000 properties, with the population expected to grow 21% by 2050.

The Knutsford TPU is a complex catchment with ongoing investigations and the potential for significant investment through the still developing Water Industry National Environment Programme (WINEP), in order to ensure protection of the environment. The Birkin Brook watercourse, to which the wastewater treatment works discharges, is classed as 'poor' under the Water Framework Directive (WFD) 2019. There are two 'Reasons for Not Achieving Good' (RNAG) drivers attributed to the water industry for Birkin Brook, relating to phosphate, and macrophytes and phytobenthos combined [7], which are identified as being addressed through the current investment cycle 2020 – 2050; however, the watercourse is small, and both the brook and nearby meres are sensitive to water quality changes due to low dilution, creating risk and uncertainty around performance. There are 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 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.

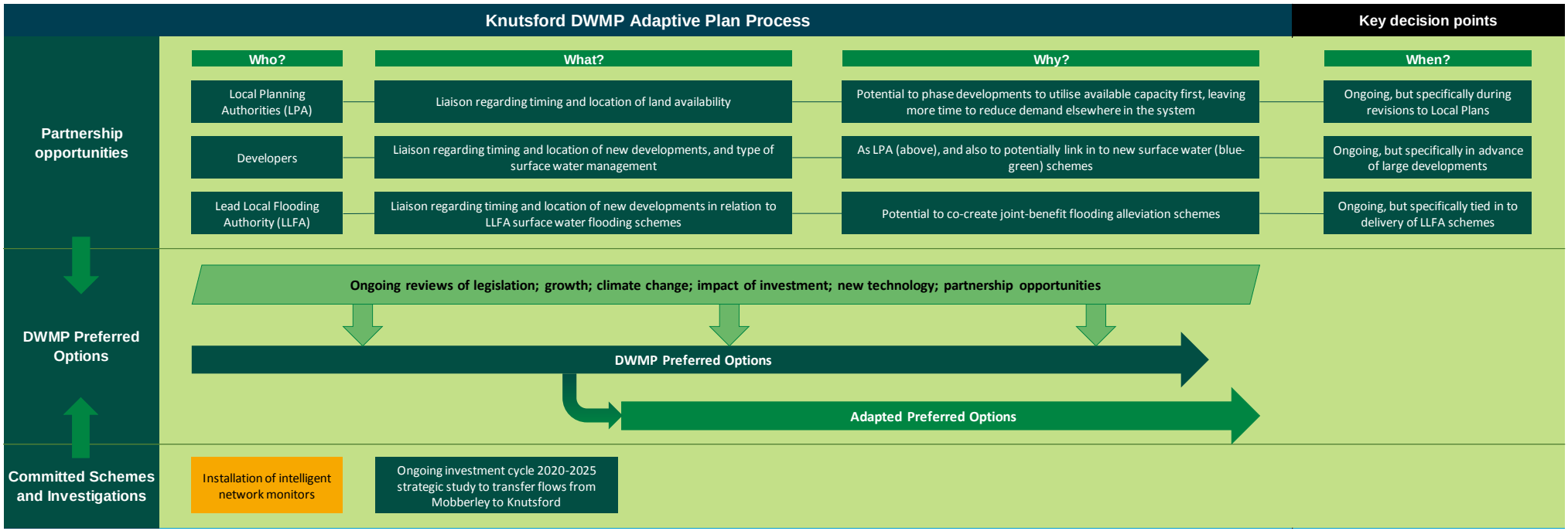
Figure 6 Map of the Knutsford TPU



3.3.3.1 Knutsford adaptive plan

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

Figure 7 Knutsford 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 Knutsford adaptive plan, reflecting the different option types identified as being appropriate for Knutsford. 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.

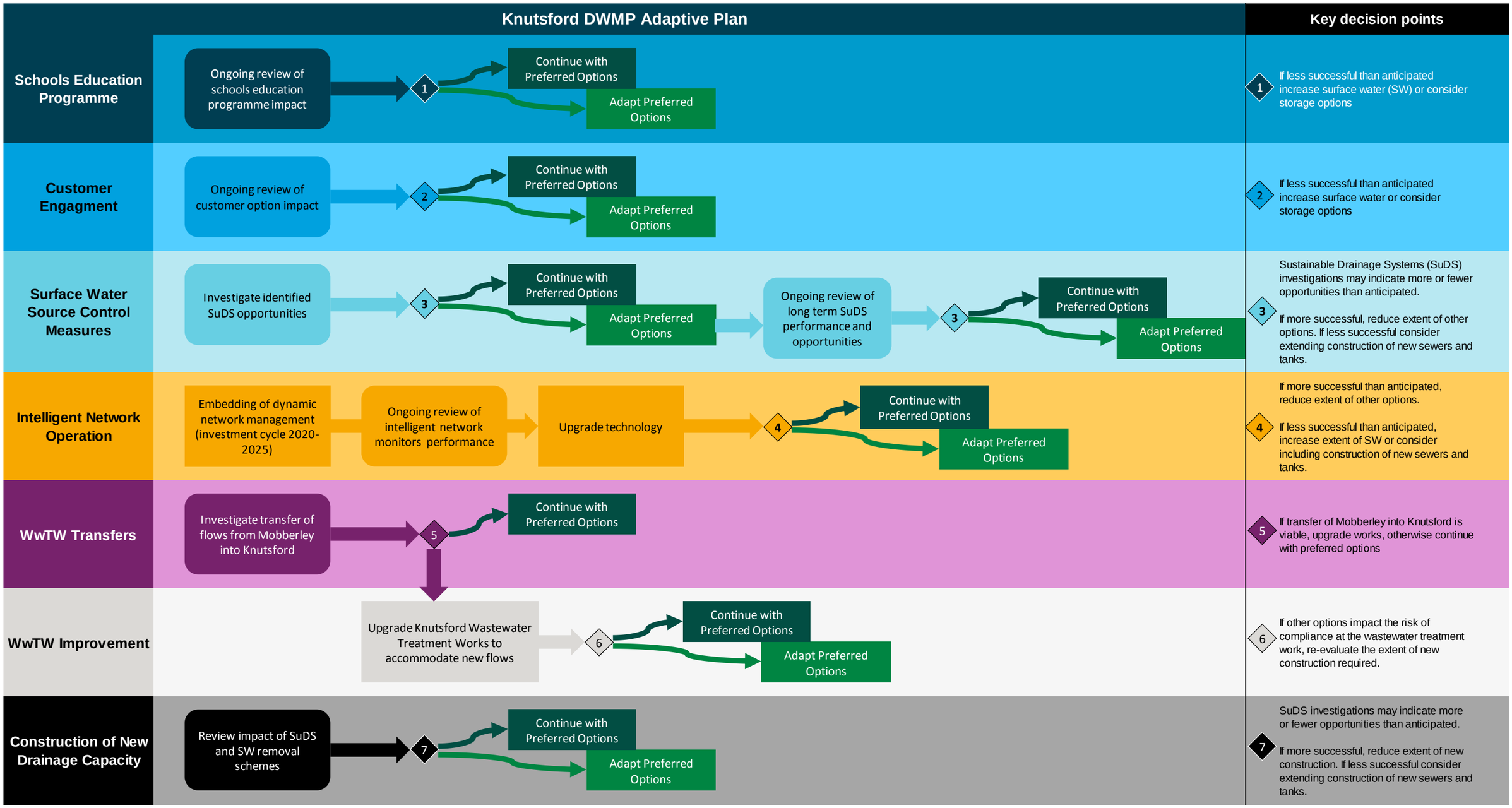
Within Knutsford, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 Knutsford adaptive plan – Possible adaptive pathways as knowledge and opportunities change over time



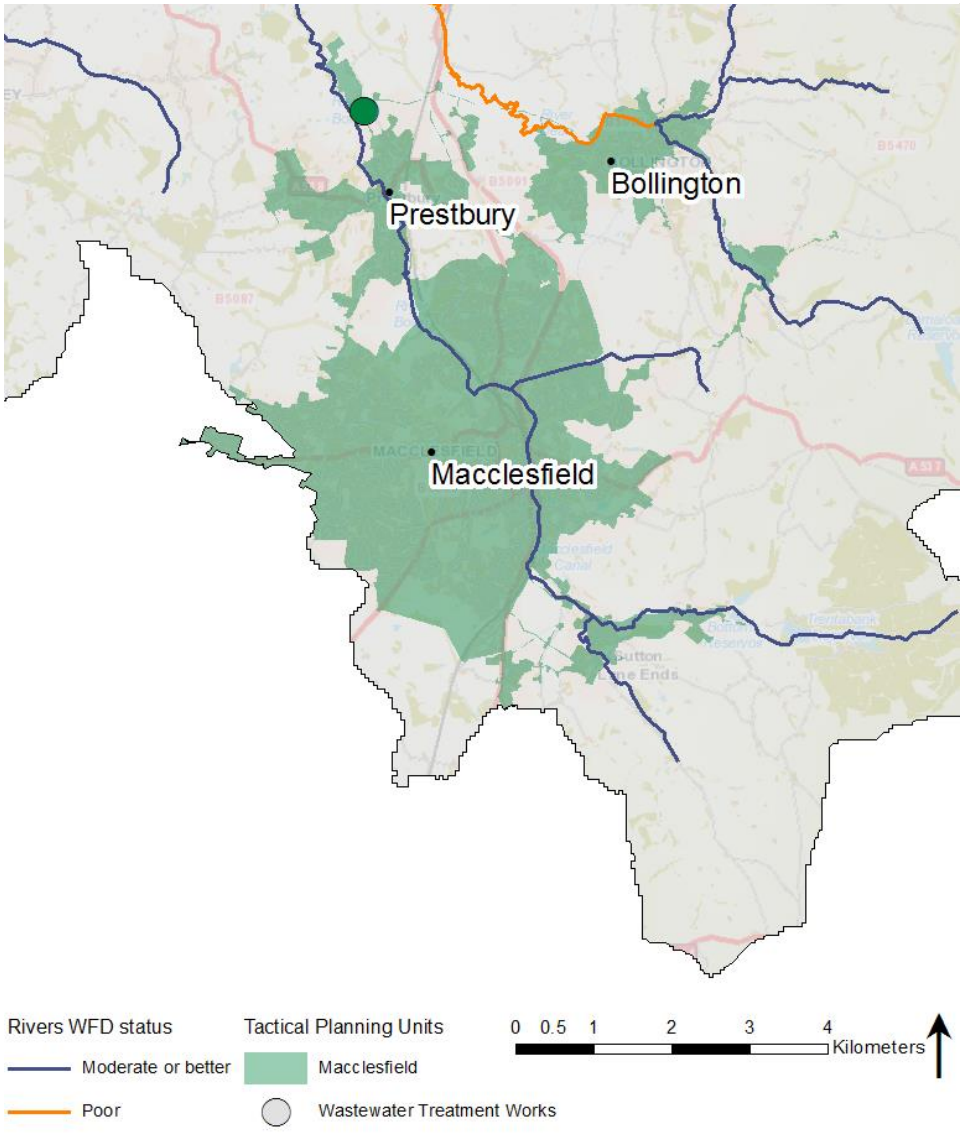
3.3.4 Macclesfield

The Macclesfield TPU (Figure 9) is in the south of the Upper Mersey SPA. Across the TPU approximately 800km of sewer network serves over 32,000 properties and a residential population of nearly 70,000 people, which is expected to grow 19% by 2050.

The majority of watercourses are classed as 'moderate' under the WFD 2019, including the River Bollin which is the main watercourse passing through Macclesfield and Prestbury, and to which the wastewater treatment works discharges. The River Dean to the north of the TPU near Bollington is classed as 'poor', although the majority of the watercourse is outside of the TPU. Both watercourses have RNAGs[8, 9] attributed to the water industry for water quality and biological measures, which are being addressed through the current investment cycle 2020 – 2025 and further work may be needed in subsequent WINEPs following completion of investigations.

Macclesfield is a complex catchment, with challenges such as ageing infrastructure and a growing population. There are 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 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, and it is likely that both will need upgrading to meet WFD targets.

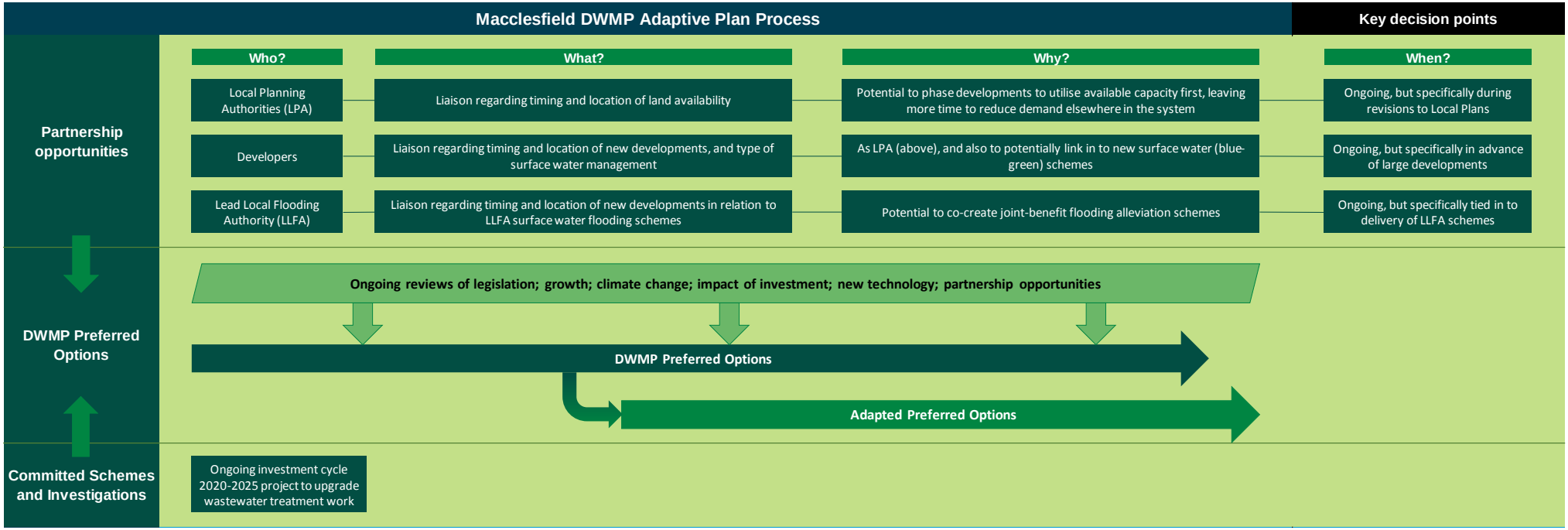
Figure 9 Map of the Macclesfield TPU



3.3.4.1 Macclesfield adaptive plan

The first part of the adaptive plan process (Figure 10) highlights the importance of partnership working and regular data reviews.

Figure 10 Macclesfield 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 7.

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

Type of data or information	Possible impacts of changes
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 11 shows the second part of the Macclesfield adaptive plan, reflecting the different option types identified as being appropriate for Macclesfield. 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.

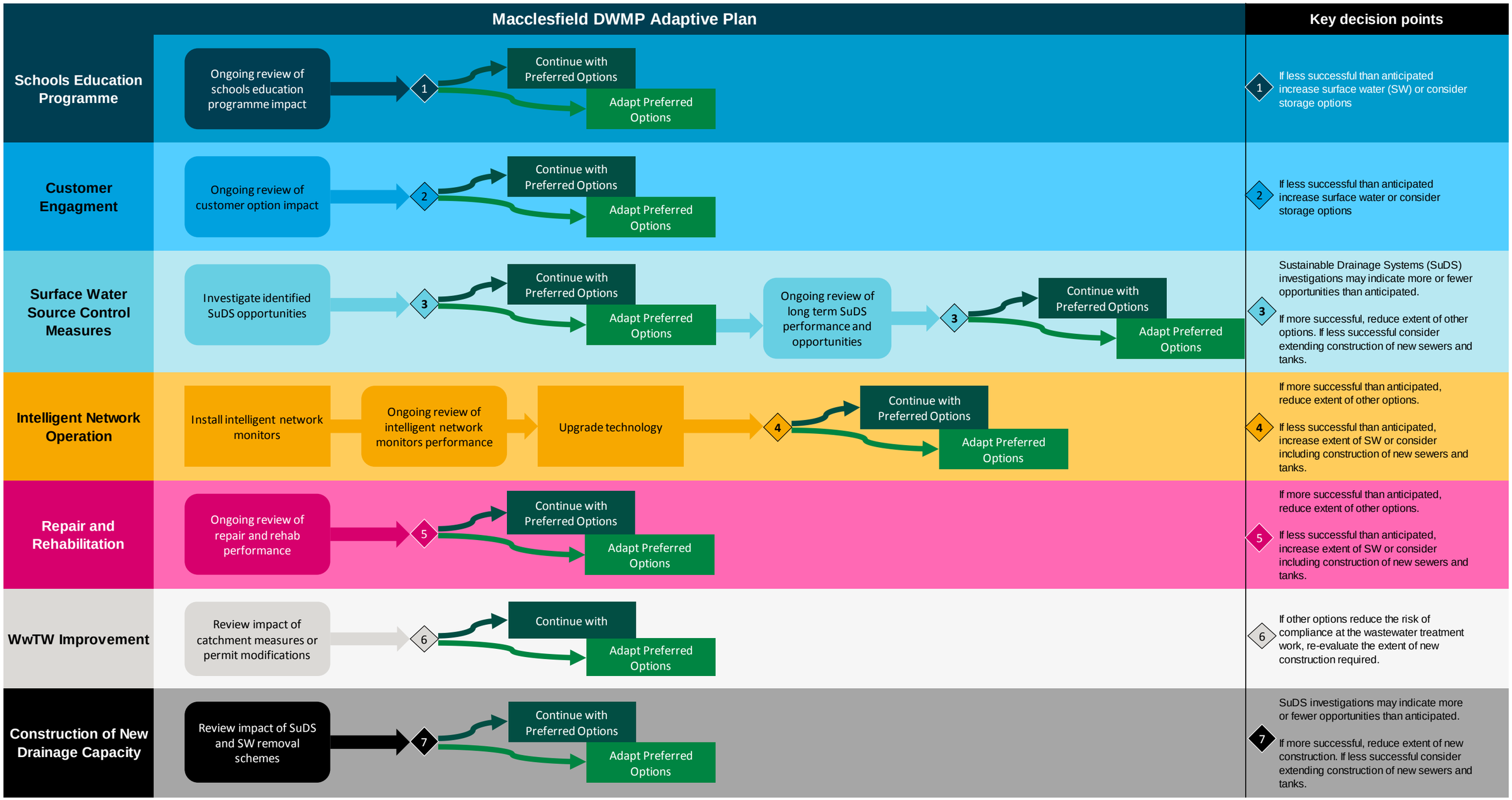
Within Macclesfield, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 10. 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 11 Macclesfield adaptive plan – Possible adaptive pathways as knowledge and opportunities change over time

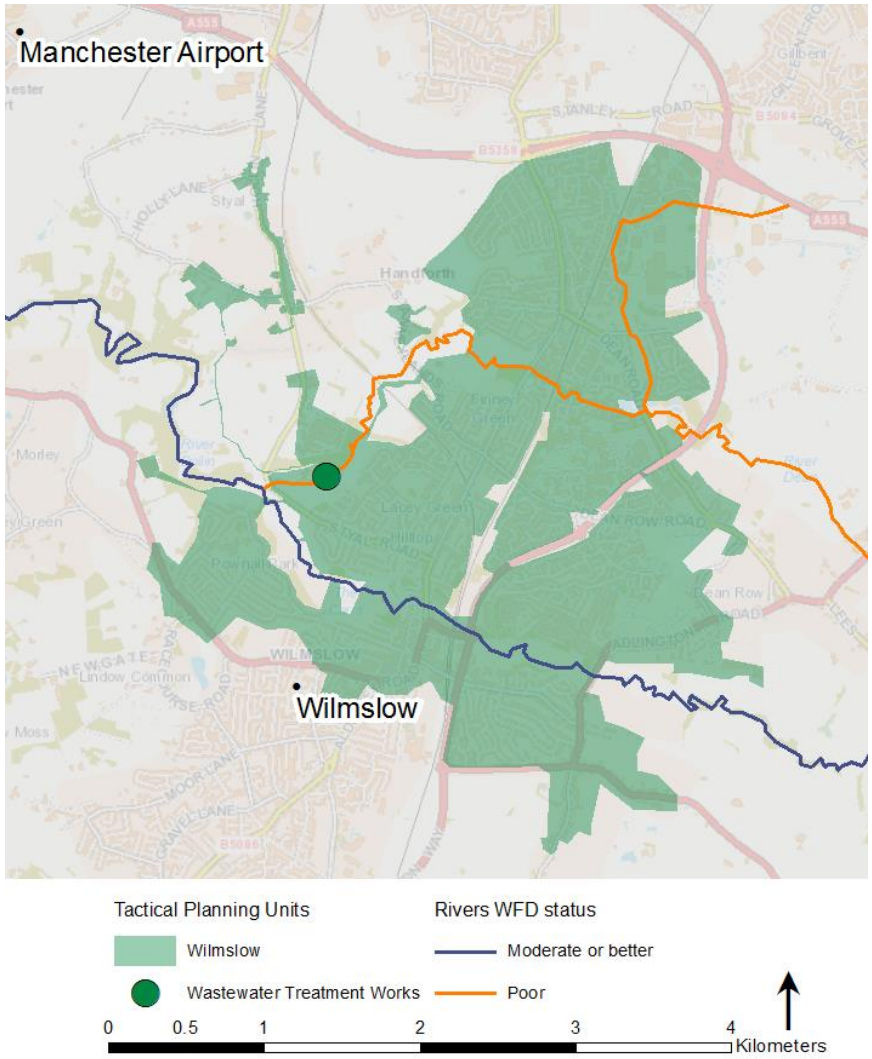


3.3.5 Wilmslow

The Wilmslow TPU (Figure 12) is towards the south of the Upper Mersey SPA. Across the TPU approximately 340km of sewer network serves over 10,000 properties and a residential population of approximately 23,500 people, which is projected to grow 18% by 2050. The two main watercourses are the River Dean (to which the treatment works discharges) and the River Bollin, with are classed as 'poor' and 'moderate' respectively under the WFD 2019. Both watercourses have RNAGs[8, 9] attributed to the water industry for water quality and biological measures, which are being addressed through the current investment cycle 2020 – 2025 and further work may be needed in subsequent WINEPs following completion of investigations.

Wilmslow is a complex catchment. There are 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 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, and it is likely that both will need upgrading to meet WFD targets.

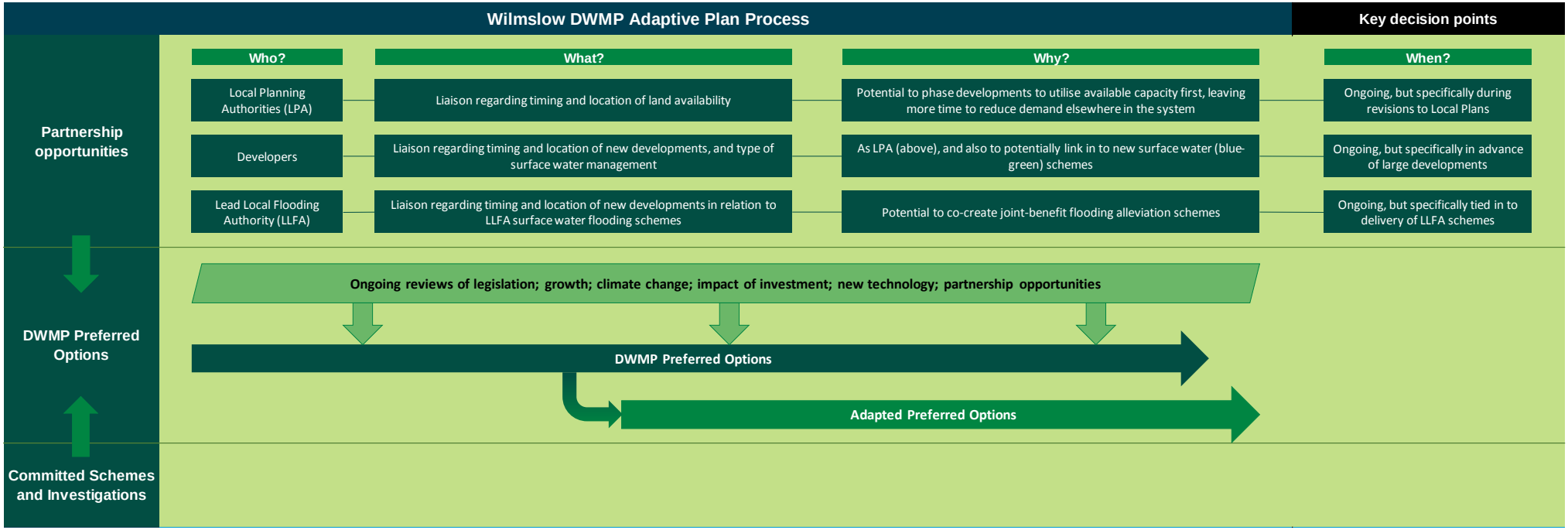
Figure 12 Map of the Wilmslow TPU



3.3.5.1 Wilmslow adaptive plan

The first part of the adaptive plan process (Figure 13) highlights the importance of partnership working and regular data reviews.

Figure 13 Wilmslow 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 8.

Table 8 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 14 shows the second part of the Wilmslow adaptive plan, reflecting the different option types identified as being appropriate for Wilmslow. 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.

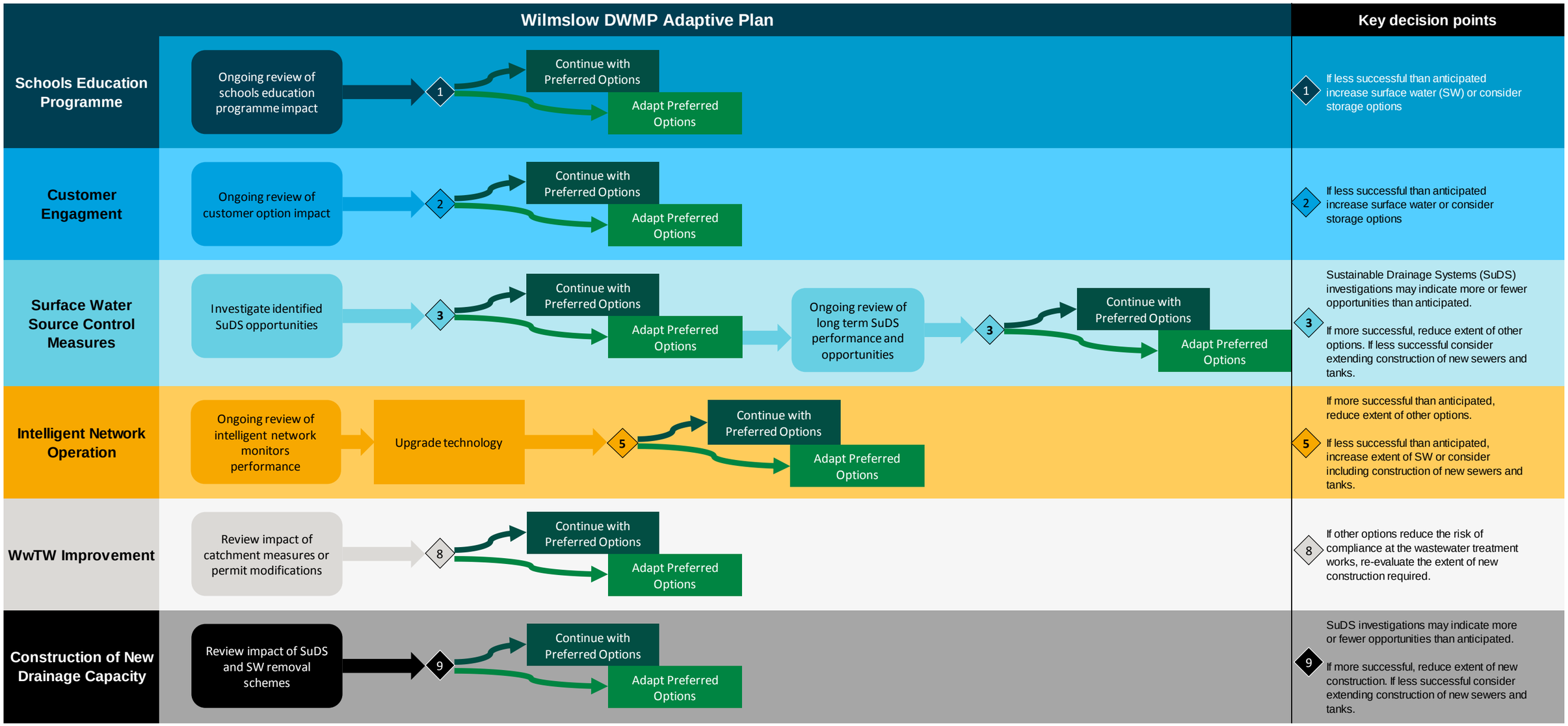
Within Wilmslow, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 13. 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 14 Wilmslow adaptive plan – Possible adaptive pathways as knowledge and opportunities change over time



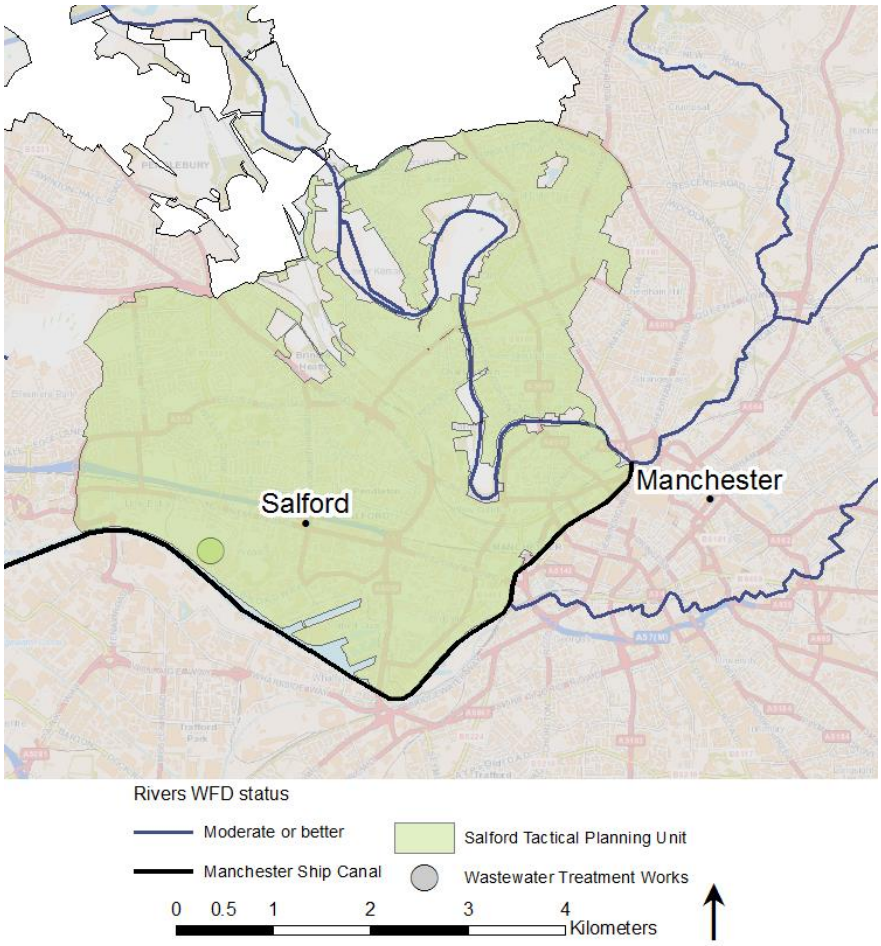
3.3.6 Salford

The Salford TPU is to the North of the Manchester Ship Canal and Manchester West area (Figure 15), consisting of just over 700km of sewer network which serves just under 50,000 properties and a residential population of over 100,000 people. The population is projected to grow significantly, with an increase of 25% by 2050, which will drive associated development and increase pressure on our network and assets.

Salford is a complex catchment, which is facing significant population growth alongside the still-developing WINEP, and the challenge of ageing infrastructure. There are 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 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, and possibly drive a redesign of the drainage network, to ensure protection of the environment and water quality, and to ensure suitable capacity and headroom to deal with increased loading.

The challenges for the TPU are further complicated by the wider challenges across the Manchester West area, which may require solutions that work across multiple TPUs and wastewater treatment works to solve issues within particular areas.

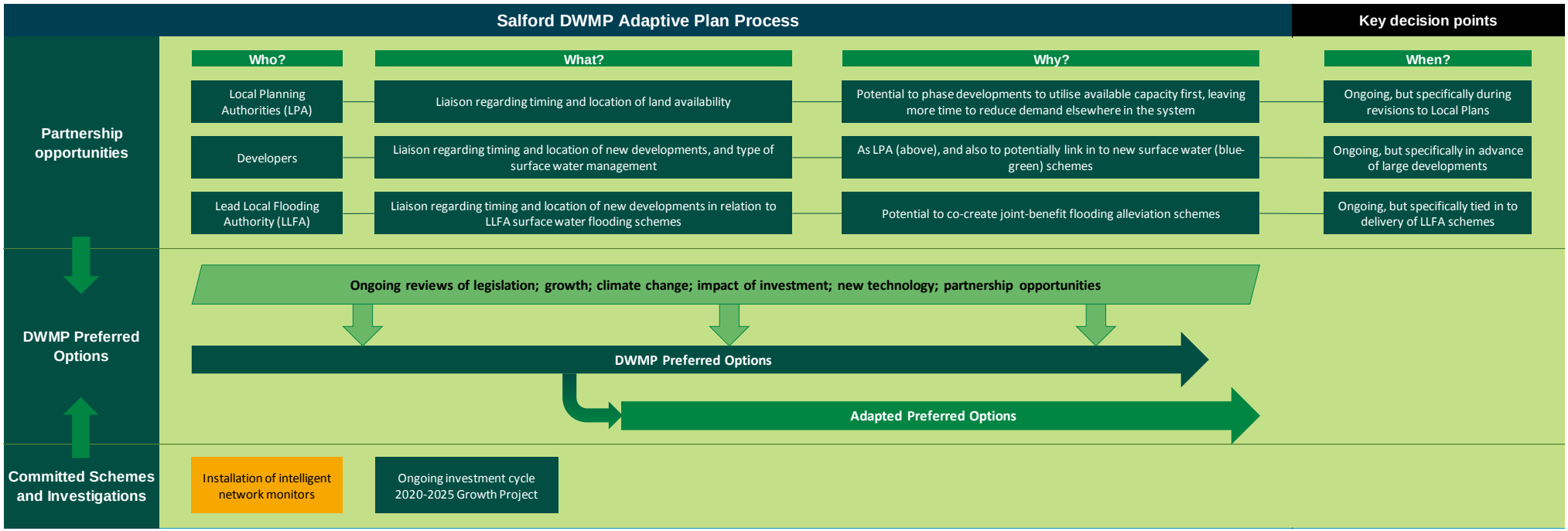
Figure 15 Map of the Salford TPU



3.3.6.1 Salford adaptive plan

The first part of the adaptive plan process (Figure 16) highlights the importance of partnership working and regular data reviews.

Figure 16 Salford 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 9.

Table 9 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 17 shows the second part of the Salford adaptive plan, reflecting the different option types identified as being appropriate for Salford. 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.

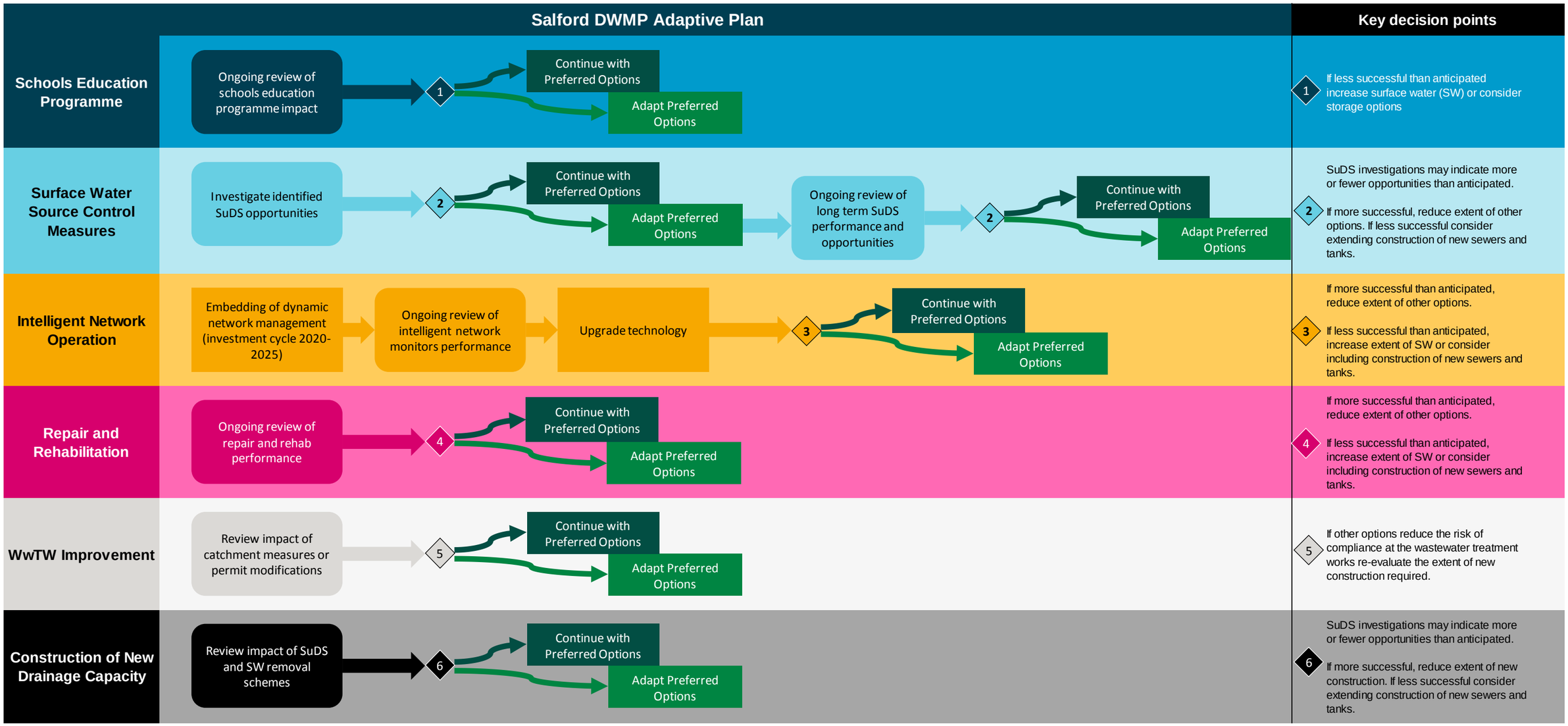
Within Salford, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 16. 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 17 Salford adaptive plan – Possible adaptive pathways as knowledge and opportunities change over time



3.3.7 Manchester West

The Manchester West TPUs (Figure 18) are located in the north and west and of the Upper Mersey SPA, draining Eccles, Salford, parts of central Manchester and areas of south Greater Manchester, including Manchester Airport. The combined drainage area is heavily urbanised, with nine wastewater treatment works and nearly 10,000km of sewer network serving just under half a million properties and a residential population of approximately 1.2 million people.

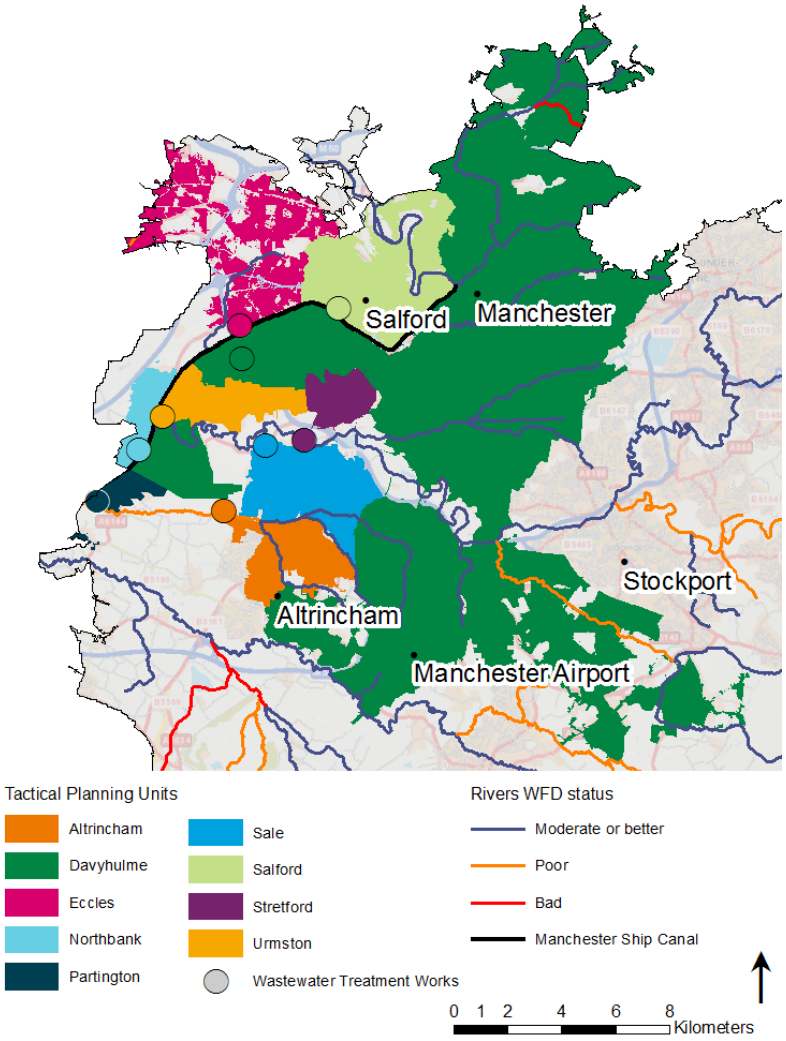
The area is projected to have significant population growth, with a population increase of 24% by 2050. This could drive a significant amount of development, and an associated increase in wastewater being sent to wastewater treatment works. Large, planned developments in the area include New Carrington and Timperley Wedge.

The majority of watercourses within the TPUs are 'moderate' under the WFD 2019, except for Micker Brook and Sinderland Brook (poor) to the south of the TPU, and Wince Brook (bad) in the north. The Manchester Ship Canal (shown in black in Figure 18) is also classified as 'moderate' and is the main watercourse draining the city with the key tributary rivers being the Irwell and Irk, and the Mersey to the south of Manchester.

Manchester West is a strategic area due to the multiple challenges in the catchment, and the close links and interdependencies between the TPUs, with multiple scenarios needing consideration. This leads to many potential options, and therefore different pathways within the adaptive plan depending on which options are selected at key decision gates.

The key TPUs within the Manchester West area are Altrincham, Davyhulme, Partington, Sale, Salford, Stretford and Urmston. Within the Manchester West area there are two key future developments of strategic interest, these are New Carrington and Timperley Wedge.

Figure 18 Map of the Manchester West area, with each TPU shown as a unique colour. The Eccles and Northbank TPUs are not formally included in Manchester West from a strategic growth perspective, but may still form part of the adaptive plan



3.3.7.1 Davyhulme

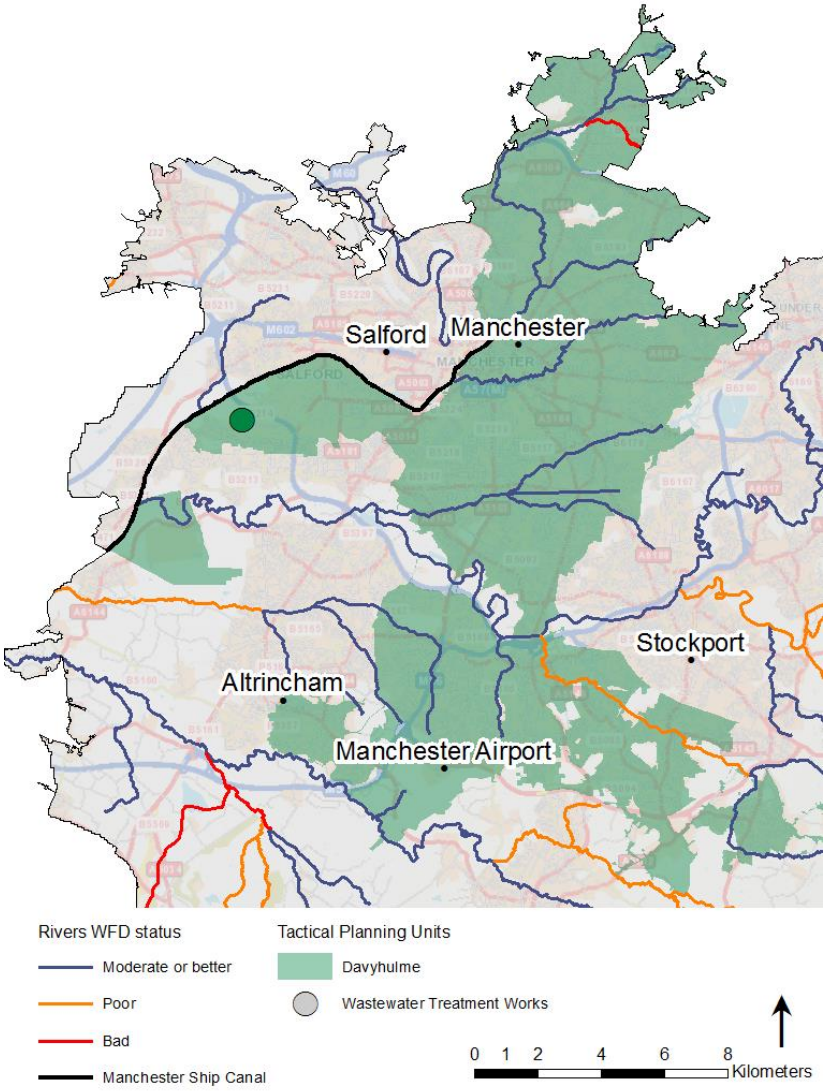
The Davyhulme TPU is the largest in the Manchester West area, and within the Upper Mersey SPA (Figure 19). Approximately 6,400km of sewer network serves a residential population of over 800,000 people and more than 300,000 properties. The population is expected to grow significantly, increasing 23% by 2050. The Davyhulme TPU had the largest modelled increase in population across all TPUs in the North West, and growth is a key strategic concern for the area.

The majority of watercourses within the TPUs are 'moderate' under the WFD 2019, including the Manchester Ship Canal, except for Micker Brook (poor) to the south of the TPU, and Wince Brook (bad) in the north.

The Davyhulme TPU is a strategic catchment due to the significant forecasted population growth, and the associated increase in development and wastewater loading, alongside other risks identified through the BRAVA process. Risks have been identified for internal flooding, external flooding, pollution, sewer collapse and blockages by 2050. There are also a high number of storm overflows within the area, and 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, and possibly drive a large redesign of the drainage network, to ensure protection of the environment and water quality.

The challenges for the TPU are further complicated by the wider challenges across the Manchester West area, which may require solutions that work across multiple TPUs and wastewater treatment works to solve issues within particular areas.

Figure 19 Map of the Davyhulme TPU

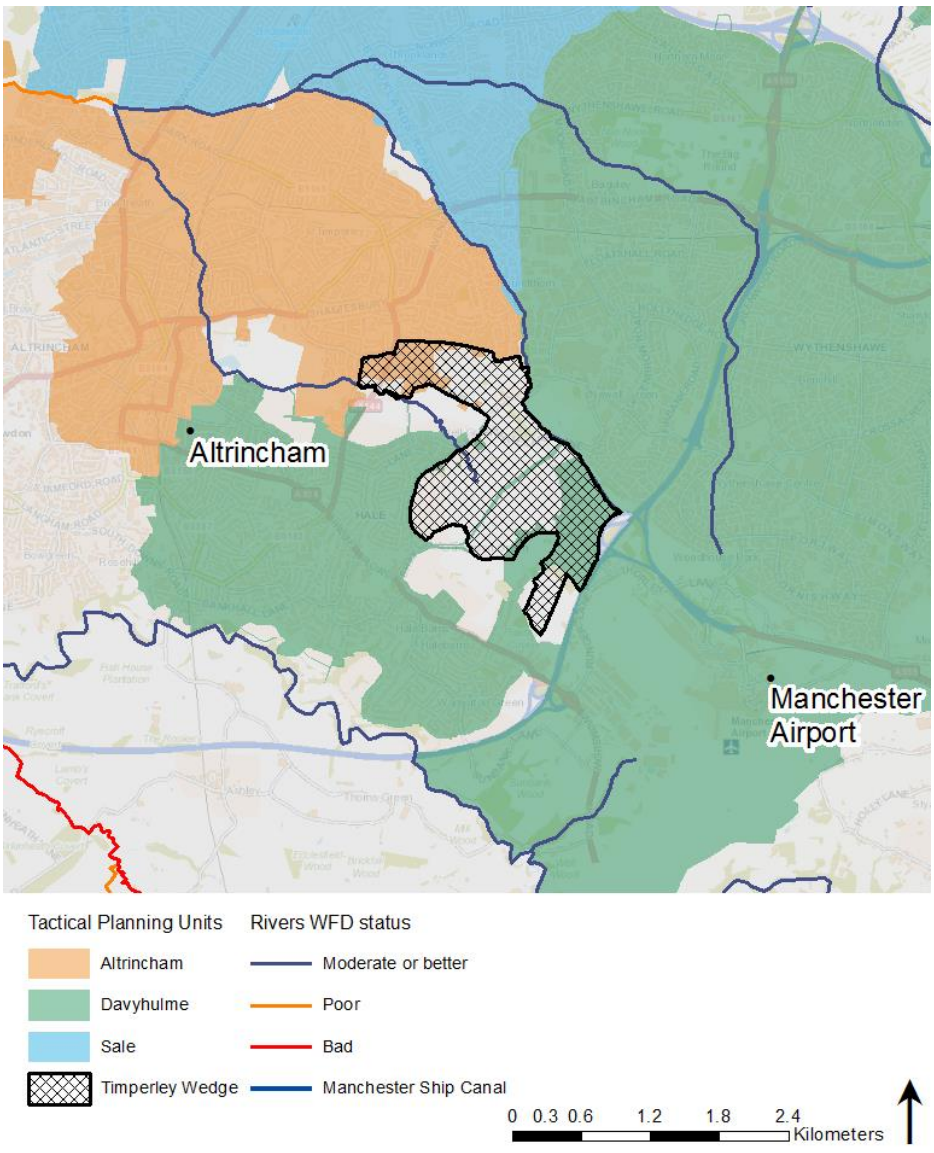


3.3.7.2 Timperley Wedge

The Timperley Wedge development (Figure 20) is close to Manchester Airport, covering an area between the Davyhulme TPU and the Altrincham TPU, as well as an area that is not currently served by a wastewater treatment works. The proposed development includes 1,700 houses by 2037[10], with potential for up to 2,500 houses in total, as well as commercial offices, which will drive a high number of new connections and increase the amount of wastewater needing treatment.

The Timperley Wedge development could be linked to either the Davyhulme or Altrincham TPU, however both wastewater treatment works are sensitive to development, and supply-demand challenges. Part of the challenge is determining which TPU and treatment works will be expanded to serve the area, and thus there are multiple options available to address the issues identified. The Altrincham TPU currently serves just under 18,000 properties, so the addition of the Timperley Wedge development would represent approximately 10% extra load, without considering any other future development in the area. However, the Davyhulme TPU is projected to have the largest increase in population served by 2050 across the whole North West, and also has its own strategic challenges around future growth and capacity. The WINEP guidance is still being developed, therefore, this could lead to significant changes and investment to both wastewater treatment works and the drainage network.

Figure 20 Map of the Timperley Wedge development (shown with black cross-hatch)



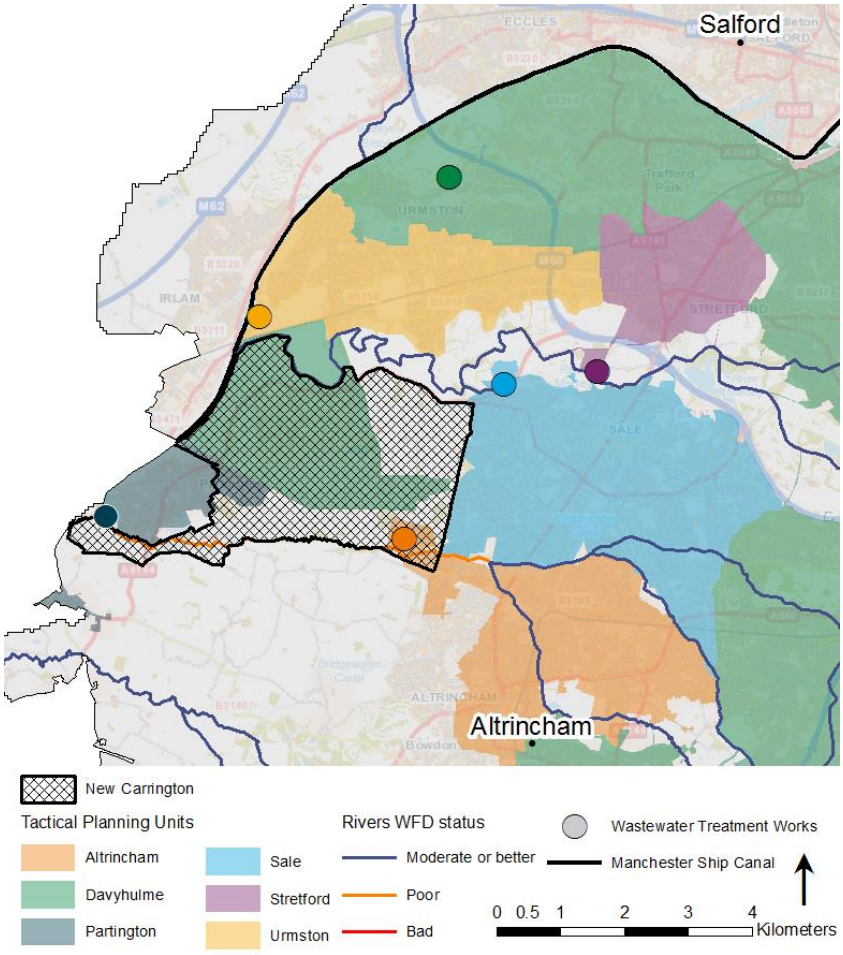
3.3.7.3 New Carrington

The area for consideration around the New Carrington development comprises of the Altrincham, Partington, Sale, Stretford, and Urmston TPUs, with the small separate section of the west Davyhulme TPU bordering to the west. The combined drainage areas (excluding the Davyhulme wedge) consist of over 1,600km of sewer network, serving approximately 75,000 properties and a residential population of 180,000 people.

The majority of watercourses are classed as 'moderate' under the WFD 2019, except for Sinderland Brook, between Altrincham and Partington, which is classed as 'poor'.

The area is considered strategic due to the New Carrington development (Figure 21), which will drive a high number of new connections and increase the amount of wastewater needing treatment. The wastewater treatment works in the area are sensitive to new development, and supply-demand challenges, and part of the challenge is determining which TPUs will be expanded to include the development, and which treatment works will serve the area. This could lead to significant wastewater treatment works upgrades to ensure protection of the environment and water quality, and to ensure the wastewater treatment works have suitable capacity and headroom to deal with increased loading.

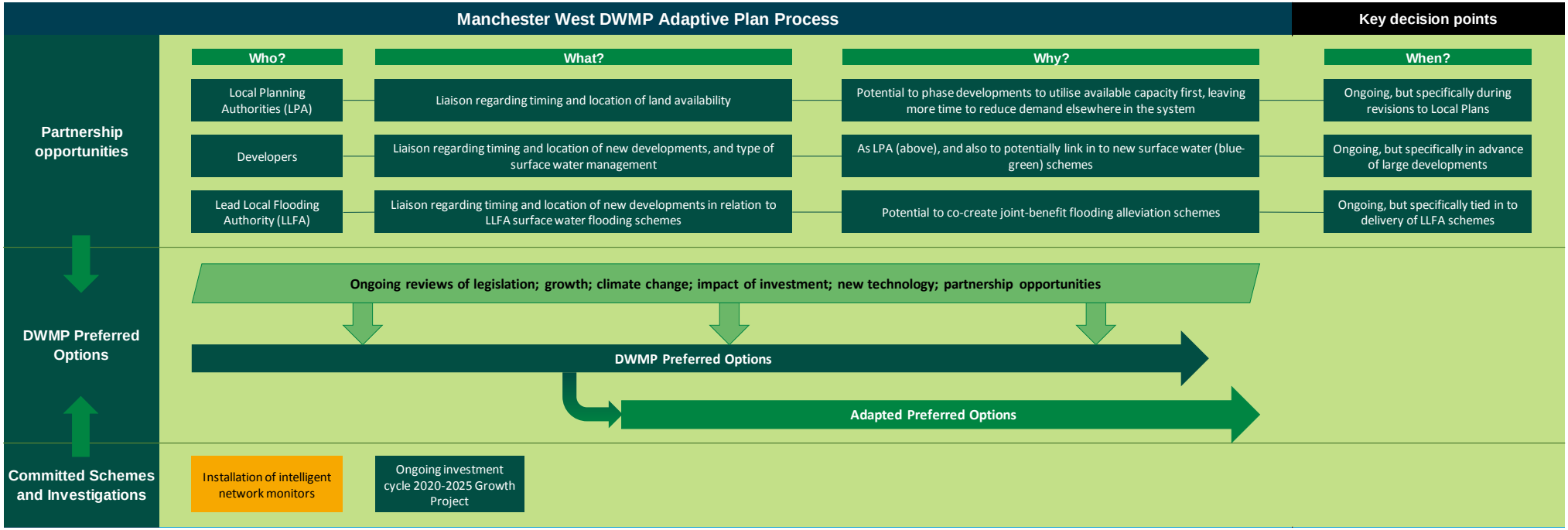
Figure 21 Map of the New Carrington development (shown with black cross-hatch)



3.3.7.4 Manchester West adaptive plan

The first part of the adaptive plan process (Figure 22) highlights the importance of partnership working and regular data reviews.

Figure 22 Manchester West 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 10.

Table 10 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 23 shows the second part of the Manchester West adaptive plan, reflecting the different option types identified as being appropriate for Manchester West. 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.

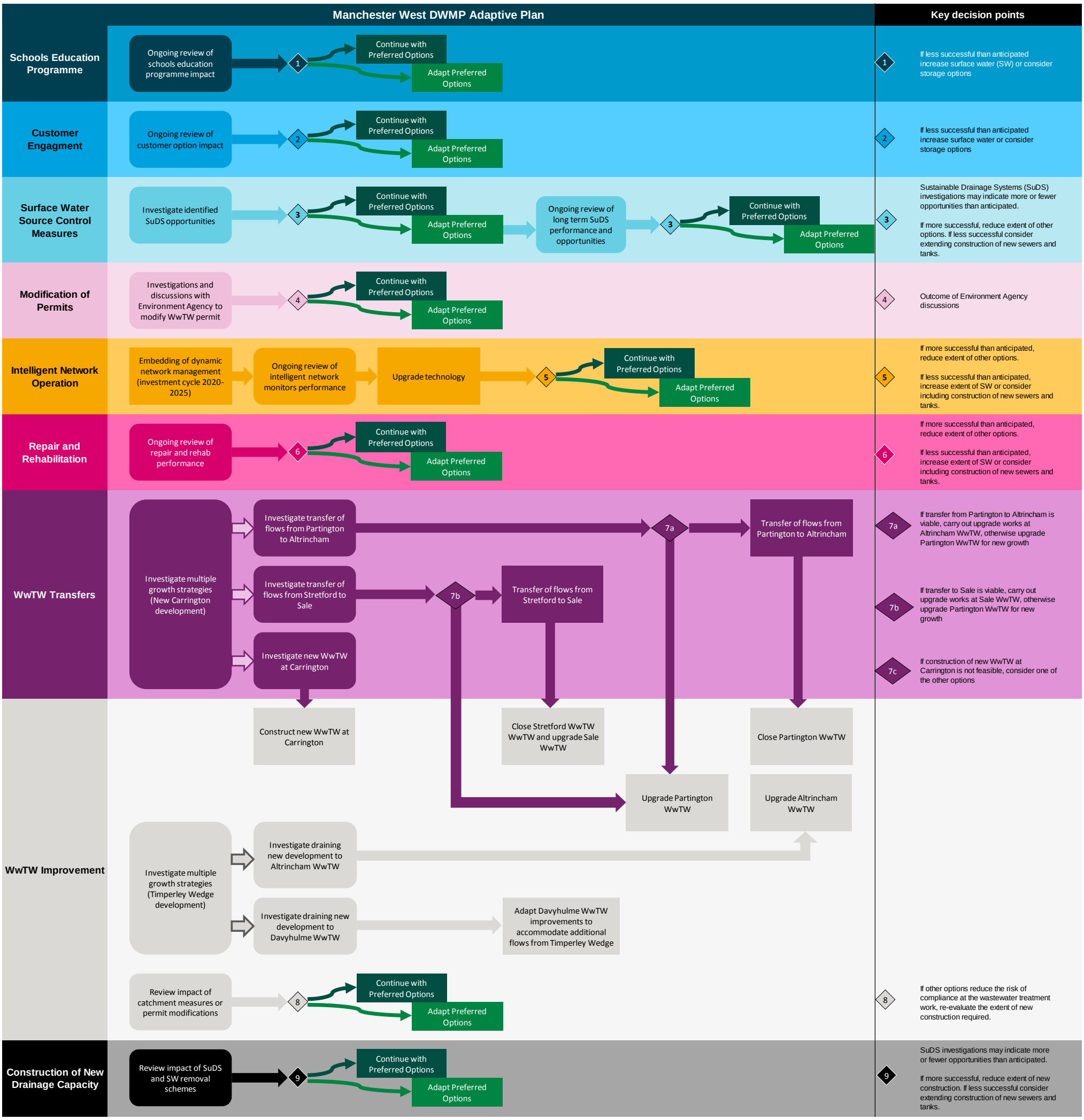
Within Manchester West, there are opportunities to carry out investigations before making final decisions on the final strategy. This means that we can properly evaluate options before committing to significant investment. These investigations will take into account things such as:

- 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 22. 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 23 Manchester West 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 24).

An options hierarchy was then used which has been endorsed by customers and stakeholders from across the North West to select preferred solutions (Figure 25). 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 24 Options development process

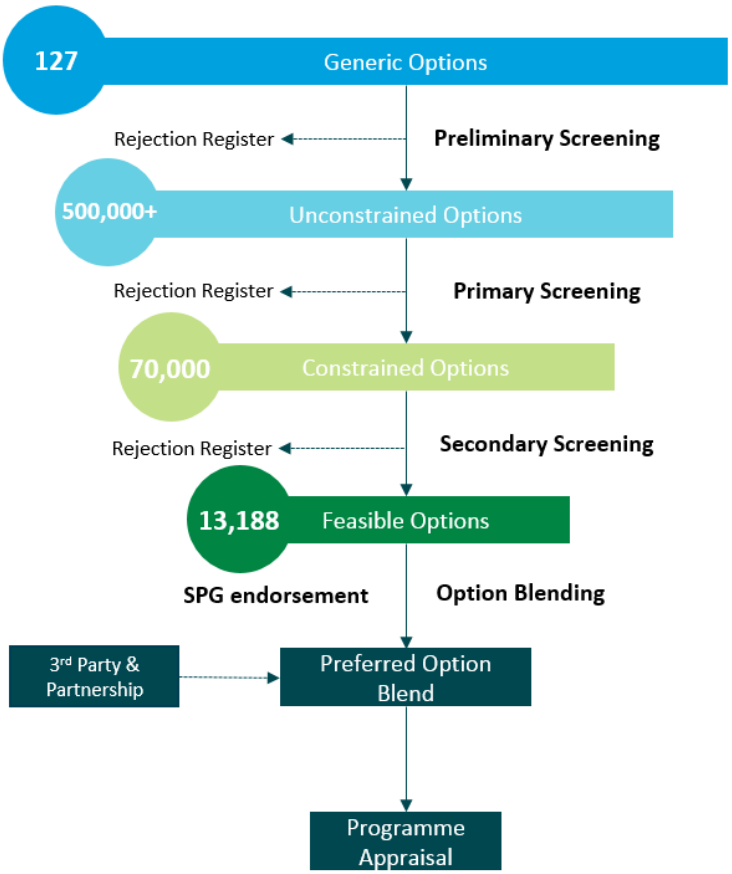
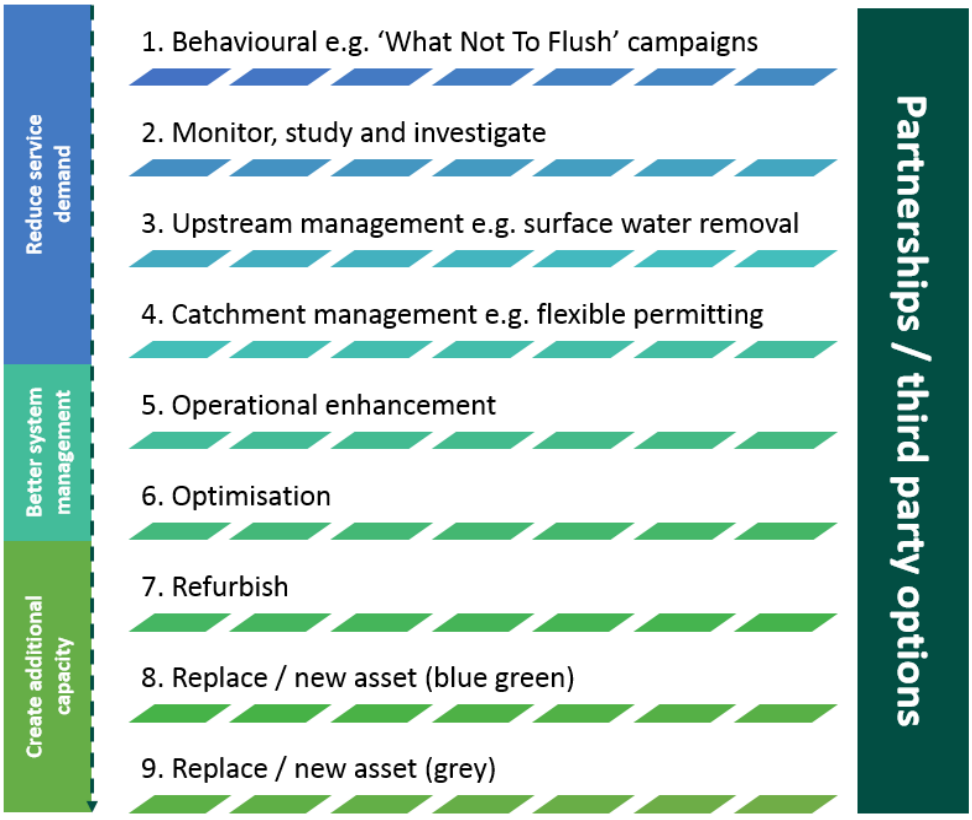


Figure 25 Options hierarchy



4.1 Upper Mersey partnership options

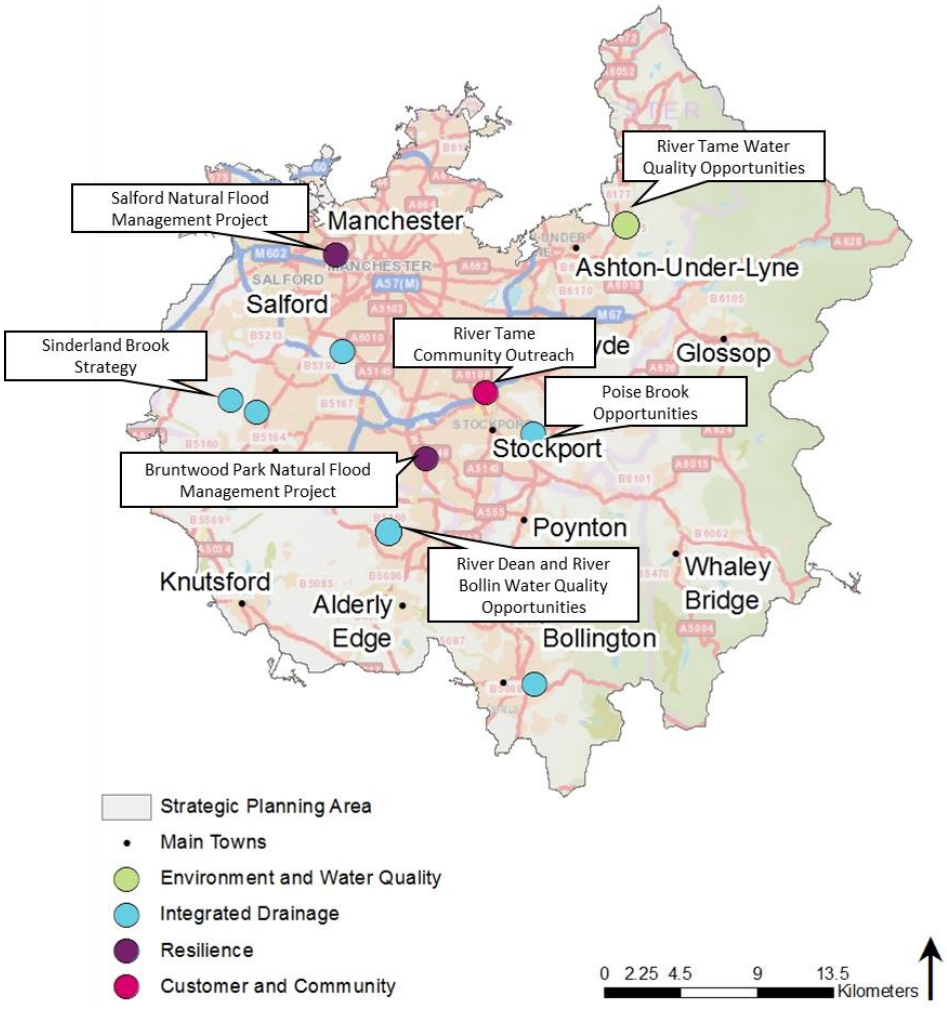
In order to identify and develop potential partnership options in the Upper Mersey SPA, through the SPG we have shared the results from the risk identification stages such as BRAVA. This was done through a series of workshops and the purpose was to identify areas of shared risk and partnership opportunities 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 26.

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 as 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 26 Overview of the potential partnership opportunities in the Upper Mersey SPA



4.1.1 Wider partnerships within the Upper Mersey catchment

Within the Upper Mersey 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.

Figures 27, 28 and 29 are examples of partnerships that we are proud to have been involved in, and opportunities which are currently being developed in the Upper Mersey SPA.

Figure 27 Overview of the trilateral partnership

Trilateral Partnership

The trilateral partnership is between United Utilities, Greater Manchester Combined Authority (GMCA) and the Environment Agency. The purpose is to drive forward environmental, development and infrastructure agendas within Greater Manchester, of which one of the strategic outcomes is to develop co-owned place-based plans to deliver shared outcomes that are supported by co-funding. This will be achieved alongside key stakeholders across the catchment, in order to address catchment issues in an integrated way.

The development of the place based planning pilot in the Upper Mersey is already underway and we are currently sharing ideas and examples of issues faced across the water environment with the Environment Agency, GMCA, local councils and Non-Government Organisations (NGOs).

Over the course of the place-based plan development, tools to enhance outcomes, incorporate wider social value outcomes and ecosystem services, and to facilitate collaborative planning will be developed.

Figure 28 Overview of Natural Course

Natural Course

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

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

Microplastic Pollution

Microplastics are known to cause issues to marine life and their accumulation in our oceans is of growing concern. Research published in 2018 identified micro plastic accumulation in rivers as a significant contributor to the build-up in our oceans alongside problems it can cause to the river itself and the life within it.

UUW, alongside the Environment Agency and Greater Manchester Combined Authority, has jointly procured a **two-year investigation** to understand more about the **sources, stores and movements of microplastics in the rivers of Greater Manchester.**

UK Centre for Ecology and Hydrology (UKCEH) has been commissioned to undertake the investigation and sampling will be consulted out to **Aqua Enviro**.

It is hoped that findings from this investigation will prove useful in influencing, developing and designing **policies and practices that tackle the emerging issue of microplastic** contamination of watercourses in the North West River Basin District and elsewhere.

Figure 29 Overview of the IGNITION project

IGNITION

The IGNITION project pursued an innovative finance model to attract investment in Greater Manchester's natural environment. United Utilities has been a key partner from the outset.

IGNITION supported by an investment of €4.5 million from the EU's Urban Innovation Actions (UIA) initiative brought together, 12 partners – NGOs, local government, universities, and businesses like our own – wanting to enable major investment in regional, large-scale environmental projects.

We compiled evidence, developed business cases and ran pilots to provide a robust case for how, why and where nature-based initiatives could bring extra value to the Greater Manchester area – things like rain gardens, street trees, green roofs and walls and blue green space development.

5. Options for the Upper Mersey

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 Upper Mersey catchment. Options can be categorised into a number of categories:

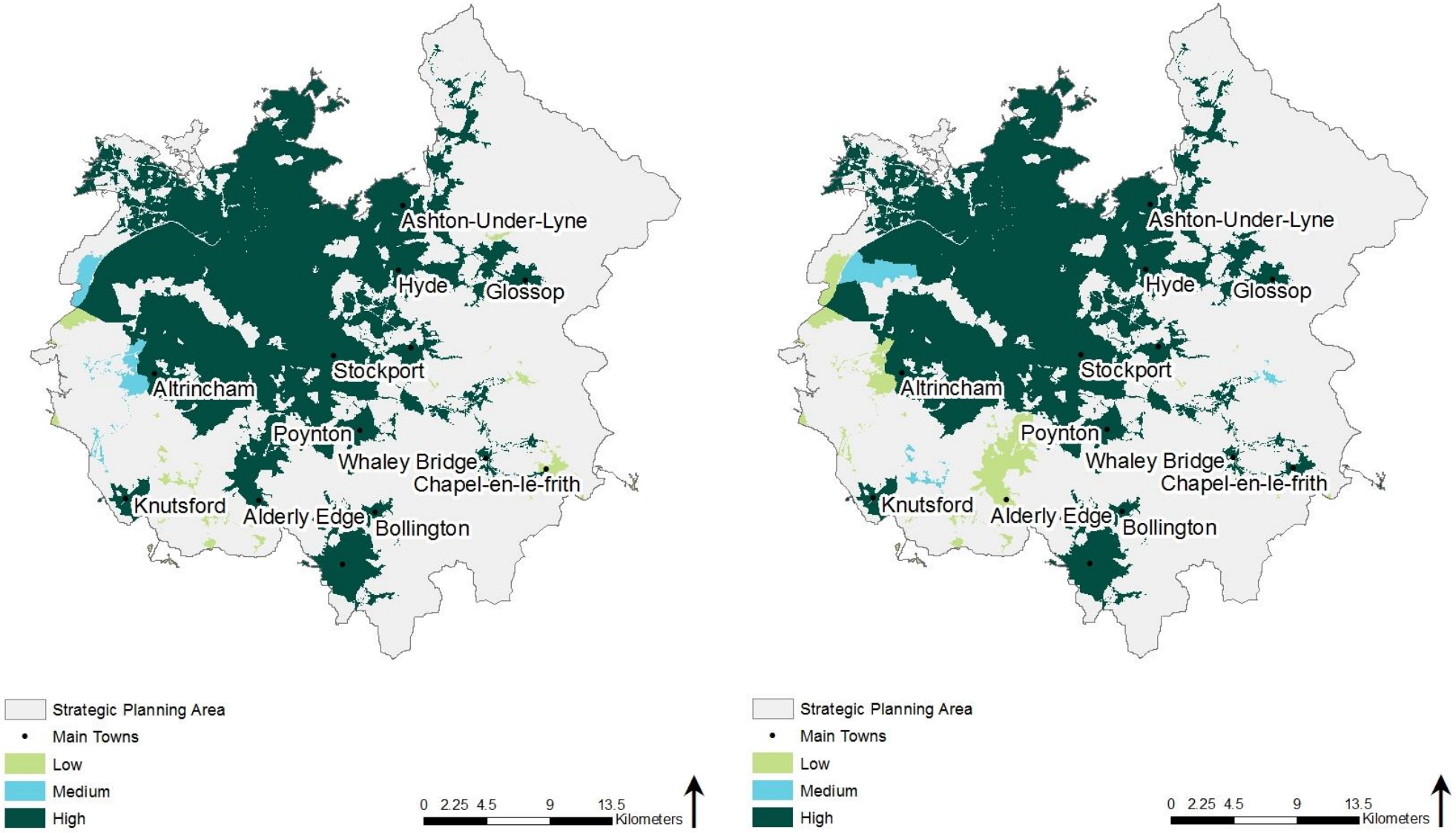
- Customer engagement;
- Monitor and investigate;
- Upstream management;
- Catchment management;
- Operational enhancement;
- Optimisation;
- Refurb/New asset (blue/green); and
- Refurb/New asset (grey).

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 Upper Mersey SPA, customer engagement options (Figure 30), comprising 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 Stockport, Mossley and Davyhulme 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 Stockport and Davyhulme TPUs (Figure 30).

Figure 30 Map of the benefit of implementing regional customer engagement (left) and sustainable drainage (right) options



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.

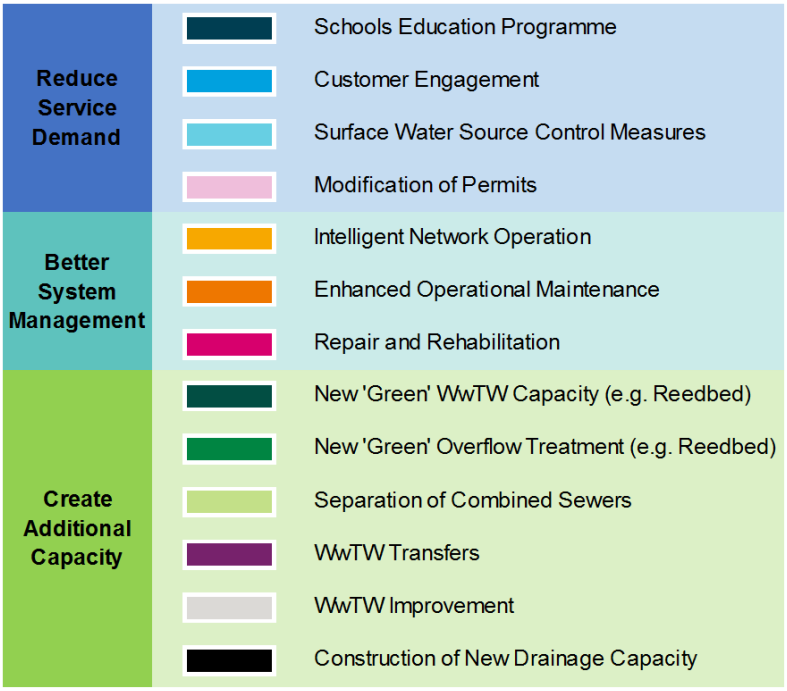
A high-level regional assessment has been carried out to estimate the likely investment requirements to address all overflow risks, but due to the uncertainty described above, this has not been broken down by Strategic Planning Areas. This information can be found in the DWMP main document.

Utilising data collected at the various stages of developing the DWMP (BRAVA, partnership opportunities and the data in Figure 30), 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 31).

Figure 31 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 Upper Mersey SPA, the outcomes, seen as a result of investment and benefit in each option type, are shown in Figures 32, 33 and 34.

Figures 32 and 33 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 32 shows potential options to address environmental planning objectives, which incorporate:

- wastewater treatment work permit compliance;
- WINEP compliance; and
- pollution of watercourses.

Figure 33 shows potential options to address flooding planning objectives, which incorporate:

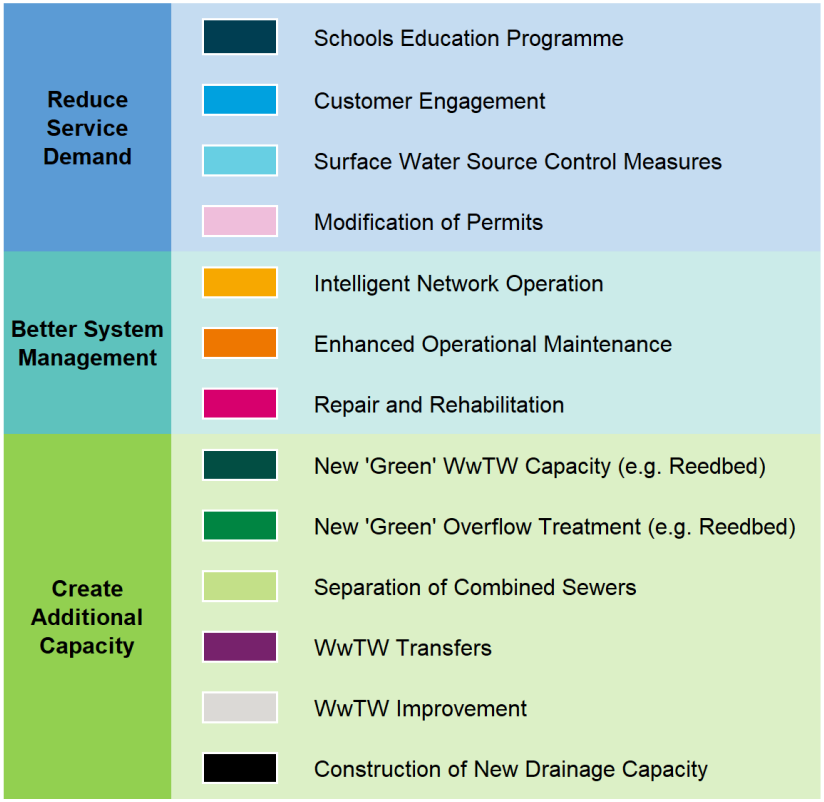
- internal flooding;
- external flooding;
- highway and open space flooding; and
- 1 in 50-year flooding.

Note that the percentages shown in Figures 32 and 33 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 34 shows how these options could contribute to addressing the planning objectives – environmental and flooding.

Figure 32 Upper Mersey 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.



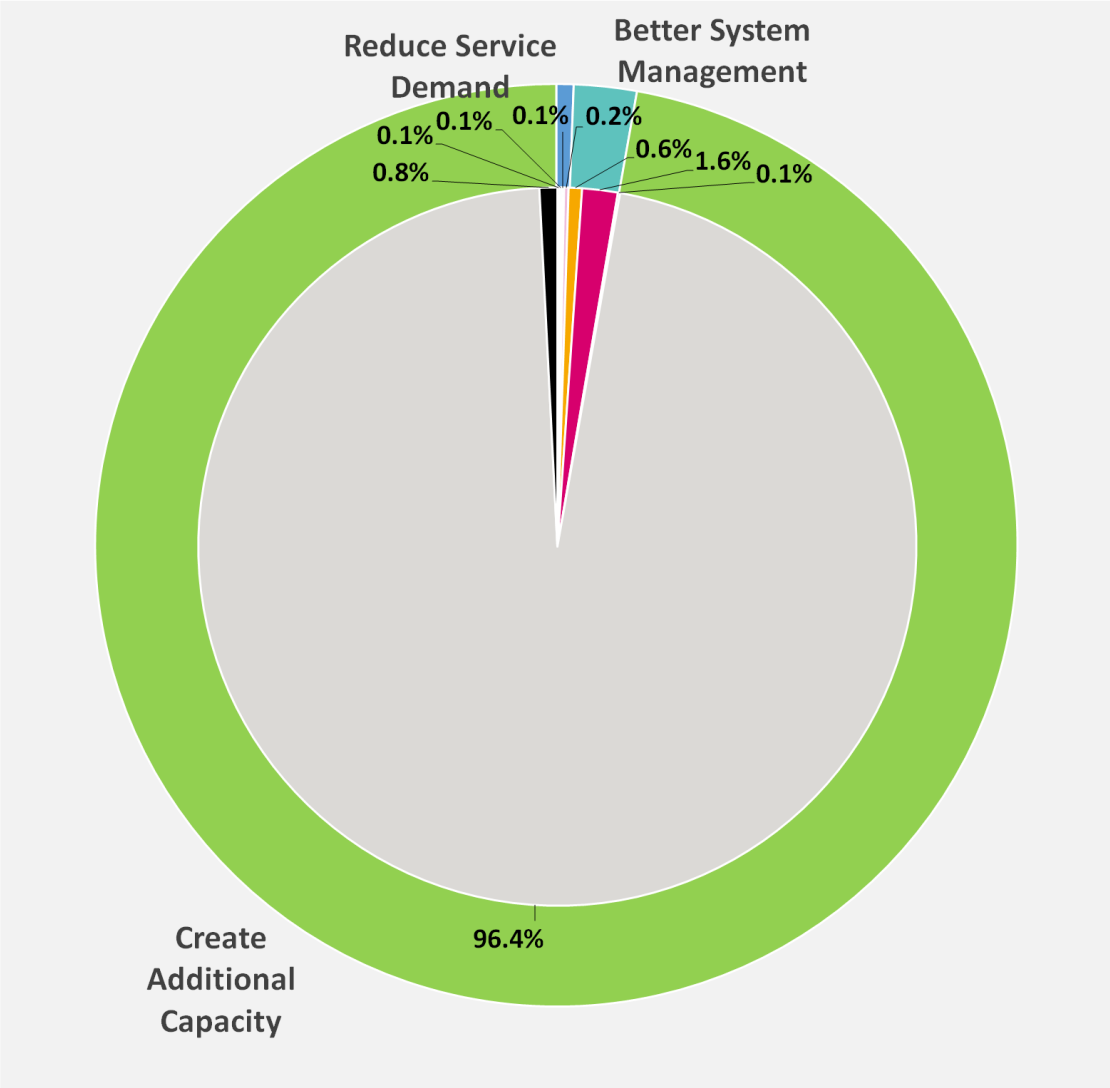


Figure 33 Upper Mersey strategic planning area: distribution of flooding investment by option type

This is an example of how different options types may be used to address flooding planning objectives. Two thirds 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 8% of potential investment could be in the construction of new drainage capacity and around 34% could be used to improve existing system management with options such as intelligent network operation and repair and rehabilitation.

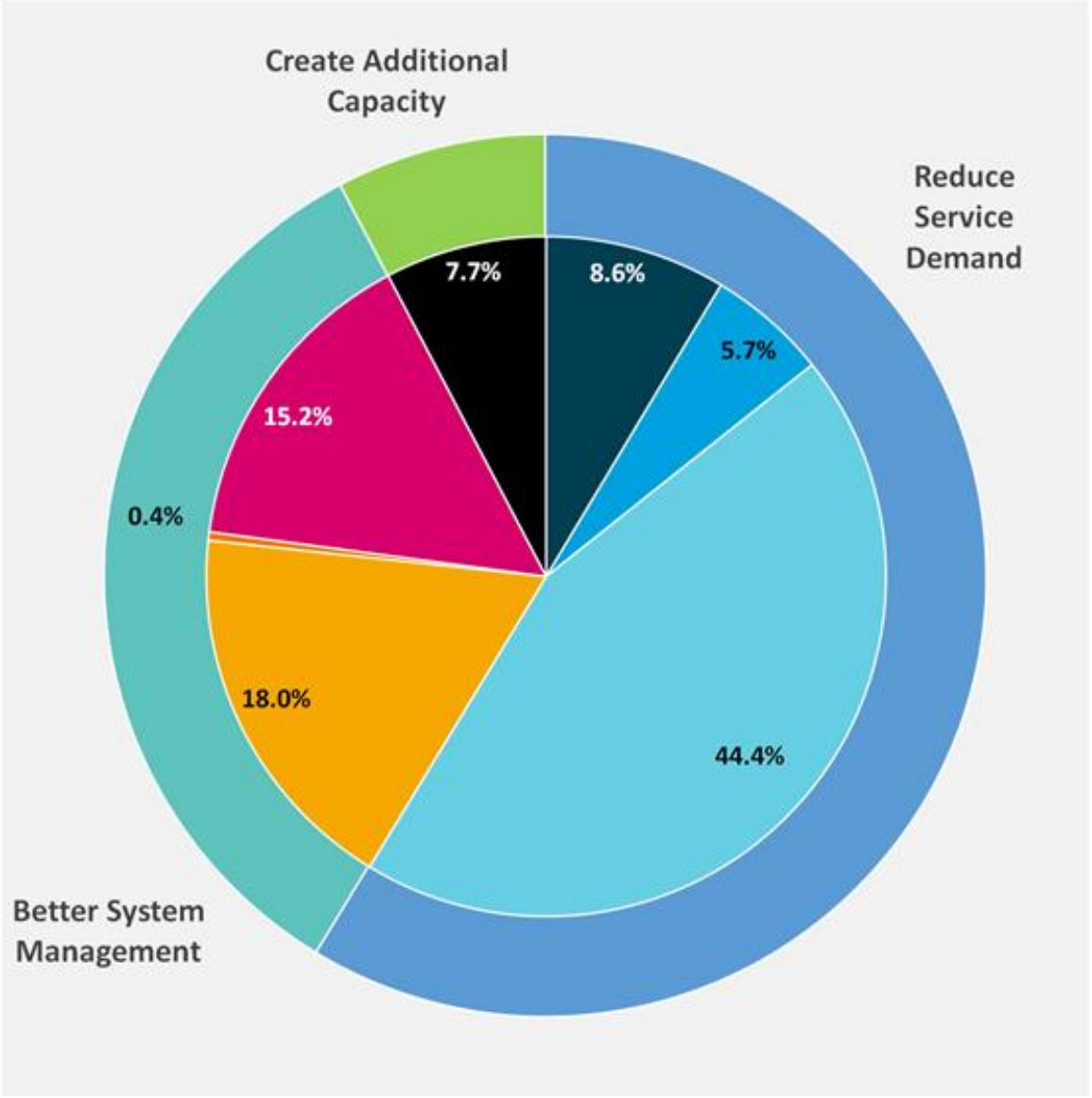
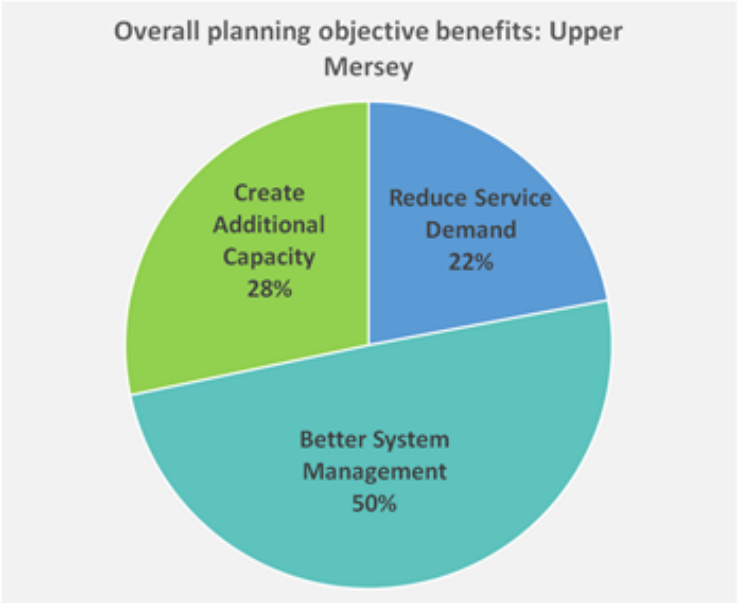


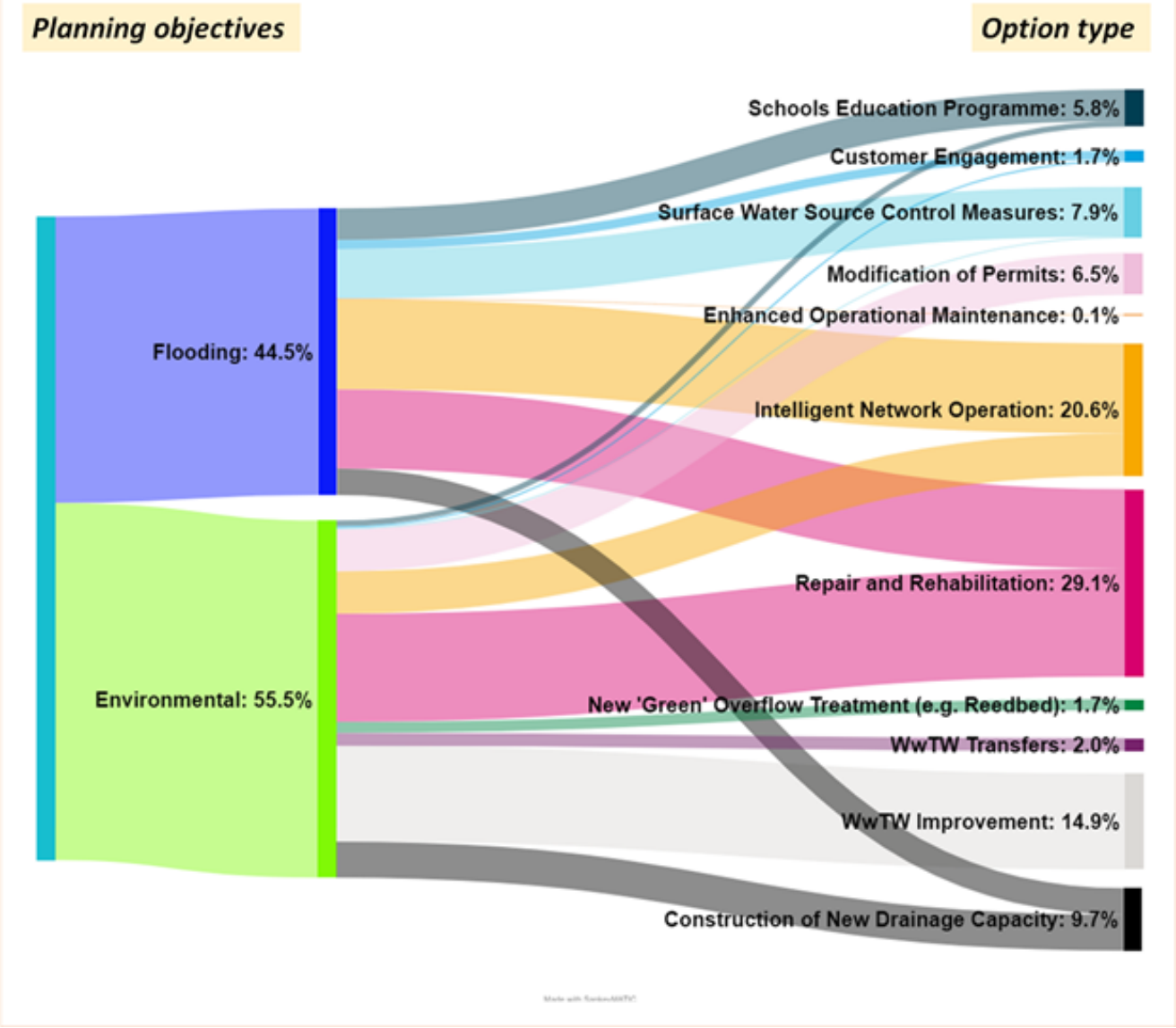
Figure 34 Distribution of benefit by option type within Upper Mersey SPA

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

United Utilities Water (UUW) commitments to improving flooding performance could be met through the reduction of surface water flows, construction of new stormwater drainage capacity, installation of intelligent network, supported by schools and customer engagement programmes.

Environmental planning objectives could be met mainly through the repair and rehabilitation of existing network, improvements to wastewater treatment works, construction of new drainage capacity with the support of modification of permits and improved operational maintenance.



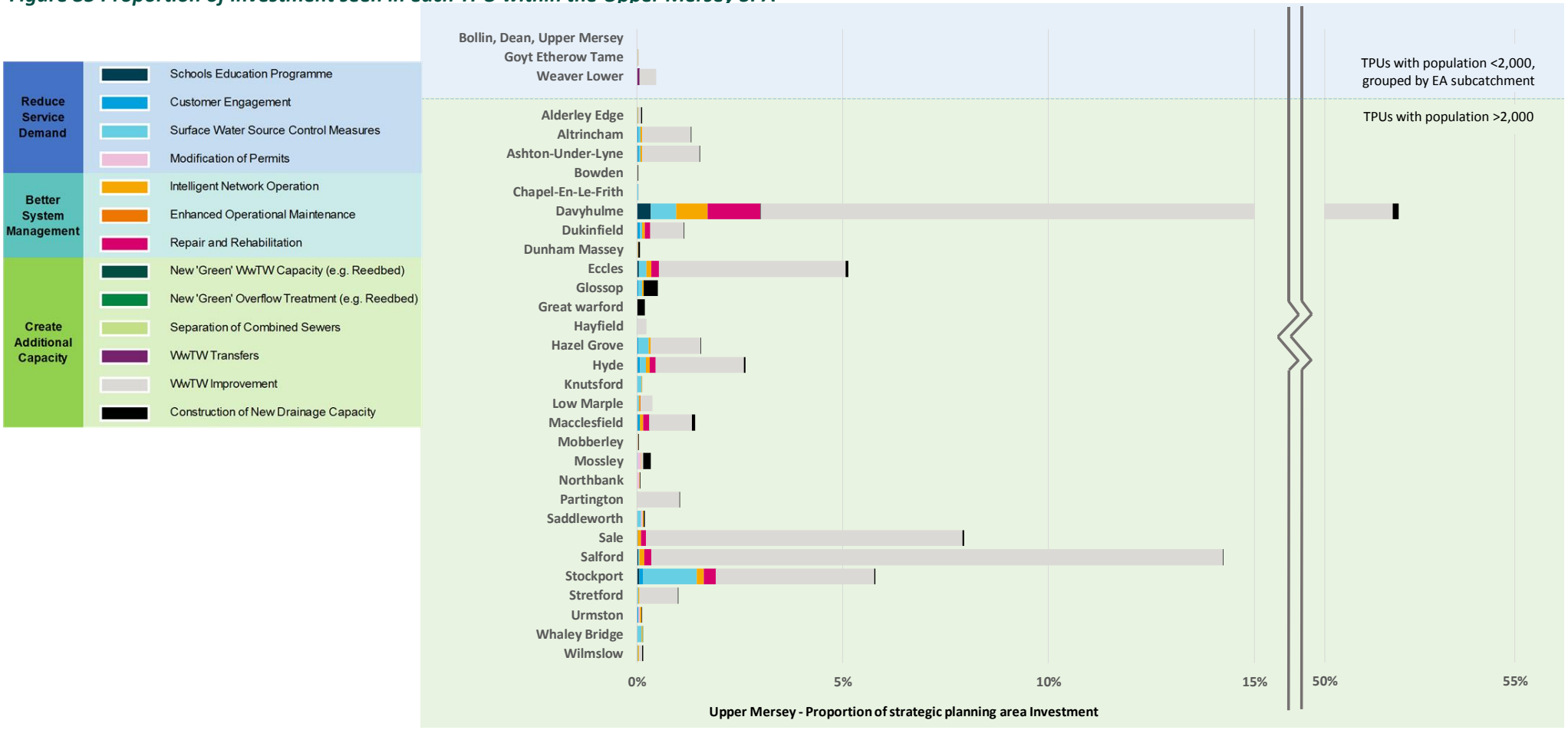


5.3 Overview of preferred options in each TPU

Figure 35 shows the proportion of Upper Mersey SPA 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 Upper Mersey SPA, the largest TPUs see the largest potential investment, and Davyhulme, the largest TPU in the whole UUW region, takes over 50% of the investment in the SPA, mainly focused at the wastewater treatment works. (Note that the horizontal scale has been compressed to allow the detail of the other TPUs to be seen more clearly on the left-hand side of the chart).

Figure 35 Proportion of investment seen in each TPU within the Upper Mersey 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 may 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.

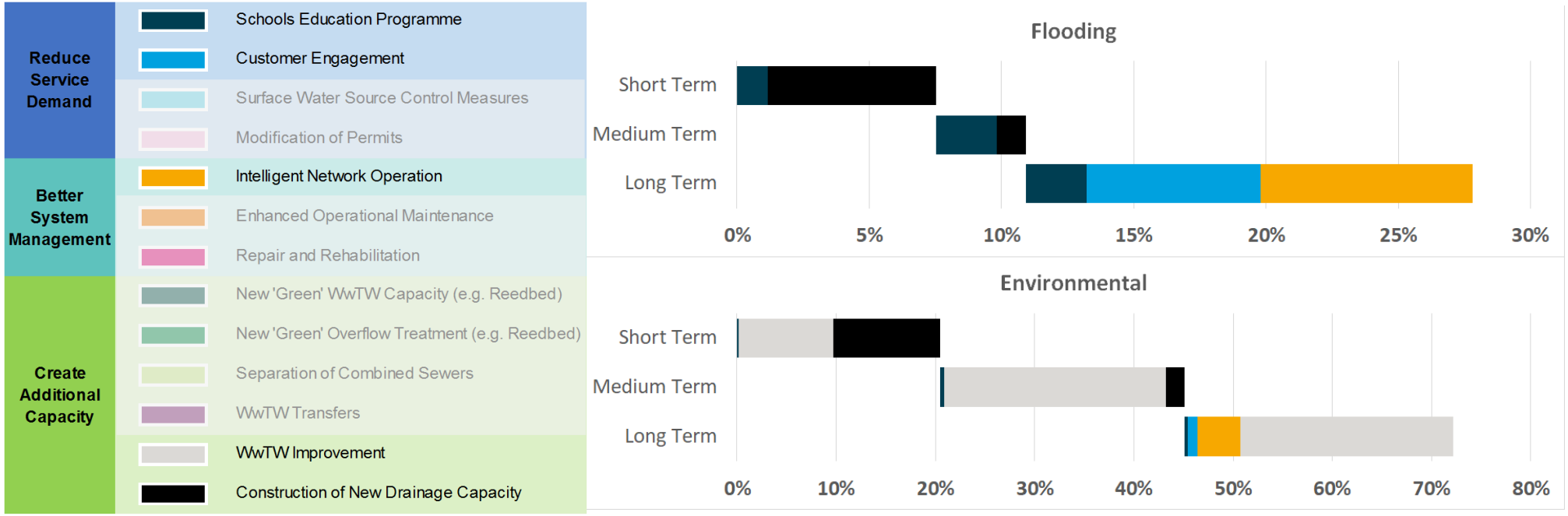
5.3.1 Alderley Edge

The results from the DWMP show that if we were to invest in Alderley Edge over the next 25 years, around 28% of the investment could be to address flooding risks, and around 72% of investment could be to address environmental risks.

In the short and medium term, potential investment could be through school education programmes and construction of new drainage capacity, and wastewater treatment works improvements to ensure permit compliance. This investment could continue in the medium term.

In the longer term, school education programmes and treatment works investment could continue, with additional investment in customer engagement programmes. We may replace or update the existing intelligent network monitoring systems that are already in place.

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



5.3.2 Altrincham

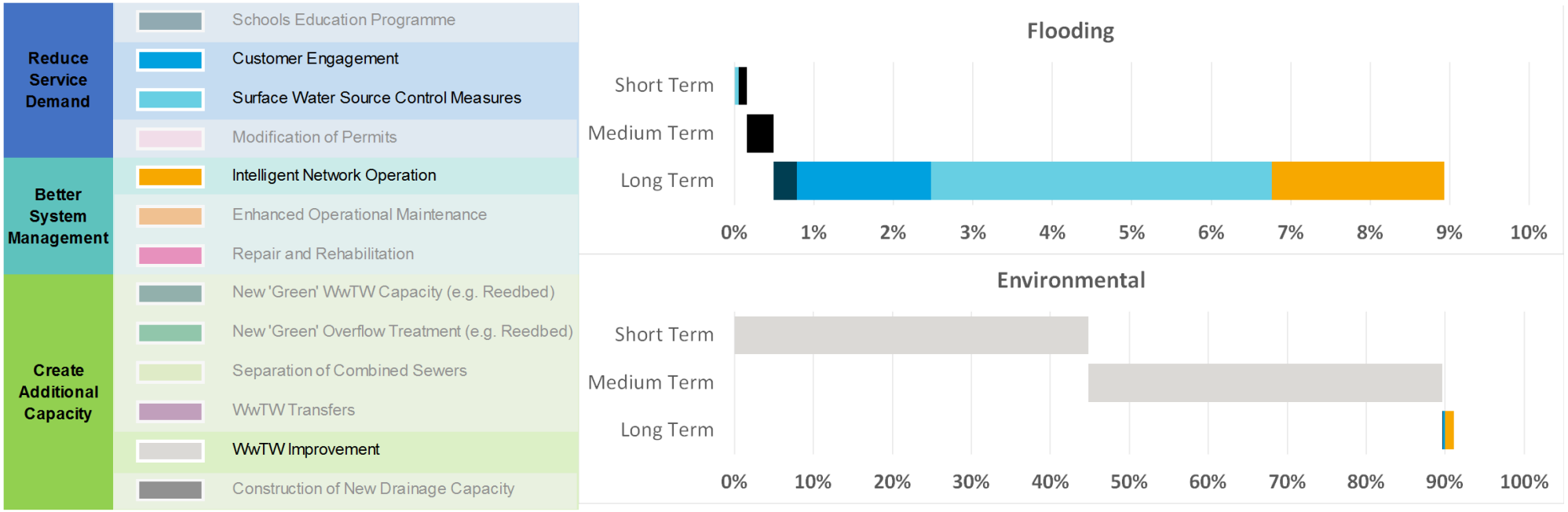
The results from the DWMP show that if we were to invest in Altrincham over the next 25 years, around 9% of the investment could be to address flooding risks, and around 91% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in surface water source control measures and construction of drainage capacity to address the flooding risks.

In the medium term, there could be investment into the construction of new drainage capacity and wastewater treatment works improvements to ensure permit compliance will continue.

In the longer term, there could be investment in customer engagement, school education programmes, surface water source control measures and the addition of intelligent network monitoring systems.

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



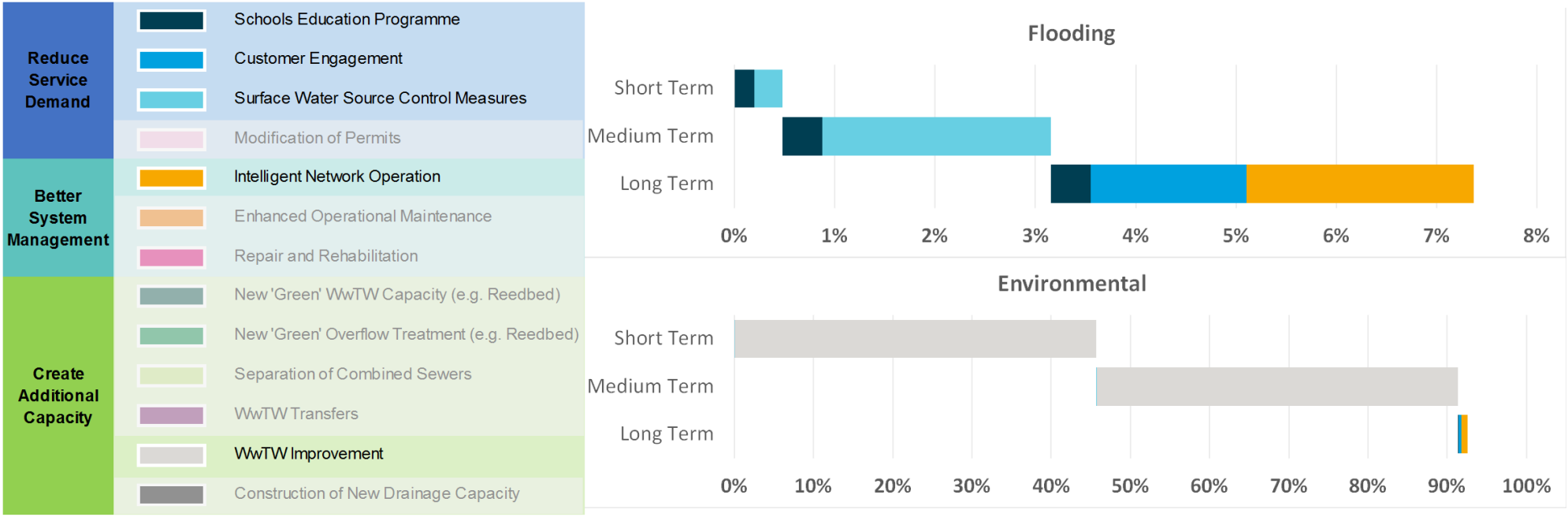
5.3.3 Ashton-under-Lyne

The results from the DWMP show that if we were to invest in Ashton-under-Lyne over the next 25 years, around 7% of the investment could be to address flooding risks, and around 93% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes and surface water source control measures. This investment could continue in the medium term.

In the longer term, there could be investment in customer engagement, school education programmes, and the replacement or update of the intelligent network monitoring system.

Figure 38 Short, medium and long-term investment in the Ashton-under-Lyne TPU, distributed by option type



5.3.4 Bowden

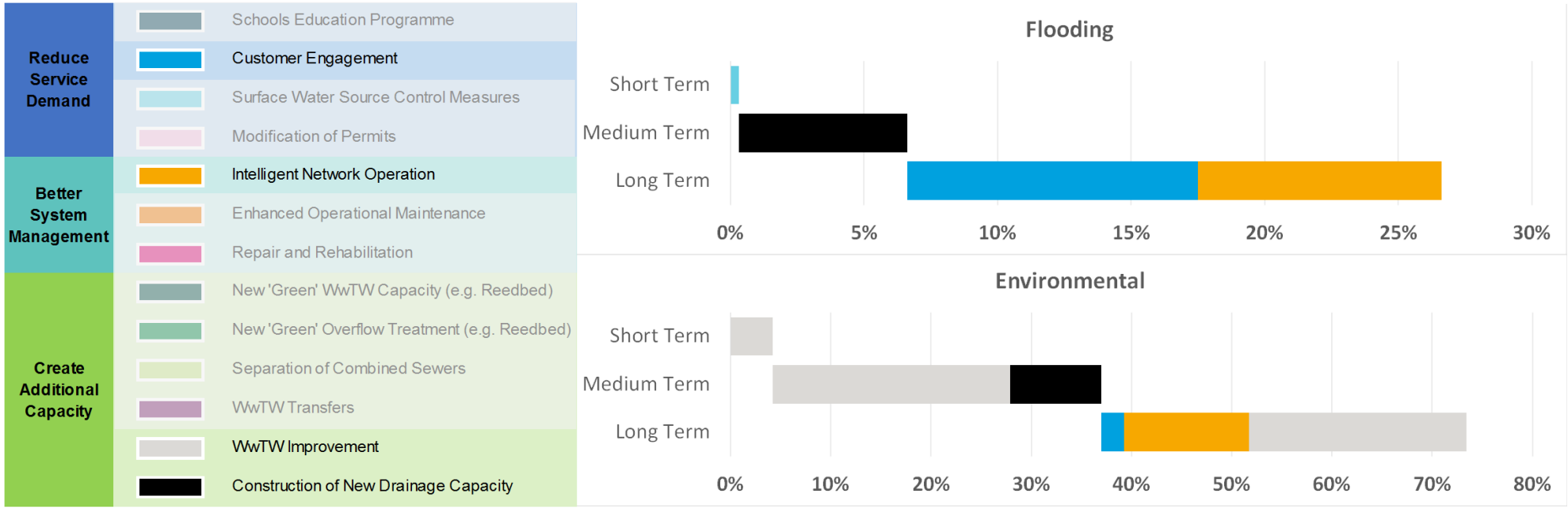
The results from the DWMP show that if we were to invest in Bowden over the next 25 years, around 27% of the investment could be to address flooding risks, and around 73% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in surface water source control measures to address the flooding risks.

In the medium term, investment into wastewater treatment works improvements could continue and there could be investment towards the construction of new drainage capacity.

In the longer term, investment into wastewater treatment works improvements could continue. There could also be investment in customer engagement, and the addition of intelligent network monitoring systems.

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



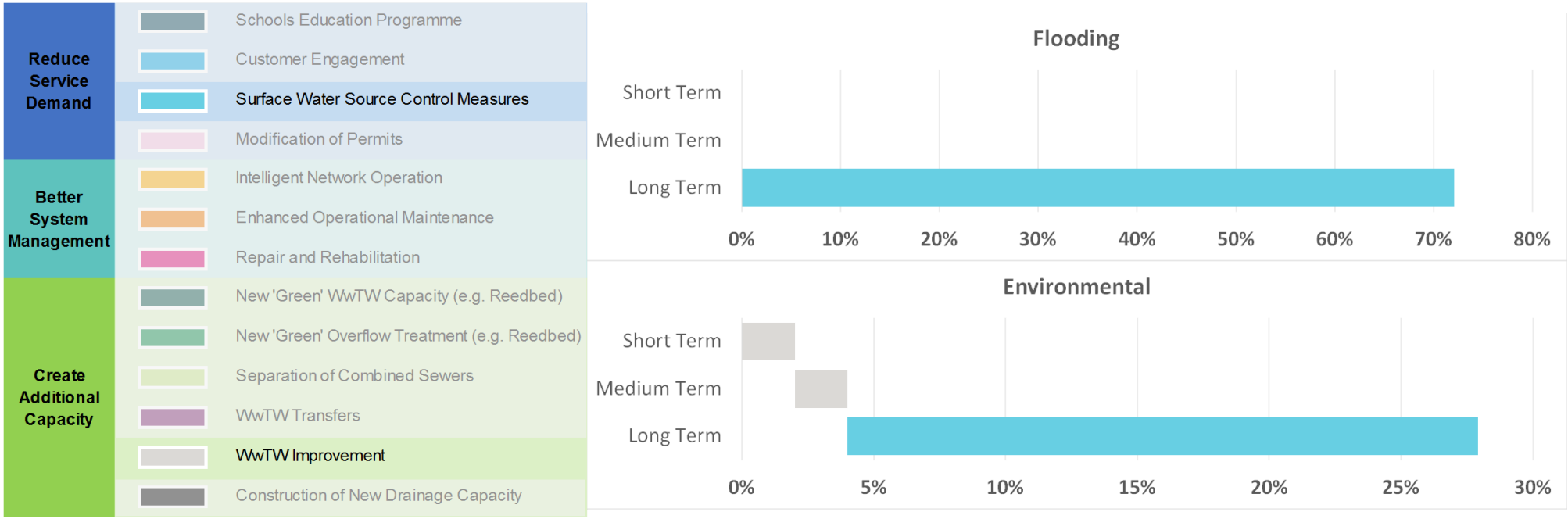
5.3.5 Chapel-en-le-Frith

The results from the DWMP show that if we were to invest in Chapel-en-le-Frith over the next 25 years, around 72% of the investment could be to address flooding risks, and around 28% of investment could be to address environmental risks.

In the short term and medium term, potential investment could be through wastewater treatment works improvements to ensure permit compliance.

In the longer term, investment could be through surface water source control measures such as SuDS.

Figure 40 Short, medium and long-term investment in the Chapel-en-le-Frith TPU, distributed by option type



5.3.6 Davyhulme

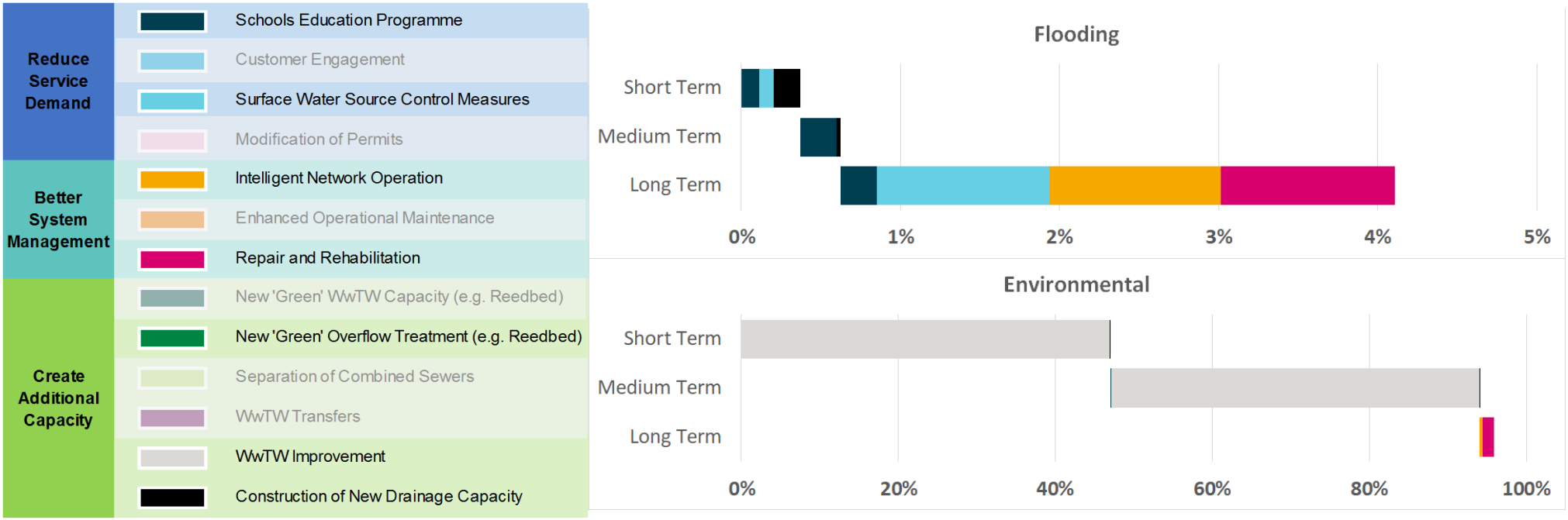
The results from the DWMP show that if we were to invest in Davyhulme over the next 25 years, around 4% of the potential investment could be to address flooding risks, and around 96% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in surface water source control measures, school education and construction of new drainage capacity to address the flooding risks.

In the medium term, investment in the wastewater treatment works improvements, construction of new drainage capacity, and school education programmes could continue.

In the longer term, school education programmes could continue. There may be investment in replacing or updating the existing intelligent network monitoring system, maintaining existing sewers through repair or rehabilitation programmes and further investment into surface water source control measures.

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



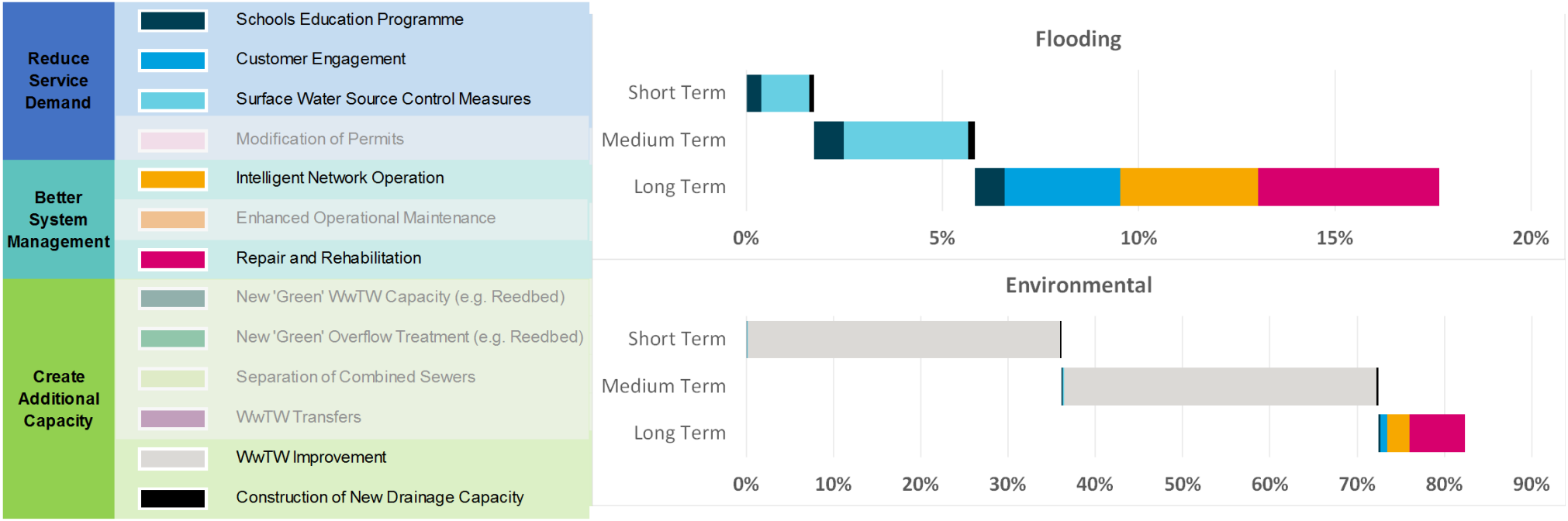
5.3.7 Dukinfield

The results from the DWMP show that if we were to invest in Dukinfield 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 and medium term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in surface water source control measures, school education and construction of new drainage capacity to address the flooding risks.

In the longer term, school education programmes could continue. There could be investment through customer engagement, replacing or updating the existing intelligent network monitoring system and maintaining existing sewers through repair or rehabilitation programmes.

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



5.3.8 Dunham Massey

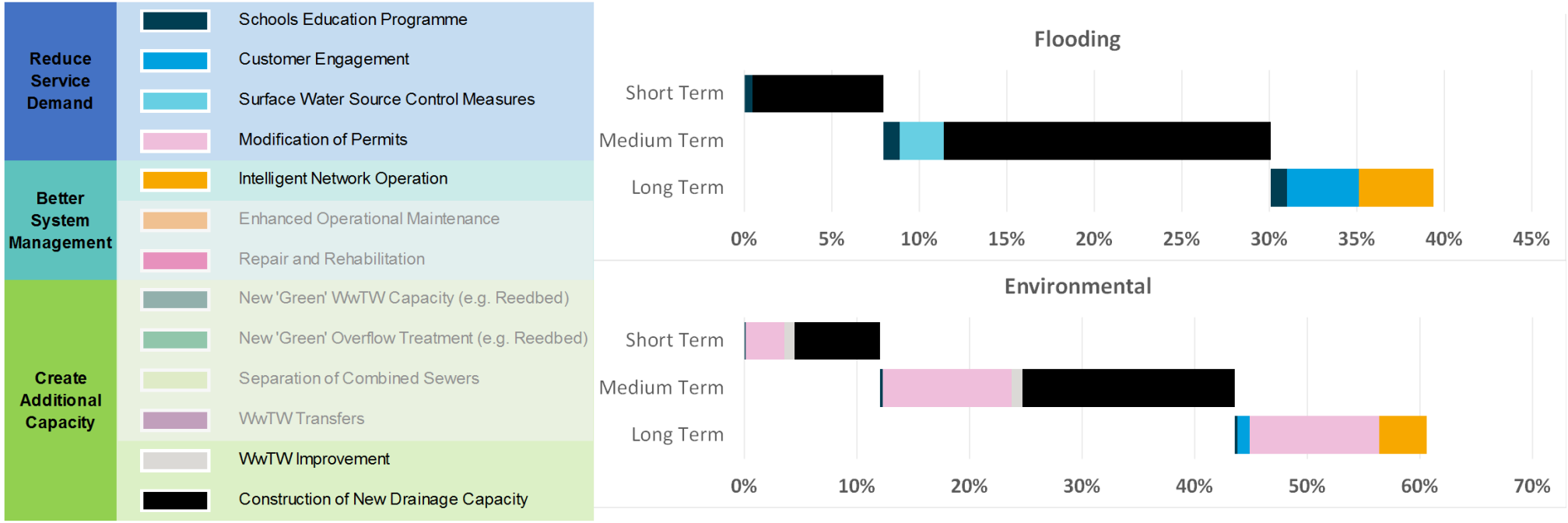
The results from the DWMP show that if we were to invest in Dunham Massey over the next 25 years, around 39% of the investment could be to address flooding risks, and around 61% of investment could be to address environmental risks.

In the short term, potential investment could be through the construction of new drainage capacity. There could be investment in school education programmes, the modification of permits, and wastewater treatment works improvements to ensure permit compliance.

In the medium term, the above investments could continue and there could be further investment into surface water source control measures.

In the longer term, investment through school education programmes, modification of permits, and surface water source control measures could continue. There could be investment through customer engagement for both environmental and flooding risks.

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



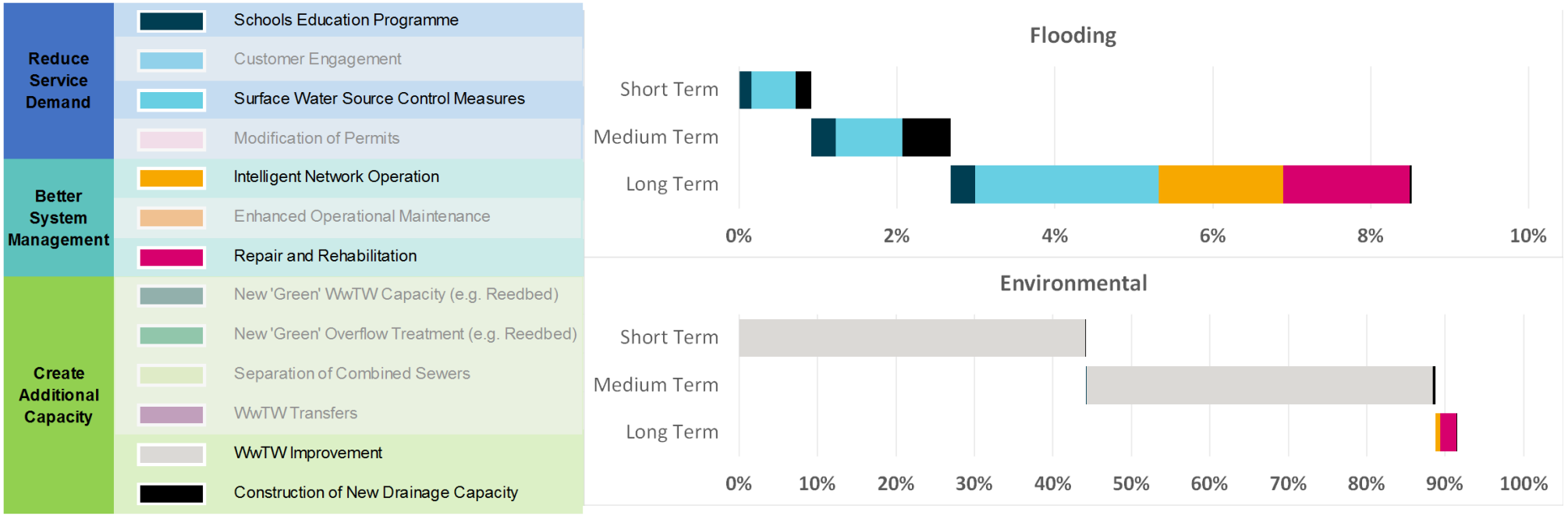
5.3.9 Eccles

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

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes, surface water source control measures, and the construction of new drainage capacity to address the flooding risks. These investments could continue in the medium term.

In the longer term, there could be investment through school education programmes, surface water source control measures, maintaining existing sewers through repair or rehabilitation programmes, and replacing or updating the existing intelligent network monitoring system.

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



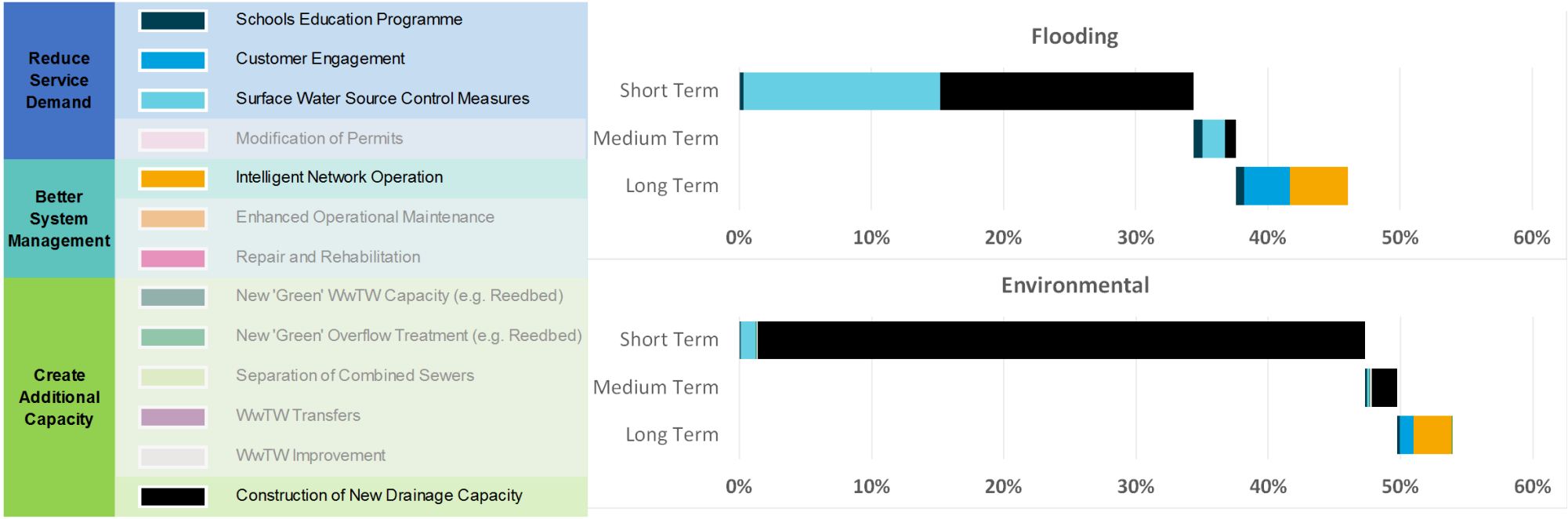
5.3.10 Glossop

The results from the DWMP show that if we were to invest in Glossop over the next 25 years, around 46% of the investment could be to address flooding risks, and around 54% of investment could be to address environmental risks.

In the short term, potential investment could be through the construction of new drainage capacity. There could be investment in school education programmes and surface water source control measures. These investments will continue in the medium term.

In the longer term, there could be investment through school education programmes, customer engagement, and the installation of intelligent network operation systems.

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



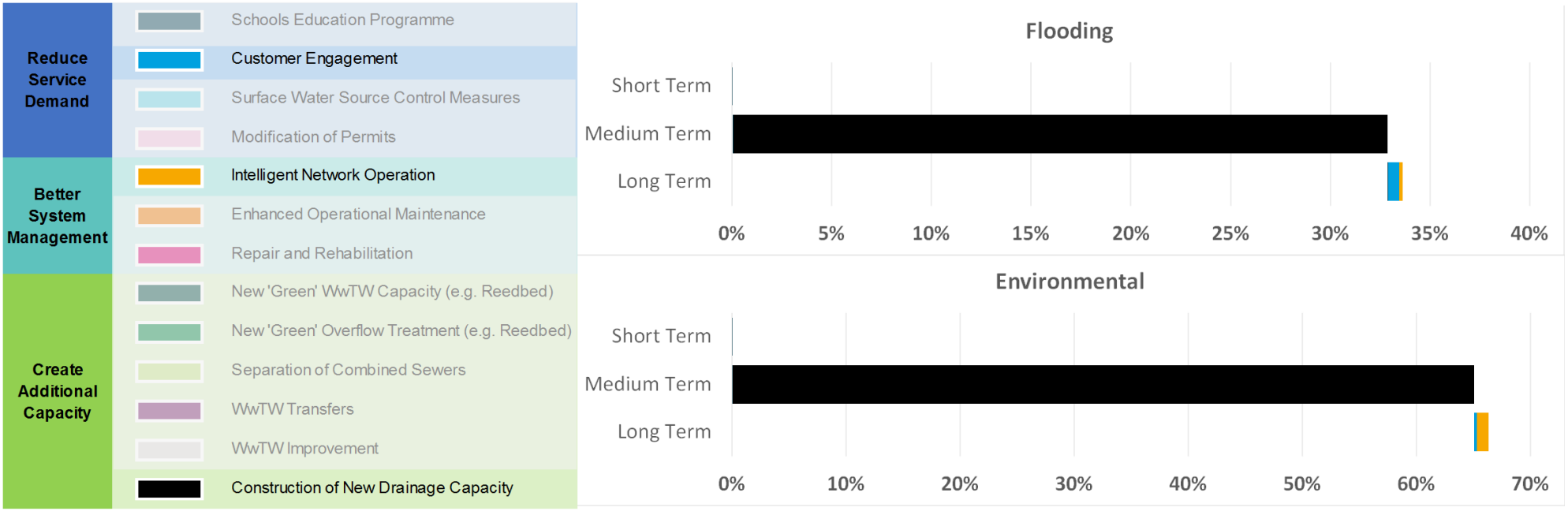
5.3.11 Great Warford

The results from the DWMP show that if we were to invest in Great Warford over the next 25 years, around 36% of the investment could be to address flooding risks, and around 66% of investment could be to address environmental risks.

In the short term and medium term, investments could be through the construction of new drainage capacity.

In the longer term, there could be investment through school education programmes, customer engagement and the addition of intelligent network monitoring systems.

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



5.3.12 Hayfield

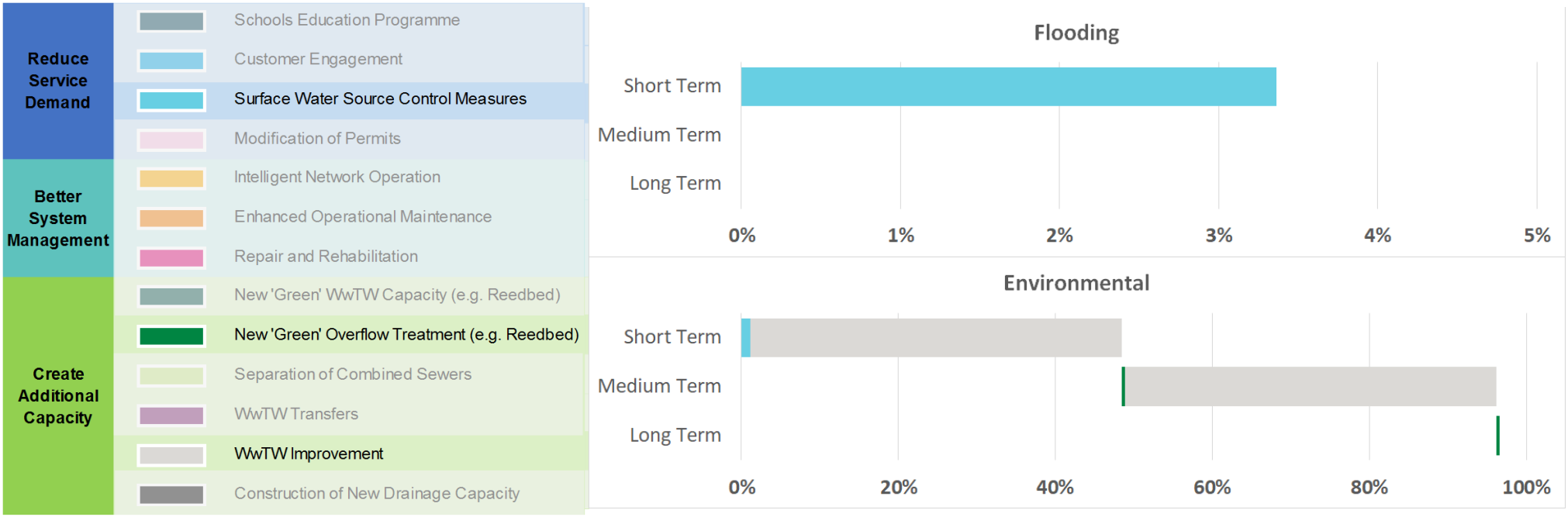
The results from the DWMP show that if we were to invest in Hayfield over the next 25 years, around 3% of the investment could be to address flooding risks, and around 97% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be further investment in new green overflow treatment solutions and surface water source control measures.

In the medium term, investment could continue through wastewater treatment works improvements and new green overflow treatment solutions

In the longer term, investment through new green overflow treatment solutions could continue to address the environmental risks.

Figure 47 Short, medium and long-term investment in the Hayfield TPU, distributed by option type



5.3.13 Hazel Grove

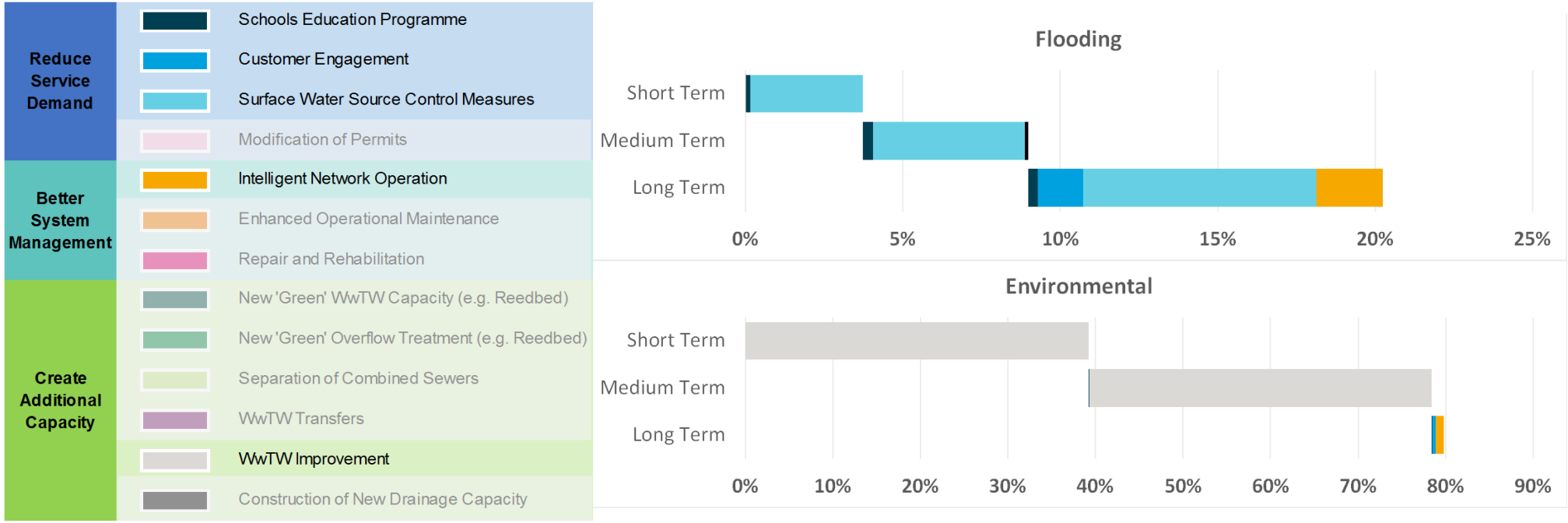
The results from the DWMP show that if we were to invest in Hazel Grove over the next 25 years, around 20% of the investment could be to address flooding risks, and around 80% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes and surface water source control measures to address the flooding risks.

In the medium term, these investments could continue with further investment towards the construction of new drainage capacity.

In the longer term, investment through school education programmes and surface water source control measures could continue. There could be investment through customer engagement, and replacing or updating the existing intelligent network monitoring system.

Figure 48 Short, medium and long-term investment in the Hazel Grove TPU, distributed by option type



5.3.14 Hyde

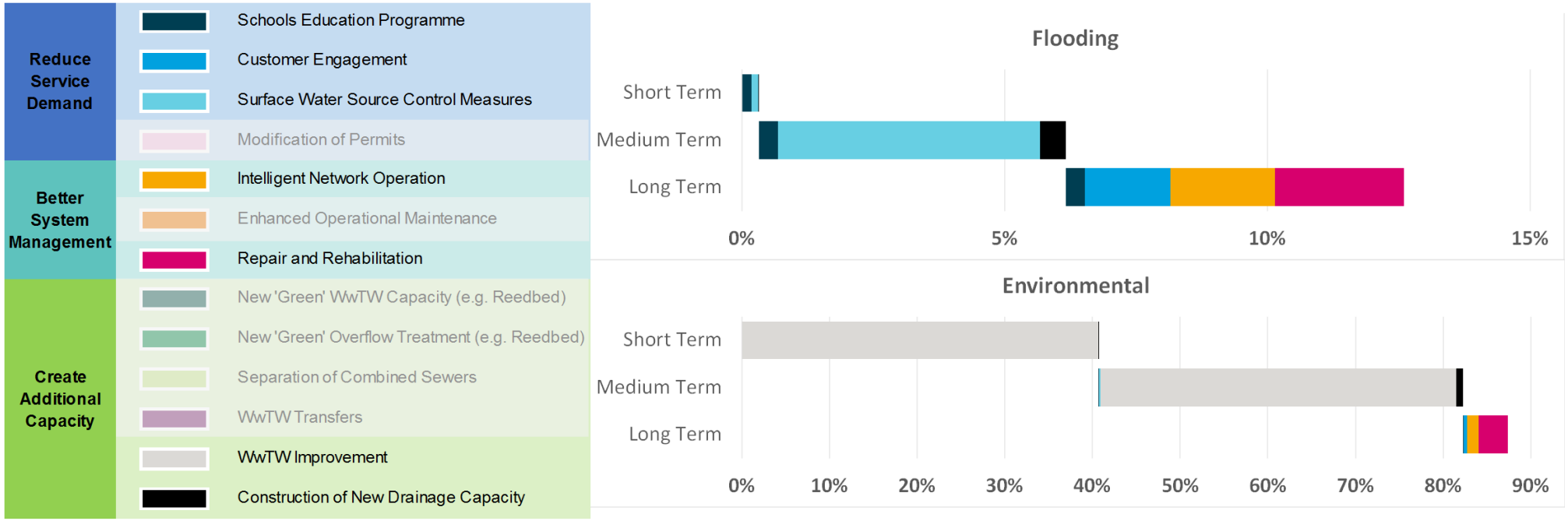
The results from the DWMP show that if we were to invest in Hyde over the next 25 years, around 13% of the investment could be to address flooding risks, and around 87% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes and surface water source control measures to address the flooding risks.

In the medium term, these investments could continue with further investment towards the construction of new drainage capacity.

In the longer term, investment through school education programmes and surface water source control measures could continue. There could be investment through replacing or updating the existing intelligent network monitoring system and repair and rehabilitation programmes.

Figure 49 Short, medium and long-term investment in the Hyde TPU, distributed by option type



5.3.15 Knutsford

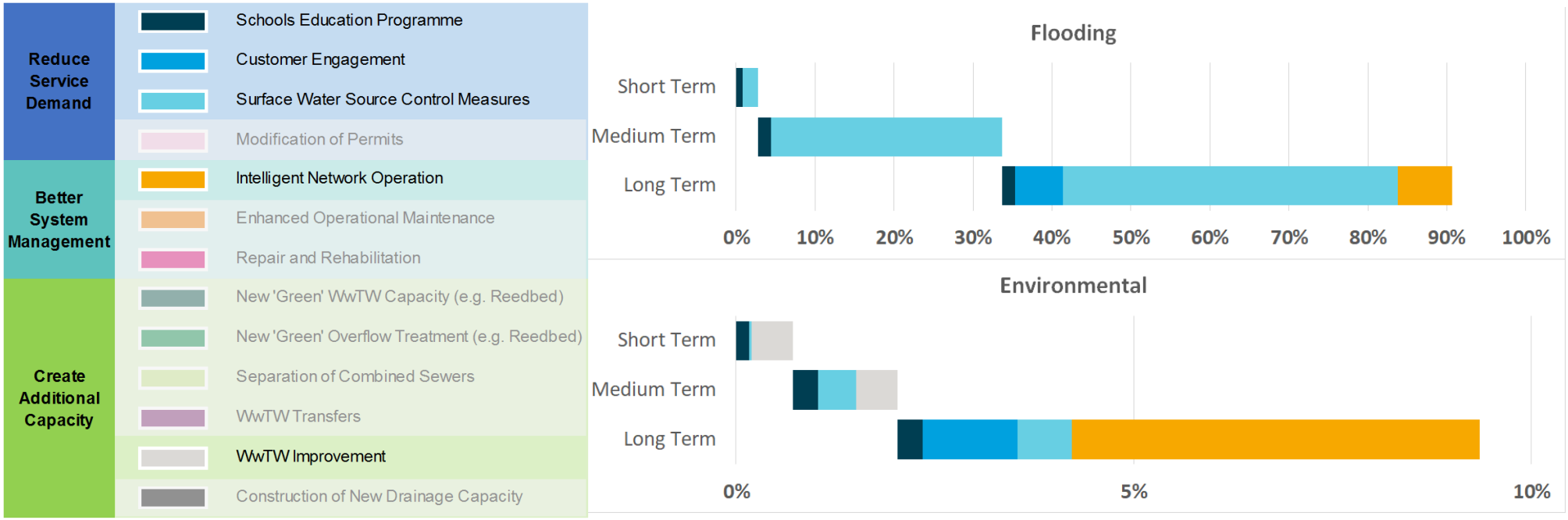
The results from the DWMP show that if we were to invest in Knutsford over the next 25 years, around 91% of the investment could be to address flooding risks, and around 9% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes and surface water source control measures.

In the medium term, these investments could continue with further investment towards the surface water source control measures.

In the longer term, investment through school education and customer engagement programmes and surface water source control measures could continue. There could be investment through replacing or updating the existing intelligent network monitoring system.

Figure 50 Short, medium and long-term investment in the Knutsford TPU, distributed by option type



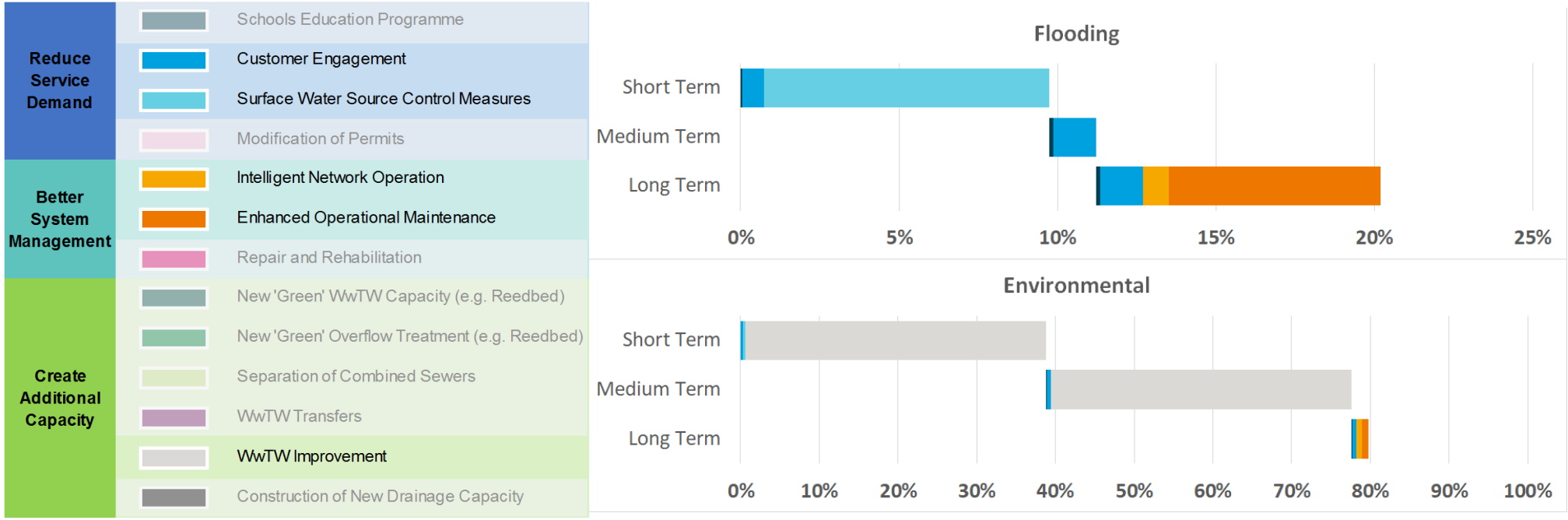
5.3.16 Low Marple

The results from the DWMP show that if we were to invest in Low Marple over the next 25 years, around 20% of the investment could be to address flooding risks, and around 80% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes with customer engagement and surface water source control measures to address the flooding risks.

In the medium term, these investments could continue with further investment towards wastewater treatment works improvements. In the longer term, investment through school education and customer engagement programmes could continue. There could be investment through a new intelligent network monitoring system and enhanced operational maintenance of the current systems.

Figure 51 Short, medium and long-term investment in the Low Marple TPU, distributed by option type



5.3.17 Mobberley

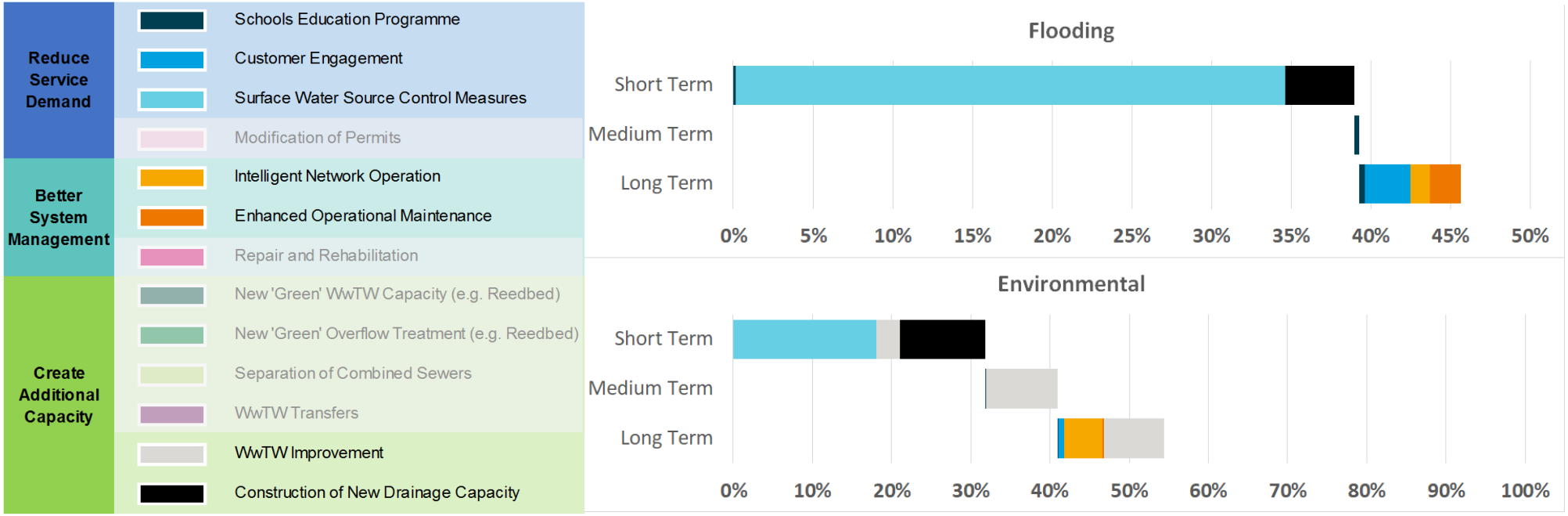
The results from the DWMP show that if we were to invest in Mobberley over the next 25 years, around 46% of the investment could be to address flooding risks, and around 54% of investment could be to address environmental risks.

In the short term, potential investment could be through new surface water control measures such as SuDS. There could be investment in the construction of new drainage capacity.

In the medium term, the investment could be through wastewater treatment works improvements to ensure permit compliance.

In the longer term, there could be investment through the addition of a new intelligent network monitoring system and enhanced operational maintenance of the current systems. Customer engagement programmes could also be introduced.

Figure 52 Short, medium and long-term investment in the Mobberley TPU, distributed by option type



5.3.18 Mossley

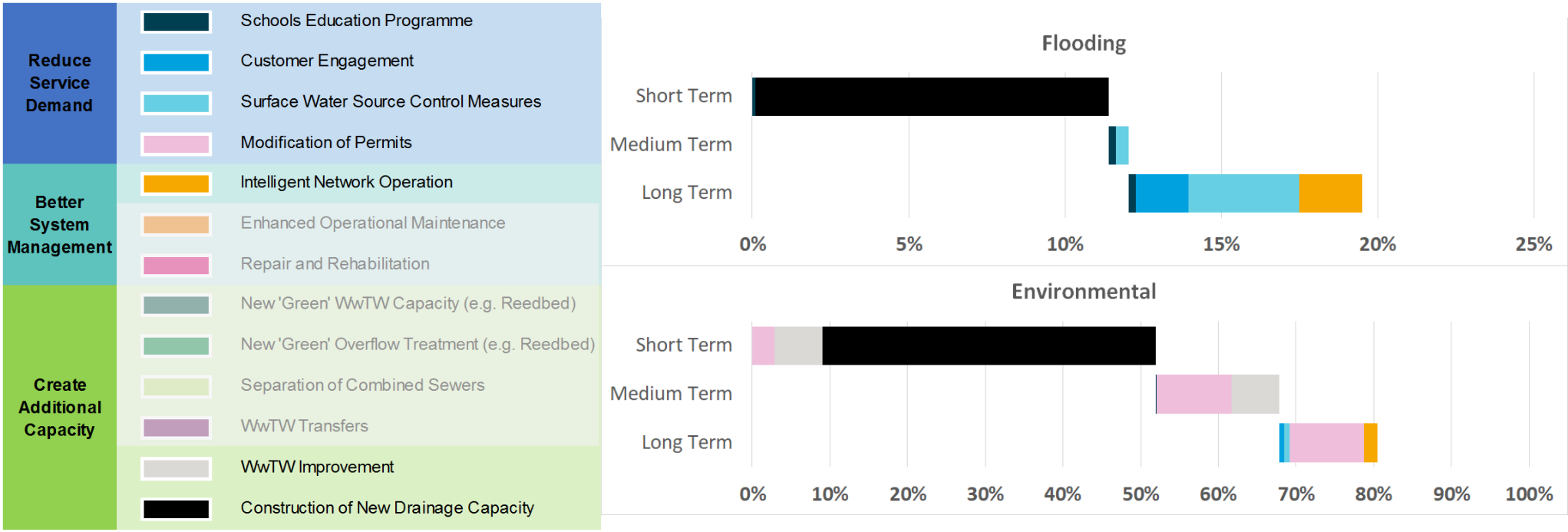
The results from the DWMP show that if we were to invest in Mossley over the next 25 years, around 19% of the investment could be to address flooding risks, and around 81% of investment could be to address environmental risks.

In the short term, potential investment could be through the construction of new drainage capacity.

In the medium term, these investments could continue with further investment towards wastewater treatment works improvements to ensure permit compliance and modification of permits.

In the longer term, investment through school education and customer engagement programmes and surface water source control measures could be introduced. There could also be investment through the addition of a new intelligent network monitoring system.

Figure 53 Short, medium and long-term investment in the Mossley TPU, distributed by option type



5.3.19 Northbank

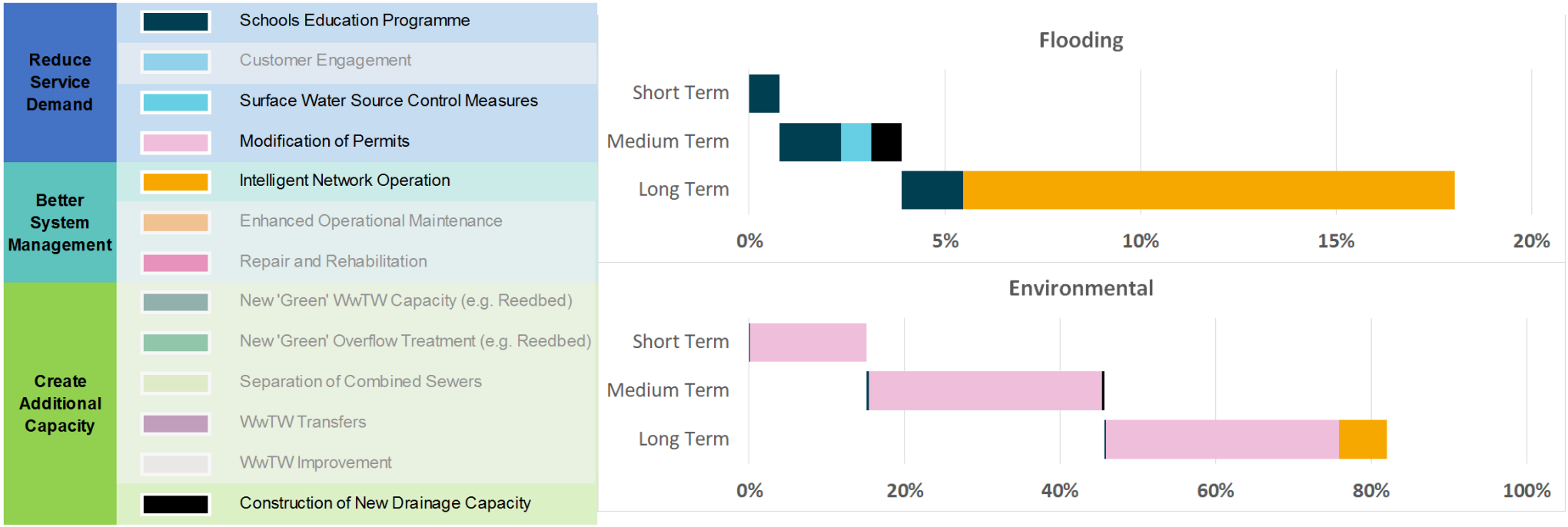
The results from the DWMP show that if we were to invest in Northbank over the next 25 years, around 18% of the investment could be to address flooding risks, and around 82% of investment could be to address environmental risks.

In the short term, potential investment could be through modification of existing permits. There could also be school education programmes.

In the medium term, these investments could continue with further investment towards the construction of new drainage capacity and surface water source control measures.

In the longer term, as well as the continuation of previous investment options, there could be investment through the addition of a new intelligent network monitoring system.

Figure 54 Short, medium and long-term investment in the Northbank TPU, distributed by option type



5.3.20 Partington

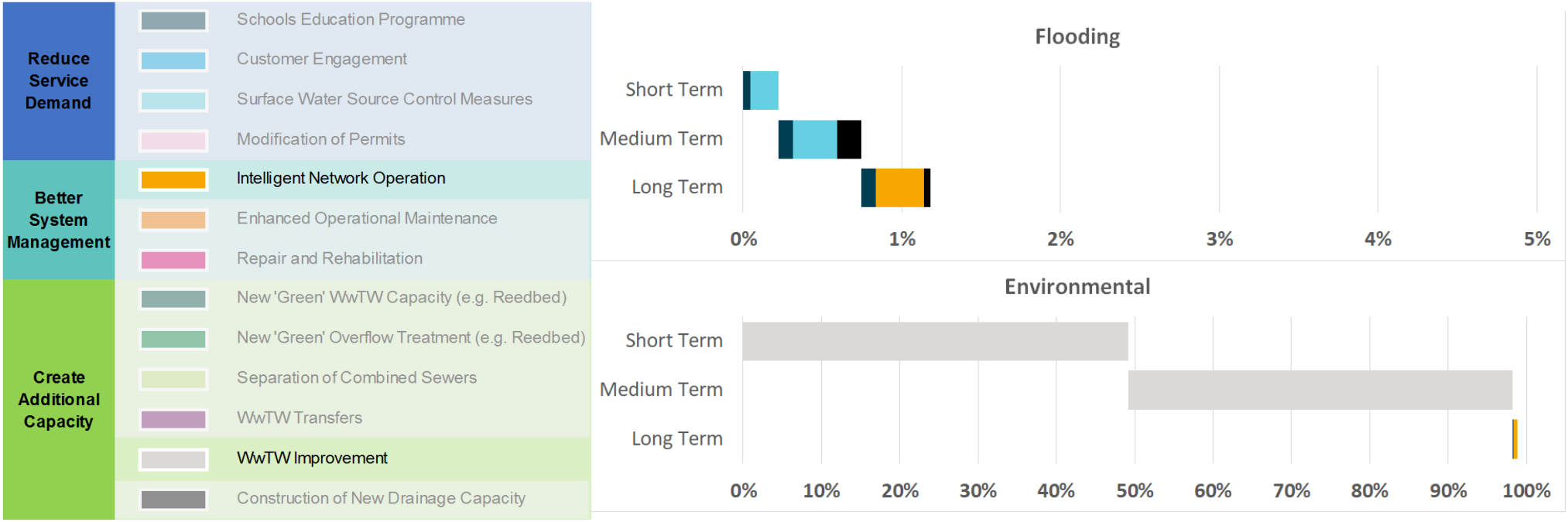
The results from the DWMP show that if we were to invest in Partington over the next 25 years, around 1% of the investment could be to address flooding risks, and around 99% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could also be investment in school education programmes and surface water source control measures to address the flooding risks.

In the medium term, these investments could continue with further investment towards wastewater treatment works improvements.

In the longer term, there could be investment through the addition of a new intelligent network monitoring system.

Figure 55 Short, medium and long-term investment in the Partington TPU, distributed by option type



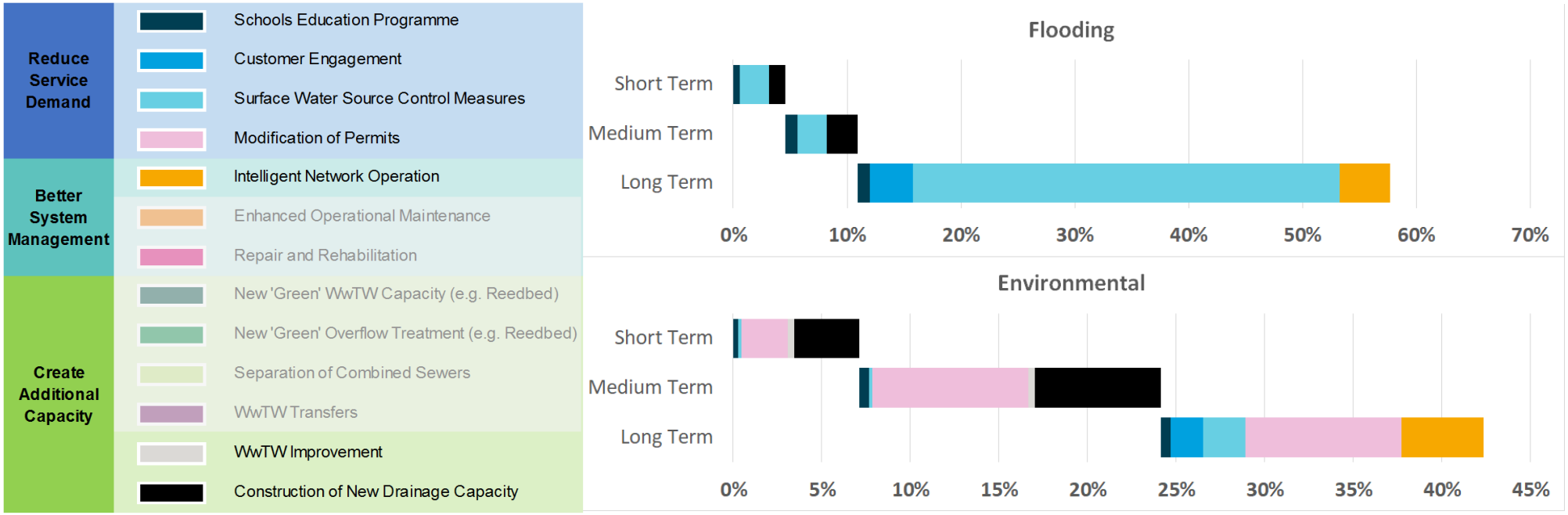
5.3.21 Saddleworth

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

In the short and medium term, potential investment could be through the construction of new drainage capacity, modification of permits, surface water source control measures (e.g. SuDS), and school education programmes.

In the longer term, there could be more investment for the surface water source control measures such as SuDS. There could also be investment through the addition of a new intelligent network monitoring system and customer engagement programmes.

Figure 56 Short, medium and long-term investment in the Saddleworth TPU, distributed by option type



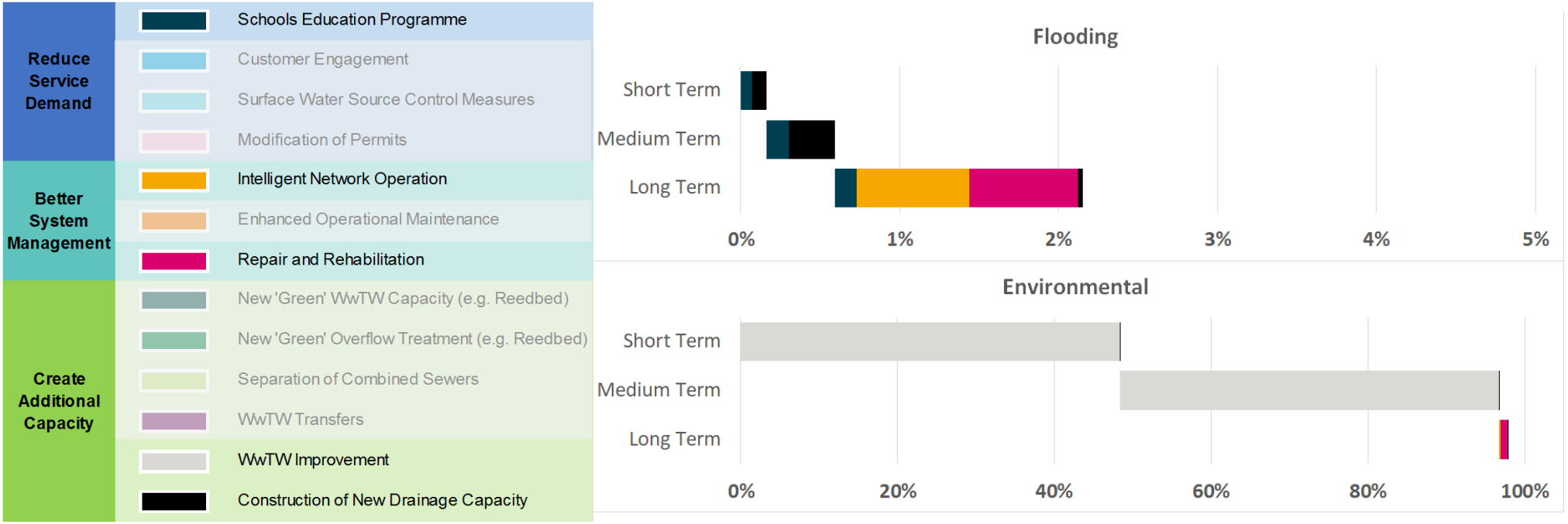
5.3.22 Sale

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

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

In the longer term, investment through school education programmes could continue. There could also be investment in new intelligent network monitoring systems, and repair and rehabilitation programmes.

Figure 57 Short, medium and long-term investment in the Sale TPU, distributed by option type



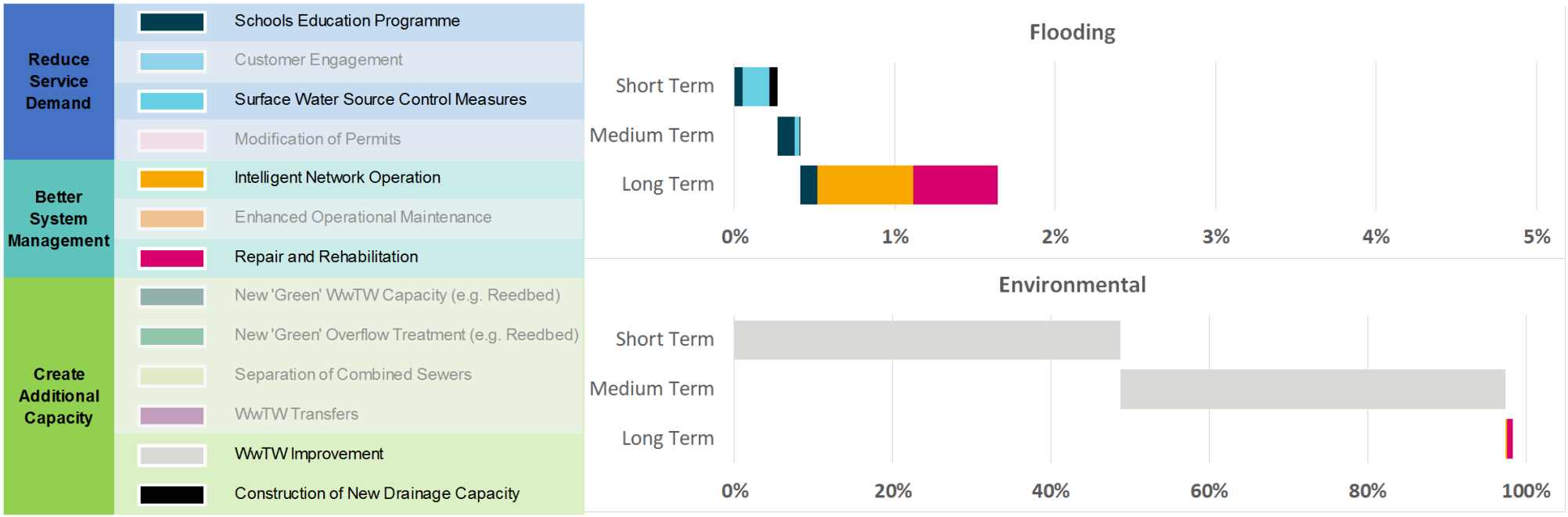
5.3.23 Salford

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

In the short and medium term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could also be investment to address flooding risks through school education programmes and surface water source control measures (e.g. SuDS).

In the longer term, there could be investment through replacing or updating the existing intelligent network monitoring system, and repair and rehabilitation programmes.

Figure 58 Short, medium and long-term investment in the Salford TPU, distributed by option type



5.3.24 Stockport

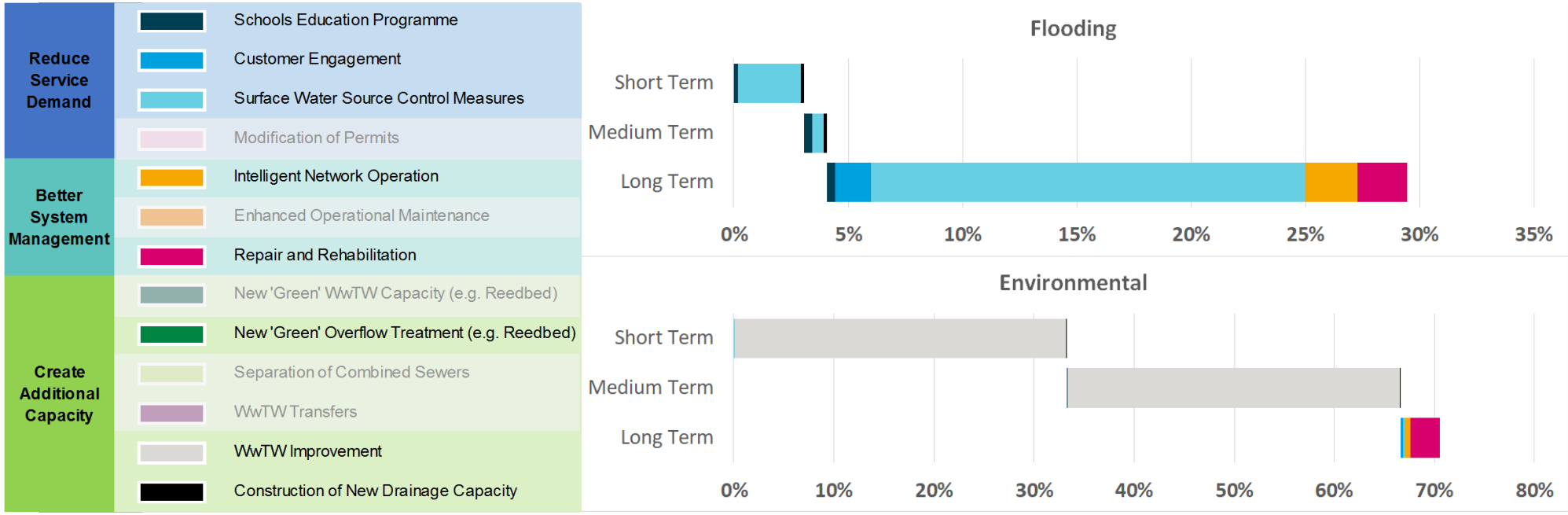
The results from the DWMP show that if we were to invest in Stockport over the next 25 years, around 29% of the investment could be to address flooding risks, and around 71% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in surface water source control measures to address the flooding risks.

In the medium term, these investments could continue with further investment towards wastewater treatment works improvements.

In the longer term, main investment could be in surface water source control measures such as SuDS. There could also be investment in repair and rehabilitation programmes and in replacing or updating the existing intelligent network monitoring system.

Figure 59 Short, medium and long-term investment in the Stockport TPU, distributed by option type



5.3.25 Stretford

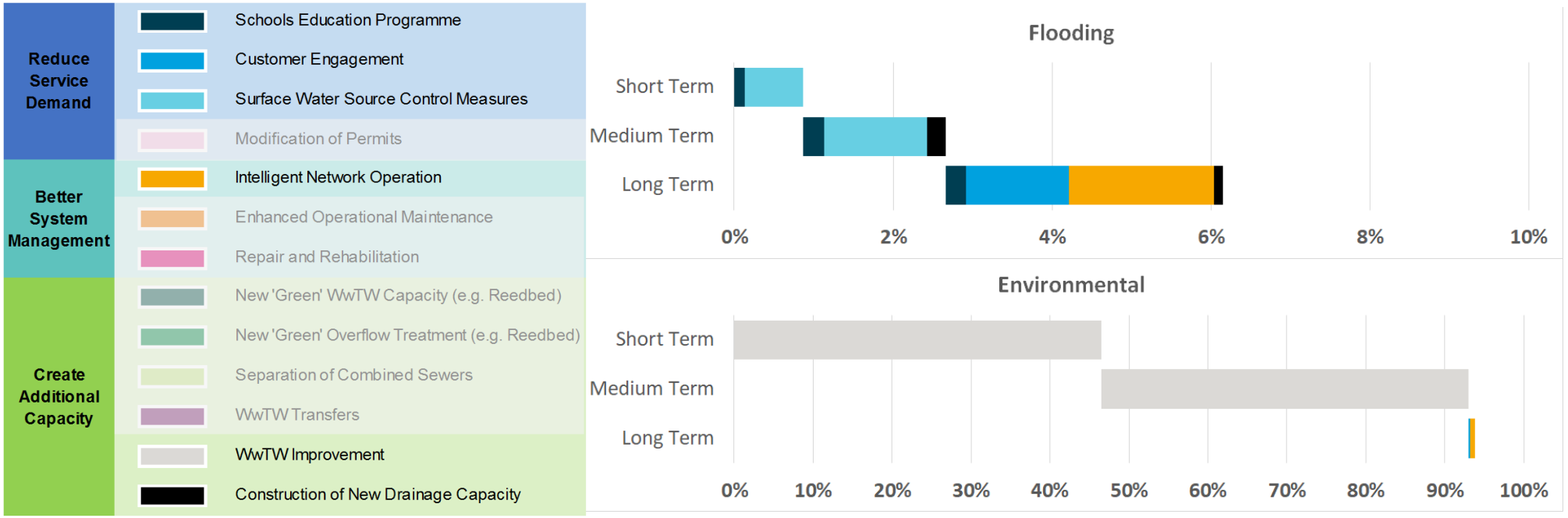
The results from the DWMP show that if we were to invest in Stretford over the next 25 years, around 6% of the investment could be to address flooding risks, and around 94% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance. There could be investment in school education programmes and surface water source control measures to address the flooding risks.

In the medium term, these investments could continue with additional investment towards the construction of new storm water drainage capacity.

In the longer term, customer engagement programmes could be introduced. There could also be investment in a new intelligent network monitoring system.

Figure 60 Short, medium and long-term investment in the Stretford TPU, distributed by option type



5.3.26 Urmston

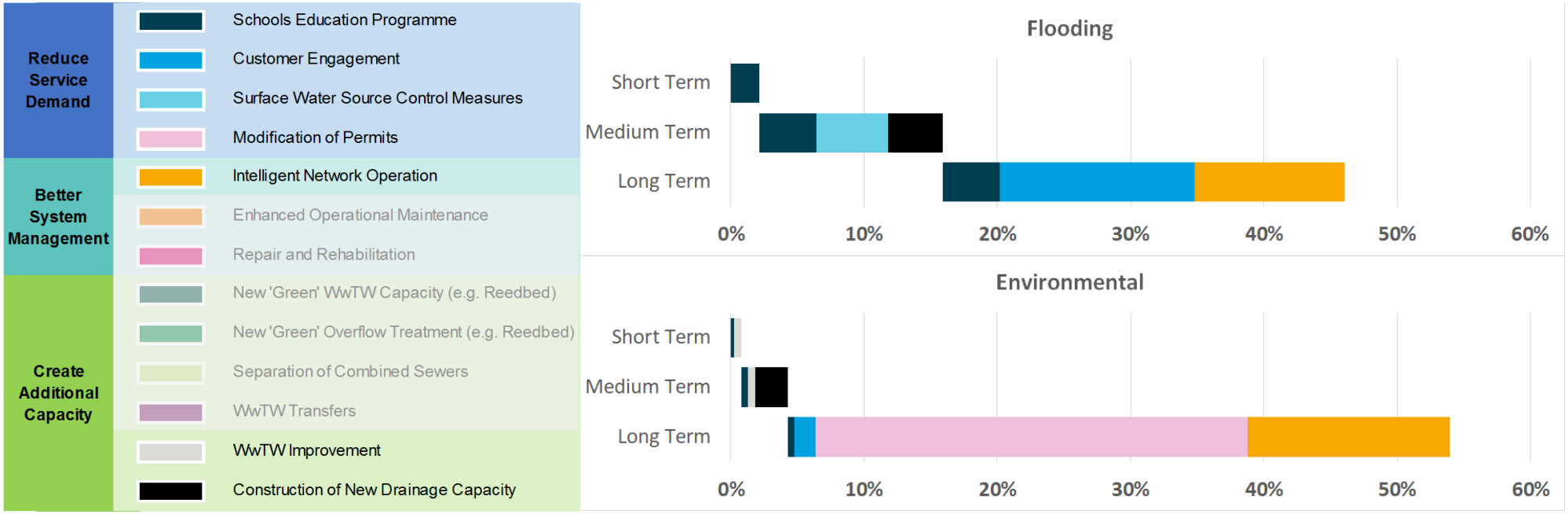
The results from the DWMP show that if we were to invest in Urmston over the next 25 years, around 46% of the investment could be to address flooding risks, and around 54% of investment could be to address environmental risks.

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

In the medium term, these investments could continue with new investment towards the construction of new drainage capacity.

In the longer term, investment through school education programmes could continue and customer engagement programmes could be introduced. The majority of the investment could be through a new intelligent network monitoring system and modifications to the current permits.

Figure 61 Short, medium and long-term investment in the Urmston TPU, distributed by option type



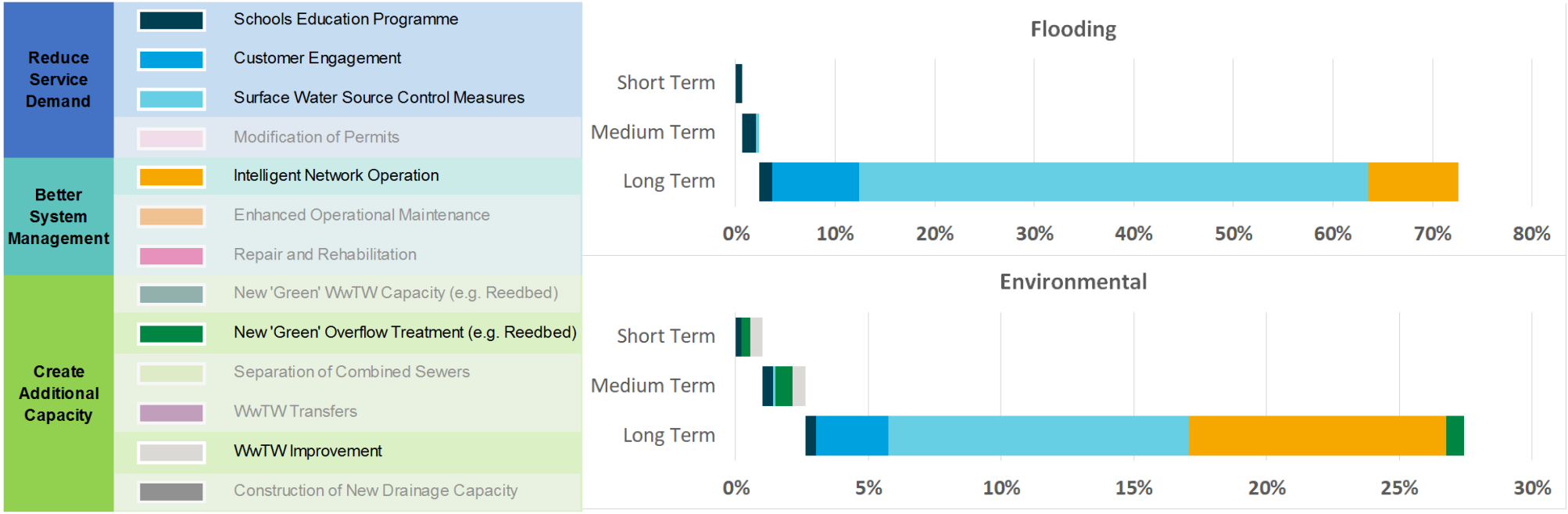
5.3.27 Whaley Bridge

The results from the DWMP show that if we were to invest in Whaley Bridge 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 terms, potential investment could be through wastewater treatment works improvements to ensure permit compliance and new green overflow treatment. There could also be investment in school education programmes.

In the longer term, investment through customer engagement programmes and surface water source control measures could be introduced. There could also be investment through the addition of a new intelligent network monitoring system.

Figure 62 Short, medium and long-term investment in the Whaley Bridge TPU, distributed by option type



5.3.28 Wilmslow

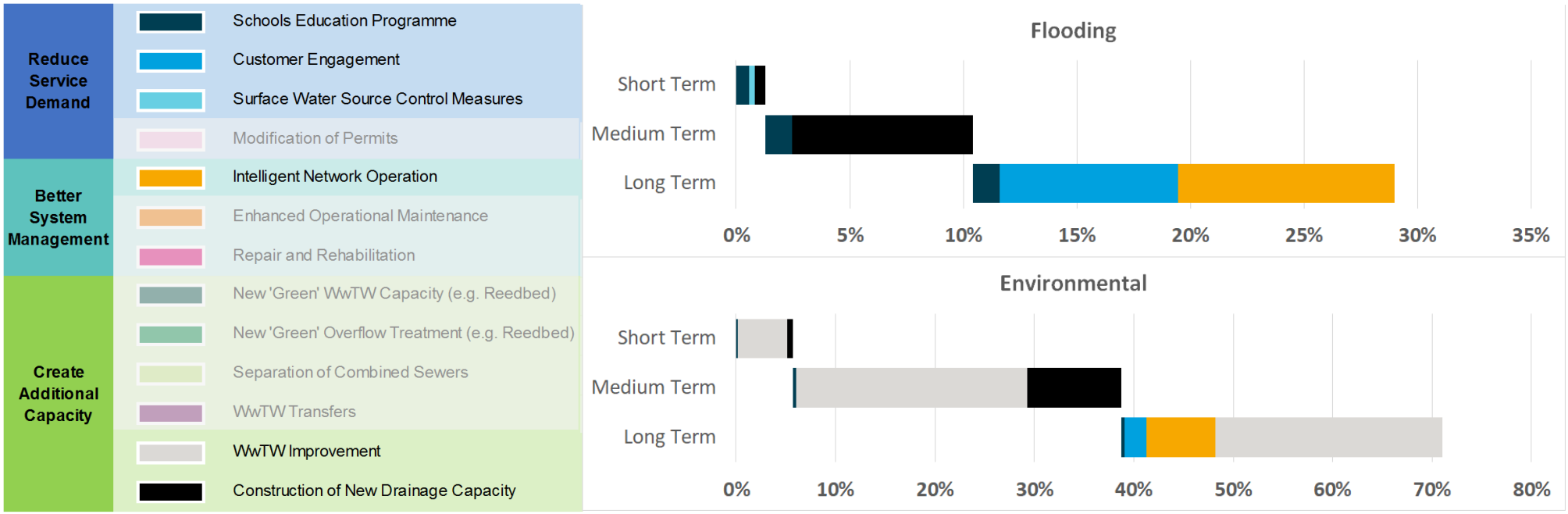
The results from the DWMP show that if we were to invest in Wilmslow over the next 25 years, around 29% of the investment could be to address flooding risks, and around 71% of investment could be to address environmental risks.

In the short term, potential investment could be through wastewater treatment works improvements to ensure permit compliance.

In the medium term, there could be further investment in wastewater treatment works improvements. There could also be investment in construction of new drainage capacity in the catchment.

In the longer term, investment through school education and customer engagement programmes could be introduced. There could also be investment in a new intelligent network monitoring system.

Figure 63 Short, medium and long-term investment in the Wilmslow TPU, distributed by option type



5.3.29 TPUs with population less than 2,000: *Bollin, Dean, Upper Mersey* sub catchment

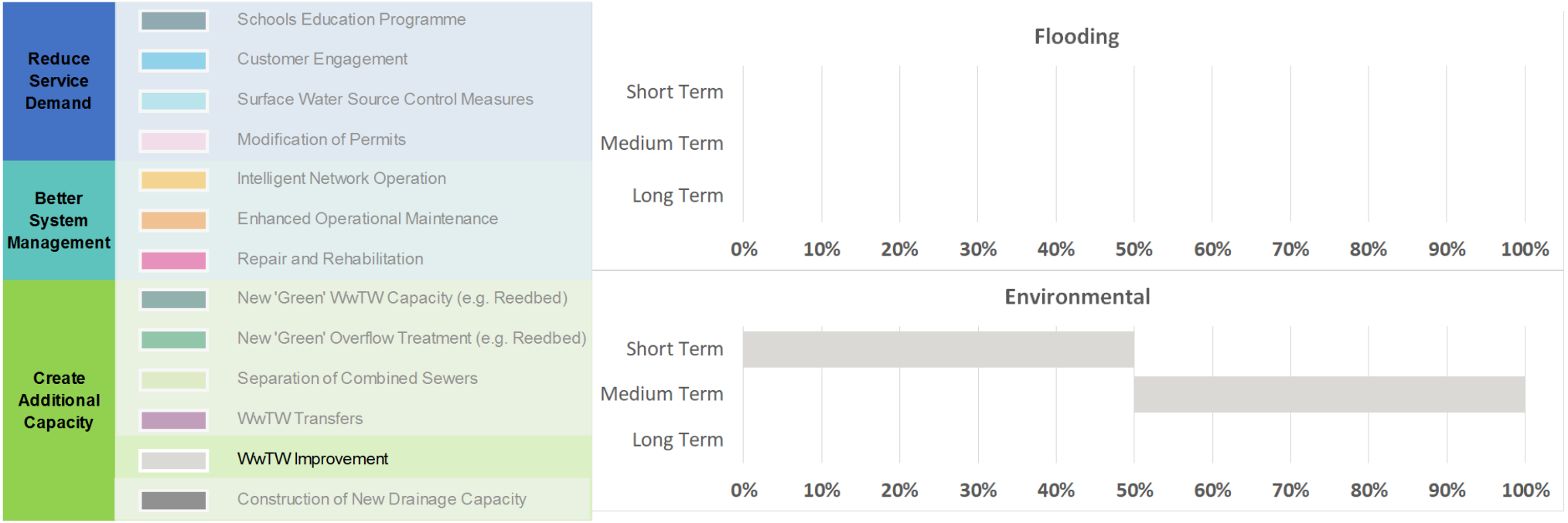
The following TPUs have a population of less than 2,000, and have therefore been grouped together:

- Ashley
- Warburton Lane

All of the potential investment in these small TPUs could be to address environmental risks.

All short, medium and long-term investment in these small TPUs could be wastewater treatment works improvements to ensure permit compliance.

Figure 64 Short, medium and long-term investment in TPUs with population less than 2,000 (Bollin, Dean, Upper Mersey) distributed by option type



5.3.30 TPUs with population less than 2,000: *Goyt, Etherow, Tame OC sub catchment*

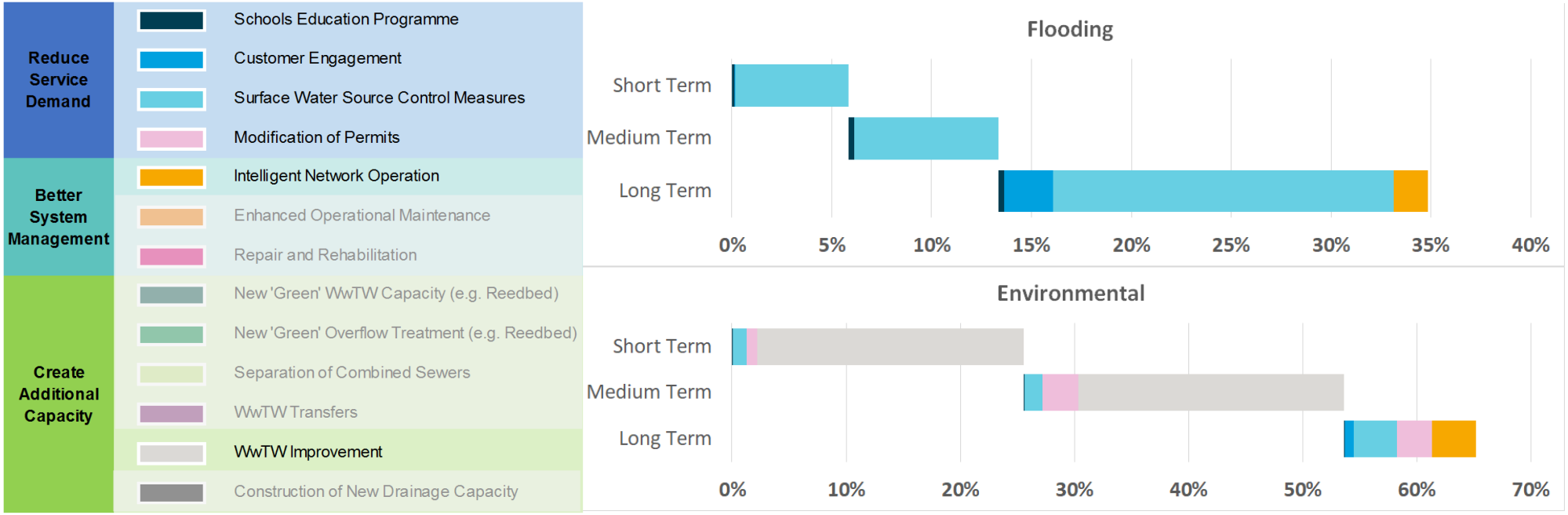
The following TPUs each have a population of less than 2,000, and have therefore been grouped together:

- Arden Road
- Castleshaw
- Combes
- Crowden
- Heron Lane
- Holly Grove
- Kettleshulme
- Lymefield Terrace
- Millbrook Cottages
- Rowarth
- Strines
- Tintwistle
- Turf Lea

All short-, medium- and long-term potential investment to address flooding in these small TPUs could be mainly through the creation of new surface water source control measures, combined with school education programmes. Environmental risk could be addressed through wastewater treatment works improvements to ensure permit compliance, including the modification of permits.

In the longer term, we could additionally invest in intelligent network monitoring systems and the introduction of customer engagement programmes.

Figure 65 Short, medium and long-term investment in TPUs with population less than 2,000 (Goyt, Etherow, Tame OC sub catchment) distributed by option type



5.3.31 TPUs with population less than 2,000: *Weaver Lower OC sub catchment*

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

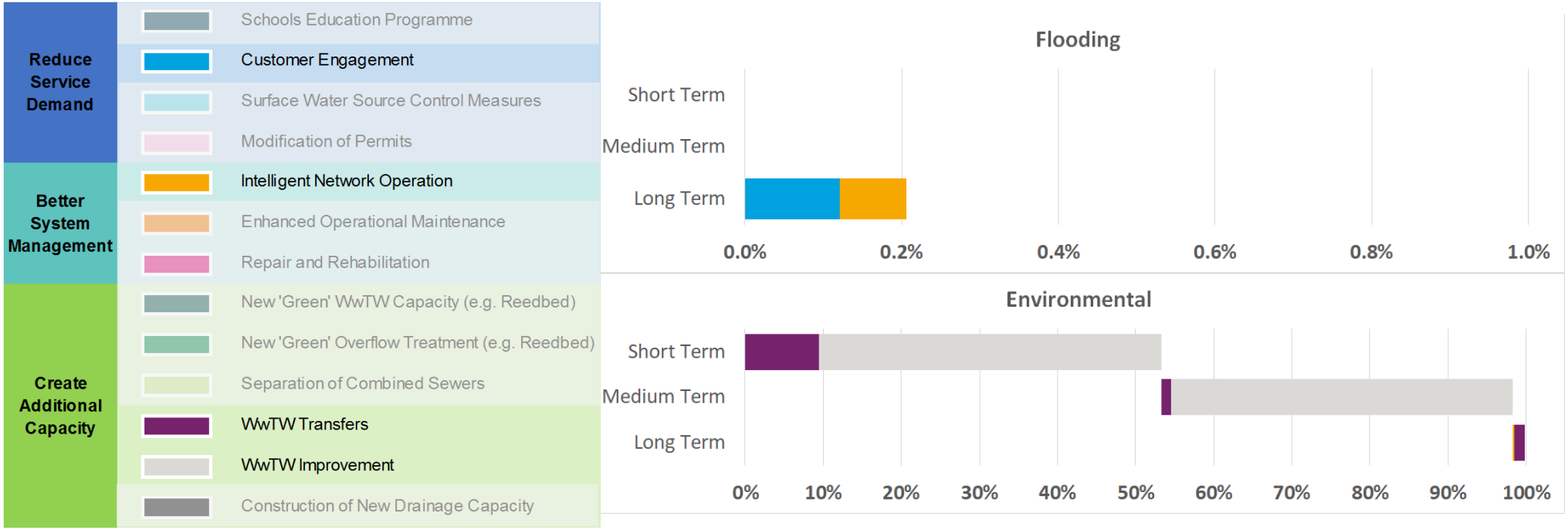
- High Legh
- Mowpen Brow

Over 99% of potential investment in these TPUs could be to address environmental risks.

To address environmental risks, all short-, medium- and long-term investment in these small TPUs could be in the transfer of flows to alternative wastewater treatment works, or wastewater treatment works improvements to ensure permit compliance.

To address the flooding risks, investment could be in the long term and will comprise customer engagement programmes and intelligent network monitoring systems.

Figure 66 Short, medium and long-term investment in TPUs with population less than 2,000 (Weaver Lower OC sub catchment) 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 Upper Mersey SPA.

We are currently at draft publication (Figure 67) 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 67 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://environment.data.gov.uk/catchment-planning/ManagementCatchment/3106

[2] https://environment.data.gov.uk/catchment-planning/OperationalCatchment/3039

[3] https://environment.data.gov.uk/catchment-planning/v/c3-draft-plan/CatchmentPartnership/WEIF8502

[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/507122/LIT_10210_NORTH_WEST_FRMP_PART_B.pdf

[5] https://www.gov.uk/government/publications/surface-water-management-plan-technical-guidance

[6] https://www.merseyriverstrust.org/index.php/projects/caba

[7] https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061340

[8] https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061320

[9] https://environment.data.gov.uk/catchment-planning/WaterBody/GB112069061360

[10] https://www.trafford.gov.uk/planning/strategic-planning/docs/PfE-2021-Timperley-Wedge-Fact-Sheet.pdf

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